



COVID-19 Science and Medicine Updates

Compiled by University of Maine faculty and students

Maine Updates – April 30, 2020

From Maine CDC:

<https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/airborne/coronavirus.shtml>

Data updated at April 30 at 11:45AM:

Confirmed Cases: 1095

Recovered: 631

Hospitalized: 170

Deaths: 53

Negative test results, updated April 29, 2020 (now published weekly): 19,546

Maine/Penobscot County Data - Online Dashboard Links

Desktop version:

<https://arcg.is/1Knarr>

Mobile version:

<https://arcg.is/5qGGr>

News from Maine:

Governor Mills Extends Maine's Stay at Home Order:

<https://www.maine.gov/governor/mills/news/governor-mills-extends-maines-stay-home-order-2020-04-30>

Link above contains:

- Stay safer at home executive order – full language
- The order requires Maine people to wear cloth face coverings in public places where physical distancing is difficult to maintain, as recommended by the U.S. CDC
- Stage 1 re-opening plan (PDF)
- Maine Manufacturing Extension Partnership – list of Maine companies producing face coverings: <https://pages.mainemep.org/>

Other COVID-19 News:

Risk Factors - blood type

Updates 4/23/20:

<https://www.medrxiv.org/content/10.1101/2020.04.08.20058073v1.full.pdf>

- To investigate the previous findings that Type A blood group individuals may be predisposed to COVID-19 infection, a meta-analysis was conducted comparing both ABO and ABO-Rh blood types and COVID-19 outcomes using health record data from New York Presbyterian/Columbia University Irving Medical Center (Zietz & Tatonetti, 2020 - Med Rxiv preprint)
- Study included 1,559 individuals who were tested for COVID-19, with 682 testing positive for COVID-19 and 877 testing negative for COVID-19. The study looked at infection status, intubation, and death.
- Found a higher proportion of blood group A and lower proportion of blood group O tested positive for COVID-19 compared to individuals that tested negative, however in both cases the result is significant only in the Rh positive blood types
- Findings did not suggest associations between blood group and COVID-19 severity (intubation or death)
- These data support previous findings during a meta-analysis in China (Zhao *et al.*, 2020 - MedRxiv preprint), where the prevalence of individuals with type A blood compared to non-A blood groups was higher in the COVID-19-positive population compared to the general population
 - <https://www.medrxiv.org/content/10.1101/2020.03.11.20031096v1.full.pdf+html>
- Also similar to previous findings that have identified associations between ABO blood groups and multiple different infections, such as SARS-CoV-1, *P. falciparum* (malaria), *H. pylori* (bacterial stomach infection), Norwalk virus, hepatitis B virus, and *N. gonorrhoeae* (gonorrhea infection) (JAMA, 2005; Loscertales *et al.*, 2007; Boren *et al.*, 1993; Lindesmith *et al.*, 2003; Wang *et al.*, 2012; Foster & Labrum, 1976).

Coping tips for children and families - mental health

Although COVID-19 itself does not have direct implication on mental health, there are indirect effects that are and will be experienced throughout society related to mental health.

Understanding this and what you can do to mitigate these effects is important!

- Families should implement “staying **C.A.L.M.**” (Dr. Scott Poland, Novasoutheastern University FL):
 - **C** - Practice **calmness** and **control** the things you can - your reactions to the pandemic and following medical advice. It’s also important to keep your family schedules **consistent** to provide as much sense of normal as you can.
 - **A** - As parents, be **available** to your children, even while you are trying to work from home. Be **alert** to their emotions and worries. Also recognize that with the challenges of working from home with children around, every parent is going to lose their temper at some point, and that’s okay, but make sure to **apologize** when this happens.
 - **L** - **Limit** the news coverage over the virus and make sure the news that you do allow your family to view is developmentally appropriate and that it comes from trusted sources. Try to emphasize focusing on positive stories (one good source is “Some Good News” on youtube by John Krasinski). Also **lower** the bar for your expectations of yourself right now, as a worker and as a parent. Stressful times make productivity difficult, and that’s okay.

- **M** - Provide good **modeling of coping** and **management** of your household. A child's coping is often a learned behavior, so practice taking care of yourself as a parent to create a good model for your child. Make a schedule and stick to it.
 - "What we do speaks so loudly to our children that when we speak to them they cannot hear us" -Emerson

What can you do as a parent to help your family cope:

- Help your children use technology to keep them connected with teachers and peers. If you have multiple children, have the older ones help the younger ones! Then reward them for being helpful.
- Follow medical recommendations from trusted sources and emphasize to your children that this is something you can **control** during this time. Be clear with your children about what they should be doing because children respond best when they know specific actions they can take

Managing adult stress:

- It's important to be a good model for your children during difficult times - this will greatly affect how they respond as well! Remember we can choose how we respond.
- Take care of your body - exercise, sleep, eat well, avoid substance use. Build a strong and positive support system. Seek help when you need it
- Stay in the moment and do not worry about things that have not yet happened. If needed, schedule a time to worry and limit your worrying time to only then (example: from 7:00-7:20pm, let your mind go through your worries, but outside of that time don't allow yourself to dwell on your worries. Find other things to occupy your time/mind)

Psychological effects on children & what to do:

- Children typically react to traumatic events by regressing behaviorally and/or academically, having sleeping problems, and changes in mood
- In preschoolers, watch for toileting problems, sleeping problems, changes in appetite, increased temper tantrums, and changes in attachment or mood
 - How to help with coping: avoid all news coverage, provide lots of verbal and physical reassurance, allow changes in sleeping arrangements, make sure routine includes calm activities before bedtime
- In elementary school aged children, watch for increased sibling rivalry and changes in need for parent attention, sleeping problems, concentration problems, and changes in appetite
- In middle school to high school aged children, watch for increased sibling rivalry, agitation or apathy (ie: referring to this as a "coronavirus vacation"), increased substance abuse, and withdrawal from peers
 - How to help with coping (elementary through high school): Invite their input through a family meeting designed to develop a schedule Monday through Friday; make sure each child has a job/responsibility to do that will help out the family; limit media exposure; make sure there are leisure activities and exercise
 - Especially important to recognize graduating students that are missing out on important events, such as prom, graduation, sports, etc. It rarely helps to say "I understand," but instead, listen to them and don't try to downplay these losses. If possible, find something your family can do that may not replace these events but lessen the blow some (keep kids in contact with teams and coaches, play pass outside with your kid, throw an at home "prom night" for your kids)
- **Importantly:** talk with your children. See what they do/don't know (you likely don't realize how much they may know about what is going on). Answer their questions. Make it a practice to check in daily with them to see how they're doing.

Link to a webinar by Dr. Scott Poland regarding tips for families:

<https://www.youtube.com/watch?v=gGaDuKT3RCI&feature=youtu.be>

COVID-19 and domestic animals

What domestic animals can get COVID-19?

- Coronaviruses are common in many types of domestic and wild animals (including cats, dogs, cattle, horses, ferrets, camels, bats, and others)
- Dogs
 - Two dogs in Hong Kong tested positive for COVID-19 but did not show any symptoms. There is currently insufficient evidence that COVID-19 can cause disease in dogs.
- Cats
 - Cats are very susceptible to coronaviruses. Reports demonstrate that cats can catch COVID-19 and actively transmit that infection to other cats. Veterinarians are not currently recommending that you distance yourself from your cat, especially if you are well. But, out of an abundance of caution, you may want to keep your outdoor cats inside during this pandemic.
- Ferrets
 - Preliminary studies demonstrate that ferrets may contract COVID-19 and show some signs of illness. If you are sick with COVID-19 have someone else care for your ferret if possible. Ensure you wash your hands before and after caring for your ferret. Because of this, ferrets could be used as an experimental model in the development of a COVID-19 vaccine.
- Tigers
 - While tigers are not household animals, they have been demonstrated to contract COVID-19, including a tiger at a zoo in New York. Officials believe that the tiger contracted COVID-19 from an ill employee at the zoo, this investigation is still ongoing. Unfortunately this tiger succumbed to the infection. While there are other tigers at the zoo that have demonstrated symptoms, they are expected to recover. Out of caution for others this zoo is closed and has been closed since before the tigers started showing symptoms. This isn't any evidence that other animals at the zoo are showing symptoms.

Source: <https://www.oregonvma.org/care-health/zoonotic-diseases/coronavirus-faq>
http://www.syreaf.org/wp-content/uploads/2020/04/Rapid-Review-of-pets-as-fomites_3.pdf

Am I at risk for catching COVID-19 from my outdoor cat or other animals?

- According to the CDC, there is no evidence for contracting COVID-19 from your animal, while the first instances of this virus are thought to have occurred from a live animal market, this virus is now spreading from person-to-person.
- There is no evidence that pets are a source of spread for COVID-19 to people, nor a source of infection in the United States

Source: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>

Is testing available for pets that come into contact with positive COVID-19 cases?

- Currently, IDEXX Veterinary Testing service has been testing cat and other animal samples for detection of COVID-19 while validating a new service for detection of COVID-19 in domestic and wild animals. In the most recent press release from IDEXX on March 17th, 2020, they had tested thousands of canine and feline specimens and have not yet detected COVID-19. At this time IDEXX recommends contacting your pet's veterinarian if they begin displaying symptoms of a respiratory virus. The vet will likely test for more common respiratory illnesses in pets, but will ultimately determine the best course of action for your animal.

Source: <https://www.idexx.com/en/about-idexx/news/no-covid-19-cases-pets/>

- However, animals have tested positive for COVID-19 in the US, with the first being the tiger at the zoo in New York.

Source: https://www.aphis.usda.gov/aphis/newsroom/news/sa_by_date/sa-2020/ny-zoo-covid-19

If I contract COVID-19, should I isolate myself from my animals?

- The CDC has not received any reports of a domestic animal contracting COVID-19 in the US, however, they are aware of isolated incidents occurring outside of the US.
- While no reports have occurred in the US, this is a zoonotic virus, and has the capability of spreading from people to animals in some situations.
- Further studies are needed to fully understand the impact of transmitting COVID-19 between domestic animals and people.

Source: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>

- However, at this time veterinarians are not recommending isolating yourself from your pet

Source: <https://www.oregonvma.org/care-health/zoonotic-diseases/coronavirus-faq>

What protocols should I be using for my domestic animals?

- While cases of person-to-animal transfer and vice versa are limited, the CDC is suggesting employing the following practices:
 - Do not let your pets interact with people or other animals outside the household
 - Keep cats indoors as much as possible to prevent them from interacting with other people or animals outside the household
 - Walk your dogs on a leash and maintain at least 6 feet in distance from other people and animals
 - Avoid dog parks or other locations that may have lots of animals or people
 - Talk to your veterinarian if your pet becomes sick or you have concerns for your pet's health

Source: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>

Healthy practices around pets:

- While transmission between pets and humans has not been demonstrated in the US at this time, it is still a good idea to have healthy practices around animals as they are a source for other pathogens
 - Wash your hands after handling animals, their food, waste, or supplies
 - Practice good pet hygiene and clean up after pets promptly
 - Discuss any health concerns with your veterinarian
 - Be aware that children under 5 years old, immune compromised, or persons over 65 years of age are more at risk for contracting an illness from a pet

Source: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>

COVID19 virus characteristics, viral genome, and zoonotic transmission

Was COVID19 made in a lab?

- Shortly after the genetic material of SARS-CoV-2 was determined, a rumor began circulating that the virus was engineered in a lab and was either intentionally or unintentionally released into the public
- This was fueled by the close proximity of the Wuhan Institute of Virology to the thought location of initial infection, a live animal market in Wuhan,

China. Coronaviruses are zoonotic viruses, which means they can jump from animals to humans.

- An infectious disease researcher at the Scripps Research Institute in La Jolla, California formed a team of evolutionary biologists and virologists to investigate these claims:
 - They determined that it is clear that the virus was not ‘man-made’
 - Anyone hoping to create a virus would need to work with already existing viruses and engineer them to have specific properties, almost like a “mash-up” of viruses
 - However, SARS-CoV-2 has elements that have never before been seen for a virus. This suggests that the virus had to have come from an unknown virus or viruses in nature
 - This virus has distinct features, that may not actually be considered advantageous
- Another interesting component of SARS-CoV-2 is that it binds to human cells using the same receptor (cell-surface protein) on the cell as SARS-CoV-1 (cause of the 2003 SARS outbreak). However, SARS-CoV-2 interacts with the human receptor in a never-before seen conformation. This interaction results in a tighter binding of the virus to cells, tighter than the interaction seen for SARS-CoV-1, which may account for why COVID-19 is so highly contagious.
- A break-through finding was discovered when researchers compared the genetic material of SARS-CoV-2 to other coronaviruses that have been found in nature. The most common ‘relatives’ of SARS-CoV-2 or the viruses that are most similar, are coronaviruses from bats and pangolins. Further, the tight binding conformation of SARS-CoV-2 with human cells that was different from SARS-CoV-1 was then also found in coronaviruses in pangolins. This suggests that it is possible that a combination event happened in nature where bat and pangolin coronaviruses traded genetic material to combine to make a new virus: SARS-CoV-2, which then made the jump to humans.

Source: <https://www.sciencenews.org/article/coronavirus-covid-19-not-human-made-lab-genetic-analysis-nature>

Is COVID-19 a combination of other viruses?

- While many new emerging viruses are combinations of other viruses, these combinations generally happen in nature
- A previous paper had been posted on an online server before it had been peer-reviewed that suggested that SARS-CoV-2 was, in part, derived from HIV. Scientists around the world were quick to point out the serious flaws in the paper. The authors have since voluntarily withdrawn the paper.
 - While there are components of SARS-CoV-2 that are similar to HIV, these commonalities can be seen for many other viruses and are most likely due to viruses evolving from a common ancestor
- It has been recently identified that coronaviruses from bats and pangolins are the closest ‘relatives’ to SARS-CoV-2. Current research suggests that coronaviruses in nature combined together to form SARS-CoV-2 which was then able to ‘spillover’ into humans. While the actual type of animal responsible for this spillover event hasn’t been conclusively identified, it is likely to have come from one of these bats or pangolins.

Source: <https://www.sciencenews.org/article/coronavirus-covid-19-not-human-made-lab-genetic-analysis-nature>

What are the different parts of the coronavirus and how are they detecting infection with them?

- Coronaviruses get their name from a spike, crown-like appendage on their surface (“corona” is Latin for “crown”) when visualized by microscopy techniques. Detection of this spike is currently commonly employed for diagnosis of COVID-19. While all coronaviruses have this spike, they are different for each coronavirus, allowing for differentiation of these viruses, and the diseases they can cause, in the clinic.
- Coronaviruses are zoonotic viruses; they are capable of jumping from infecting an animal to infecting a human. For the virus to pass from animals to humans, humans need to come into close contact with an infected animal. Once the virus is in humans it can spread by human-to-human contact.
- COVID-19 is spread through respiratory droplets, these droplets are distributed through the air when an infected person coughs, sneezes, or even talks. These droplets are then inhaled, ingested, or through other body portals, for infection to occur. After this happens, the virus is then able to cause an infection in the new human host.

Source: <https://www.healthline.com/health/coronavirus-covid-19#coronavirus-types>

How is COVID19/SARS-CoV-2 different from SARS-CoV-1, MERS-CoV, or other coronaviruses?

- COVID19 is not the first coronavirus to cause an outbreak in the human population
 - SARS-CoV-1, or severe acute respiratory syndrome coronavirus 1, was responsible for a 2003 outbreak that occurred after transmission of a coronavirus from a bat to civet cats. Transmission to humans was first documented in Guangdong province in southern China in 2002.
 - SARS-CoV-1 caused an epidemic that affected 26 countries and more than 8000 individuals were infected, with a case fatality ratio of 11%. Spread was primarily person-to-person and containment was accomplished through appropriate infection control practices.
 - Sporadic cases of SARS-CoV-1 still occur today, primarily due to accidental laboratory exposures or through possible animal-to-human transmission
 - Due to effective containment procedures, currently no countries in the world are reporting spread of SARS-CoV-1. Experimental vaccines for SARS-CoV-1 are currently under development

Source: [https://www.healthline.com/health/coronavirus-covid-19#coronavirus-](https://www.healthline.com/health/coronavirus-covid-19#coronavirus-types)

[types](https://www.healthline.com/health/coronavirus-covid-19#coronavirus-types)

- Another incidence of coronavirus outbreak in humans was MERS-CoV, or Middle East respiratory syndrome coronavirus. MERS-CoV was responsible for a 2012 outbreak originating in Saudi Arabia and just over 2500 cases have been confirmed globally and has a case fatality ratio of 37.1%
- MERS-CoV has since been reported in 27 countries, though approximately 80% of these cases occurred in Saudi Arabia.
- Spread of MERS-CoV occurs primarily through animal-to-human transmission through close contact with infected dromedary camels, though human-to-human transmission has also occurred.

- MERS-CoV is not commonly passed between humans, most instances are attributed to clinical care without strict protective measures.
- Currently no travel restrictions exist for MERS-CoV.

Source: [https://www.who.int/news-room/q-a-detail/middle-east-respiratory-syndrome-coronavirus-\(mers-cov\)](https://www.who.int/news-room/q-a-detail/middle-east-respiratory-syndrome-coronavirus-(mers-cov))
<http://www.emro.who.int/pandemic-epidemic-diseases/mers-cov/mers-situation-update-january-2020.html>

- To date there have been approximately 2 million confirmed cases of SARS-CoV-2 worldwide with just over 123,000 deaths attributed to COVID-19.
- SARS-CoV-2 has been detected in 185 countries and regions worldwide. As this is an ongoing pandemic, the total number of affected individuals and the fatality case percentage have yet to be officially determined

Source: <https://coronavirus.jhu.edu/map.html>

Anosmia (loss of smell) and COVID-19

What is Anosmia?

- Anosmia is defined as the loss of smell
- It has been recently reported that upwards of 30% of COVID-19 patients experience anosmia among other neurological symptoms.
 - Some patients report experiencing anosmia before developing other symptoms, this may suggest that anosmia occurs while the virus is actively replicating in the human host.

Source: <https://www.microbe.tv/twin/>

How does a virus that infects the respiratory tract impact the sense of smell?

- COVID-19 primarily infects cells of the respiratory epithelium, cells found in the lungs.
- Cells similar to the commonly infected cells of the lungs can be found in areas responsible for your sense of smell, the olfactory epithelium. Further, respiratory epithelium is found in close proximity to olfactory epithelium (Figure 1, below), which may indicate how these cells, responsible for the maintenance of your sense of smell, may become infected.
- Recent research has indicated that SARS-CoV-2 can infect these cells of the olfactory epithelium; the receptor that SARS-CoV-2 uses to infect cells, ACE2, is expressed in multiple organs including the nervous system and the olfactory epithelium.
- The olfactory epithelium is a layer of cells that coat and support the neurons responsible for your sense of smell (Olfactory Nerve), these neurons extend upwards into the brain, which may present an opportunity for SARS-CoV-2 to impact the brain (Figure 1, below). How an infection with COVID-19 may impact the brain and nervous system is an area of active research.
 - Importantly, it has been recently determined that neurons do not express the SARS-CoV-2 receptor ACE2. This suggests that neurological symptoms may be due to dysregulation of the supporting cells responsible for maintaining the function of the olfactory nerve.

- Further, invasion of the brain by SARS-CoV-2 has not been described.
Source:
<https://www.biorxiv.org/content/10.1101/2020.03.25.009084v2>
<https://www.microbe.tv/twin/>
- Anosmia is not an uncommon symptom for other viral infections, including rhinovirus, responsible for the common cold.
 - In fact, infections with other coronaviruses, including SARS-CoV-1 and MERS-CoV have been demonstrated, in rare cases, to cause neurological injury in humans with detection of these viruses in the cerebral spinal fluid (CSF) and brain tissue upon autopsy
- However, how COVID-19 may impact the nervous system and whether there are any lasting neurological effects of COVID-19 is an area of concern.

Source: <https://medicine.yale.edu/news-article/23640/>
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3544840

What other neurological symptoms are patients experiencing other than anosmia and how common are these symptoms?

- In an early study out of Wuhan, demographics for a total of 214 patients were described. Of those individuals, 24.8% reported neurological symptoms.
 - The most common neurological symptoms reported were dizziness (16.8%) and headaches (13.1%) with anosmia reported in 5.1% of cases.
 - Of the patients observed, those with severe illness were less likely to present with the commonly attributed COVID-19 symptoms, fever and cough, but more often presented with neurological symptoms.
 - Further, in addition to severe cases, those who are immunosuppressed were more likely to develop neurological symptoms while infected with SARS-CoV-2.
 - The outcome of these patients and their neurological manifestations of COVID-19 were not followed upon hospital release, so the outcome, or duration, of these symptoms was not determined.
 - More data will give a better picture of the outcome of these COVID19-related symptoms

Source: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3544840

Update on COVID19 testing

Updates for rapid diagnostic tests (RDT) and other testing methods for COVID19

- Maine-based testing updates:
 - Multiple labs in the state of Maine have now been given approval to begin testing human samples by PCR for COVID-19 diagnosis including the Jackson Laboratory, IDEXX, and the Abbott lab branch in Maine. This test provides a diagnosis within hours.
 - The Jackson Laboratory has begun testing samples for both the state of Maine and also Connecticut at both of their locations
 - IDEXX has started producing testing kits for human samples in addition to those for testing animals for COVID-19. These testing

kits are now being produced by all IDEXX branches worldwide. Opti Medical in Georgia has validated the efficacy of these tests.

- Abbott Laboratories, an Illinois based company, has released details concerning the production of testing kits for COVID-19 at its Scarborough-based facility. The company has indicated that the facility in Maine can produce 50,000 COVID-19 tests per day, these tests are RDT tests and can provide a diagnosis of COVID-19 in minutes.

Source: <https://www.jax.org/coronavirus-information/covid-19-testing>
<https://www.pressherald.com/2020/04/20/animal-lab-idexx-to-produce-covid-19-test-kits-for-people/#>

Who is being tested and what are the criteria for testing?

- At this time, individuals who are first responders and healthcare workers are first priority for testing for COVID-19.
- Further, the CDC does not recommend that the general public needs to be tested for COVID-19 as most cases are mild and recovery can be accomplished at home.

Source: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html>

What advances have been made to test more of the general public?

- Announced April 21st, 2020, the Food and Drug Administration (FDA) has approved the use of at-home testing services for the company LabCorp. This test, called Pixel, will allow patients to collect their sample for testing for COVID-19 at home, by means of a nasal swab.
 - Patients will not be able to determine if they have COVID-19 at home however. The nasal swabs can be mailed to the company which will test them for you. You can then check whether or not you test positive for COVID-19 through an online portal.
 - Initially, the first priority for this service will be healthcare workers and first responders as kits are limited at this time. However, the company is planning to produce enough test kits for others to test themselves in due course.
 - According to LabCorp, each kit will cost \$119

Source: <https://www.wabi.tv/content/news/FDA-approves-first-at-home-coronavirus-test-569820081.html>

How do I know if I should be tested? What are my resources for determining this?

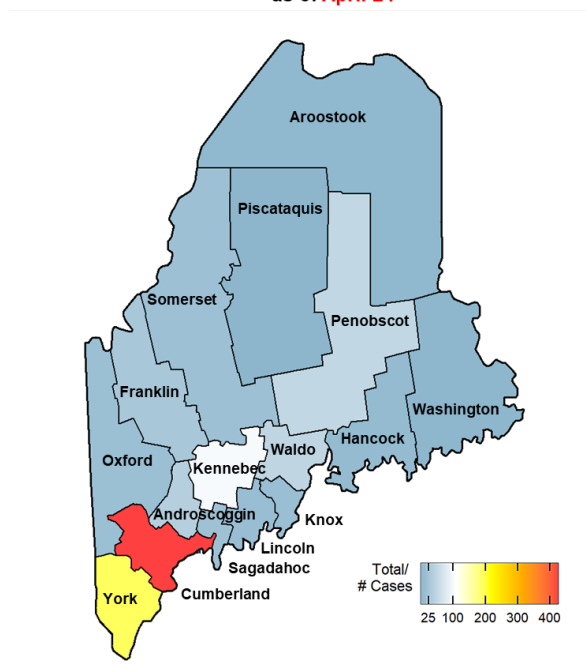
- According to the CDC, not everyone needs to be tested for COVID19.
 - Most people have mild illness and can recover at home, without the need for medical care, these people do not need to be tested at this time.
- When to seek medical attention:
 - Trouble breathing
 - Persistent pain or pressure in the chest
 - New confusion or inability to arouse
 - Bluish lips or face
 - * This is not an inclusive list, consult your physician or a medical professional if you have any concerns about your health

- Call 911 if you have a medical emergency, at this time notify the operator if you think you may have COVID-19 to ensure that you get appropriate care and to alert the first responders who are helping you that you may be infected.
- The CDC has an online portal that can help you determine if you should be tested. Through this a self-checking guide will help you address this.
 - This portal can be found here:
<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/index.html>
- Source: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html>
- An app to help you determine if you may be infected with COVID-19 has been launched by Apple, called “Apple COVID-19”. This application is dedicated to COVID-19 screening. The app, available in the app store, offers an online screening tool, information about COVID-19, and guidance on when to seek testing or emergency care
 - More information about this app can be found here:
<https://www.theverge.com/2020/3/27/21197056/apple-coronavirus-covid-19-website-app-online-screening-tool-cdc>
- An application is being generated by MIT for tracking potential exposures to COVID-19. This application may allow for your smartphone to notify you if someone near you has tested positive for COVID-19. This app is still in development.
 - How this works: If you test positive for COVID-19, you are asked to provide a list of individuals you have come into contact with in the past 14 days. Health officials will then notify those that are listed to determine if they need to be tested, isolated, or quarantined.
 - In addition to this, this application will use bluetooth on your phone to further identify people you may have come into contact with, for example, people near you at the grocery store. The app will then notify those individuals, whom you would not have been able to notify of their potential exposure, to determine if they themselves need testing, isolation, or quarantine.
 - Importantly, all of the information in this application would remain anonymous.

Source: <https://www.wbur.org/bostonmix/2020/04/09/mit-cellphone-app-coronavirus-contact-tracing>

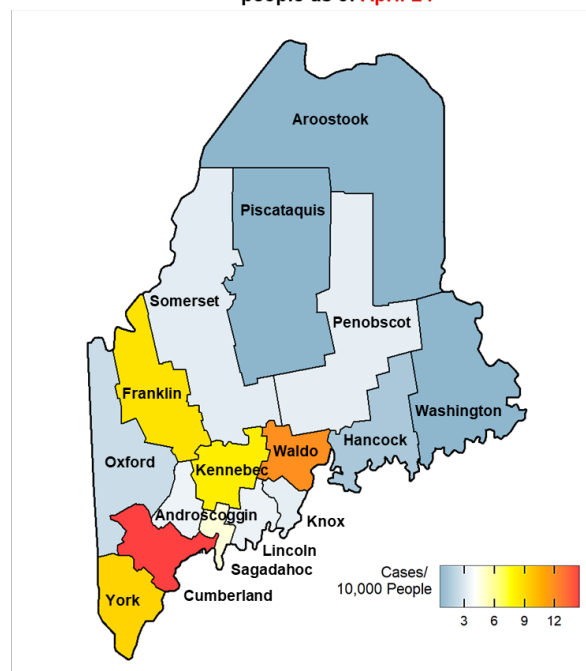
SPECIAL: Maine COVID-19 DATA (compiled by UMaine):

A. Total Cases of COVID-19 as of April 24th*



* COVID-19 cases obtained from the Maine CDC at www.maine.gov

B. Total Cases of COVID-19 per 10,000 people as of April 24th*



* census data was obtained from the U.S. Census Bureau, Vintage 2019 Population Estimates

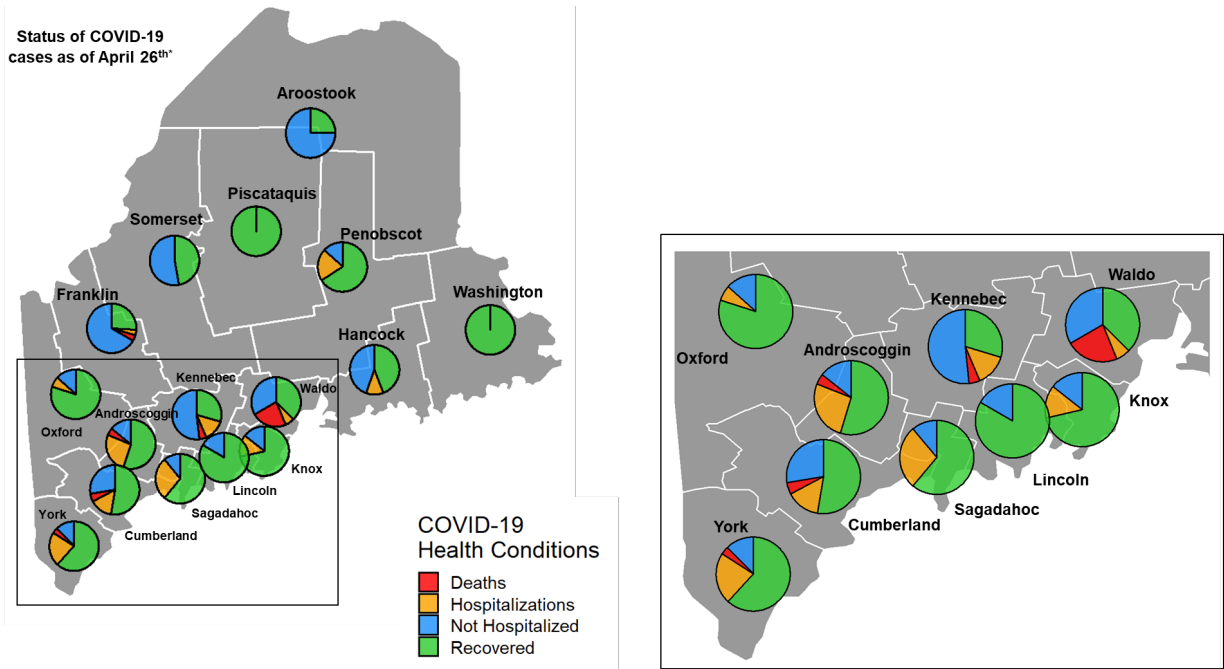
(A) Number of confirmed COVID-19 cases by county as of April 24th. Data was obtained from the Maine's Center for Disease Control and Prevention (CDC) website on Friday, April 24th. The number of total cases were mapped using a coding platform, RStudio and specific coding packages called ggmap and ggplot2. Data was processed by a University of Maine graduate student, Michael Wilczek.

(B) Estimated rate of confirmed COVID-19 cases per 10,000 people by county as of April 24th. The number of COVID-19 cases was obtained from the Maine's Center for Disease Control and Prevention (CDC) website on Friday, April 24th. The population of each county was obtained from the United States Census Bureau using the most recent data available, July 1st, 2019. The rate of cases per county were mapped using a coding platform, RStudio and specific coding packages called ggmap and ggplot2. Data was processed by a University of Maine graduate student, Michael Wilczek.

- The number of COVID-19 cases have been predominantly confirmed in southern Maine, specifically in York and Cumberland Counties. However, when determining the rate of cases per county the spread of the virus goes beyond southern Maine, reaching Franklin, Kennebec, and Waldo Counties where 6 to 14 people out of 10,000 test positive for the virus. This is also seen to a lesser extent in Somerset and Penobscot County, where 3 to 6 people out of 10,000 test positive for the virus.
- The practicality of measuring the estimated rate of cases per 10,000 people, beginning at the time of testing, allows us to understand the frequency of disease in a given population or the *population at risk* for disease (1). This is in contrast to using the number of cases per county also called the "count data", illustrated in the first map (A).

(1) Rothman, K. J., Greenland, S., & Lash, T. L. (2008). *Modern Epidemiology* (3rd ed.). N.p.: Lippincott Williams and Wilkins.

C.



* COVID-19 cases obtained from the Maine CDC at www.maine.gov

(C) Status of confirmed COVID-19 cases by county as of April 26th. Data was obtained from the Maine’s Center for Disease Control and Prevention (CDC) website on Sunday, April 26th. The health conditions of each county is represented in a pie chart. Each piece of the pie illustrates the number of deaths, the number of hospitalizations, the number of recovered cases and the number not hospitalized by county. Data were mapped using a coding platform, RStudio and specific coding packages called ggmap, ggplot2 and scatterpie. Data was processed by a University of Maine graduate student, Michael Wilczek.

- This data illustrates that the majority of confirmed COVID-19 cases by county have recovered from the disease with the exception of Aroostook, Franklin, Somerset, Kennebec, Hancock, and Waldo county. The majority of these people however, represent statuses who are currently not being hospitalized.
- The highest proportion of deaths from COVID-19 related illnesses are in Waldo County where almost a quarter of cases have died from the disease.

SPECIAL: Cloth Masks for Keeping Yourself and Those Around You Safe: Do's, Don'ts, and Tips

On [April 3, 2020](#), the CDC and National Center for Immunization and Respirator Diseases recommended the public use cloth face coverings/cloth masks in public settings. While not a replacement for social distancing, cloth masks will help slow the spread of the virus in areas that are more susceptible to community-based transmission. The recommendation to use cloth masks also comes with the [reminder to leave clinical/surgical masks and N95 respirators for front-line healthcare workers](#) as these supplies remain at critically low.

Do's

- Purchase a mask from a variety of [online retailers](#)
- Make your own! Instructions can be found at the [CDC](#), [Utah Health](#), [Anne Arundel County Dept. of Health](#), [Minnesota Dept. of Health](#), [Ohio Dept. of Health](#), and many others.
 - Use a washable fabric
 - Pre-wash the fabric a few times to prevent shrinking after the mask is made
- Have multiple masks for each person so that they can be cycled between use and washing.

Don'ts

- Don't use a cloth mask if you have trouble breathing, are unable to remove the mask without assistance.
- Don't put masks on children under 2 years old.

Tips for a Good Mask Fit

- Cloth face coverings should fit snugly from below the chin to the bridge of the nose, and extend beyond the corners of the mouth to the mid cheek
- Coverings should be secured with ties or ear loops
- Coverings are best with multiple layers, but maintain ease of breathing while masked
- Dispose of mask if the fit no longer adheres to guidelines

Tips for Mask Use

- Wash hands for 20 seconds before mask application and removal
- Do not wear face masks that have not fully dried or believe to be contaminated
- Avoid touching the mask, face, and eyes during use
- Do not remove and reapply mask, or manipulate mask outside of fit recommendations
- Treat all masks as contaminated upon placement to avoid cross-contamination and accident exposure
- Maintain social distancing practices as much as possible

Tips on Mask Cleaning and Storage

- Store clean/laundered masks and dirty/unlaundered masks separately
- Clean masks after each use with a standard cycle in a washing machine with laundry detergent
- Avoid cleaning with bleach and other alcohols to maintain integrity of the cloth fibers

Last Updated: April 23, 2020

RESOURCES AND RECOMMENDED READINGS:

Clinical and Administrative Guidance on COVID-19 shared by UW Hospitals:

As an early hot-spot in the US, Washington has been providing leadership and guidance around handling clinical cases of COVID-19. Documents are shared at this site, and constantly updated:

<https://covid-19.uwmedicine.org/Pages/default.aspx>

UMaine's Fogler Library COVID-19 Lib Guide:

<https://libguides.library.umaine.edu/coronavirus/maine>

Calculate your Pandemic Footprint, based on your behaviors:

<https://www.pandemic-footprint.com/>

NIH is Enrolling for a New Study to Quantify Undetected Cases of Coronavirus

Blood samples from healthy volunteers are needed, learn more here:

<https://www.niaid.nih.gov/news-events/nih-begins-study-quantify-undetected-cases-coronavirus-infection>

Bioscience Association of Maine (BioME) COVID resources and news from Maine:

<https://www.ncbi.nlm.nih.gov/research/coronavirus/>

NIH COVID-19 Portfolio Tool to Assess Research Literature:

<https://nexus.od.nih.gov/all/2020/04/15/new-nih-resource-to-analyze-covid-19-literature-the-covid-19-portfolio-tool/>

Reputable Online Resources with COVID-19 Data:

IHME Health Data and Projections:

<https://covid19.healthdata.org/united-states-of-america>

<https://covid19.healthdata.org/united-states-of-america/maine>

Johns Hopkins

<https://coronavirus.jhu.edu/map.html>

Maine Small Business Resources during COVID

<http://www.mainstreamfinance.org/covid-19-updates/small-business-updates-and-resources-during-covid-19-outbreak/>

Questions about the production of these bulletins?

Contact kristy.townsend@maine.edu

All bulletins posted publicly online at:

<https://umaine.edu/coronavirus/umaine-science-and-medicine-updates/>

The University of Maine is an EEO/AA employer, and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran's status in employment, education, and all other programs and activities. The following person has been designated to handle inquiries regarding nondiscrimination policies: Equal Opportunity, 101 North Stevens Hall, University of Maine, Orono, ME 04469-5754, 207.581.1226, TTY 711 (Maine Relay System).