COVID-19
FTC Mask Project

April 21, 2020

Table of Contents

Project Overview 3

Project Goal 3

Background 3

Supporting Data 4

Scope 4

Assumptions 4

Guiding Principles 5

Desired Outcomes and Deliverables 5

Metrics 5

Risks 5

Principles for Working Together 6

Phase 1 Pilot: Timeline 7

Roles and Responsibilities 8

Sponsors 9

Community Partners—Pilot 10

Literature Review and References 10

APPENDIX A: Volunteer Training Toolkit 14
APPENDIX B: Mask Options 15
APPENDIX C: Material Requirements 16
APPENDIX D: Resources 17
APPENDIX E: Care of FTC Masks 18
APPENDIX F: Glossary of Terms 19

DISCLAIMER: The information provided in our materials is based on what is publicly available at the time when they were prepared. As new information becomes available with respect to the COVID-19 pandemic and best practices to reduce the spread, our materials may no longer be current. April 14, 2020

Project Overview

The severe spread of the Coronavirus disease (COVID-19) pandemic has created a global surge in demand for personal protective equipment (PPE), with emphasis on surgical masks and N95 respirators. In response to the limited supply of PPE a group of volunteers, healthcare professionals and industry experts created a project team with the intention to manufacture homemade face coverings for community members in need. The team has selected" Flatten the Curve Handmade Masks" (FTC Masks) as their project title.

Project Goal

Phase One (Pilot)

To increase the availability of homemade cloth face masks to at-risk individuals[1], medical clinics, hospices, and home support agencies in Vancouver by manufacturing and distributing two thousand (2,000) masks by May 15, 2020. We anticipate recruiting fifty (50) sewing volunteers for this project.

Phase Two

Once phase one of the pilot has been evaluated, consideration will be given to expanding the program to Metro Vancouver.

Phase Three

Support the roll out and replication of the project to other communities across British Columbia.

Background

Given the challenges in maintaining PPE supply during the COVID-19 pandemic, the use of homemade and/or cloth masks in public is a topic of much discussion. The Public Health Agency of Canada (PHAC) has released a statement that Canadians are recommended to use non-medical masks in tandem with physical distancing, hand hygiene, and other measures to limit the transmission of COVID-19 [2] In addition, the Centres for Disease Control and Prevention (CDC) has specified that wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies) especially in areas of significant community-based transmission.

CDC also advises the use of simple cloth face coverings to slow the spread of the virus and help people who may have the virus and do not know it from transmitting it to others. Cloth face coverings fashioned from household items or made at home from common materials at low cost can be used as an additional, voluntary public health measure.

[1] Individuals with immunosuppression and comorbidities, such as COPD, heart disease, diabetes, organ failure, or cancer.
[2] Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19): recommendations for cloth face covers.

Supporting Data

Recent studies[3] indicate that a significant portion of individuals with coronavirus lack symptoms ("asymptomatic") and that even those who eventually develop symptoms ("pre-symptomatic") can transmit the virus to others before showing symptoms. This means that the virus can spread between people interacting in close proximity—for example, speaking, coughing, or sneezing—even if those people are not exhibiting symptoms. In light of this new evidence, CDC recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies) and especially in areas of significant community-based transmission.

Scope

Phase One

The following target audiences are in scope for this project:

1. Individuals with chronic conditions[4] living in Vancouver
2. Home support agencies in Vancouver
3. Community hospices
4. Medical clinics in Vancouver

Assumptions

1. There is variability in the effectiveness of cotton masks and that they are generally inferior to medical-grade masks.
2. Homemade masks do not meet the criteria of medical-grade Personal Protection Equipment (PPE) masks but the widespread use of these devices, has been shown to make a significant contribution to flattening the curve
3. Homemade masks will reduce the transmission of COVID-19 by asymptomatic individuals with the reduction being potentially significant
4. During the coronavirus pandemic, there is an urgency to address the need for manufacturing homemade masks due to shortages of PPE

Guiding Principles

1. Within the context of the project and the limited research available regarding homemade masks, we will endeavour to operate based on evidence and best practices.
2. We have conducted a review of literature that is available relating to the subject matter
3. While we acknowledge that the general population would benefit from homemade masks, we will target our resources to individuals and caregivers in the community who are at risk

[3] Tasker JP. Canada's top doctor says non-medical masks can help stop the spread of COVID-19.
[4] Adults living with chronic conditions such as: COPD, heart disease, diabetes, organ failure, or cancer.

Desired Outcomes and Deliverables

1. Increase accessibility of homemade cloth masks to at risk individuals, medical clinics, and home support agencies
2. Develop materials and a tool kit that assist volunteers to produce standardized homemade cloth masks
3. Develop instructions for the care and use of the FTC Masks
4. Manufacture and deliver 2,000 homemade cloth masks in Vancouver by May 15, 2020 (Phase 1 Pilot)
5. Reduce the transmission of COVID-19 from asymptomatic individuals

Metrics

The team will utilize the following metrics to evaluate the effectiveness and success of the project:

1. Number of homemade cloth masks manufactured
2. Number of homemade cloth masks distributed to:
    - at risk individuals
    - medical clinics
    - hospices
    - home support agencies
    - community agencies
3. Number of volunteers

Risks

The following risks and mitigation strategies to the project have been identified:

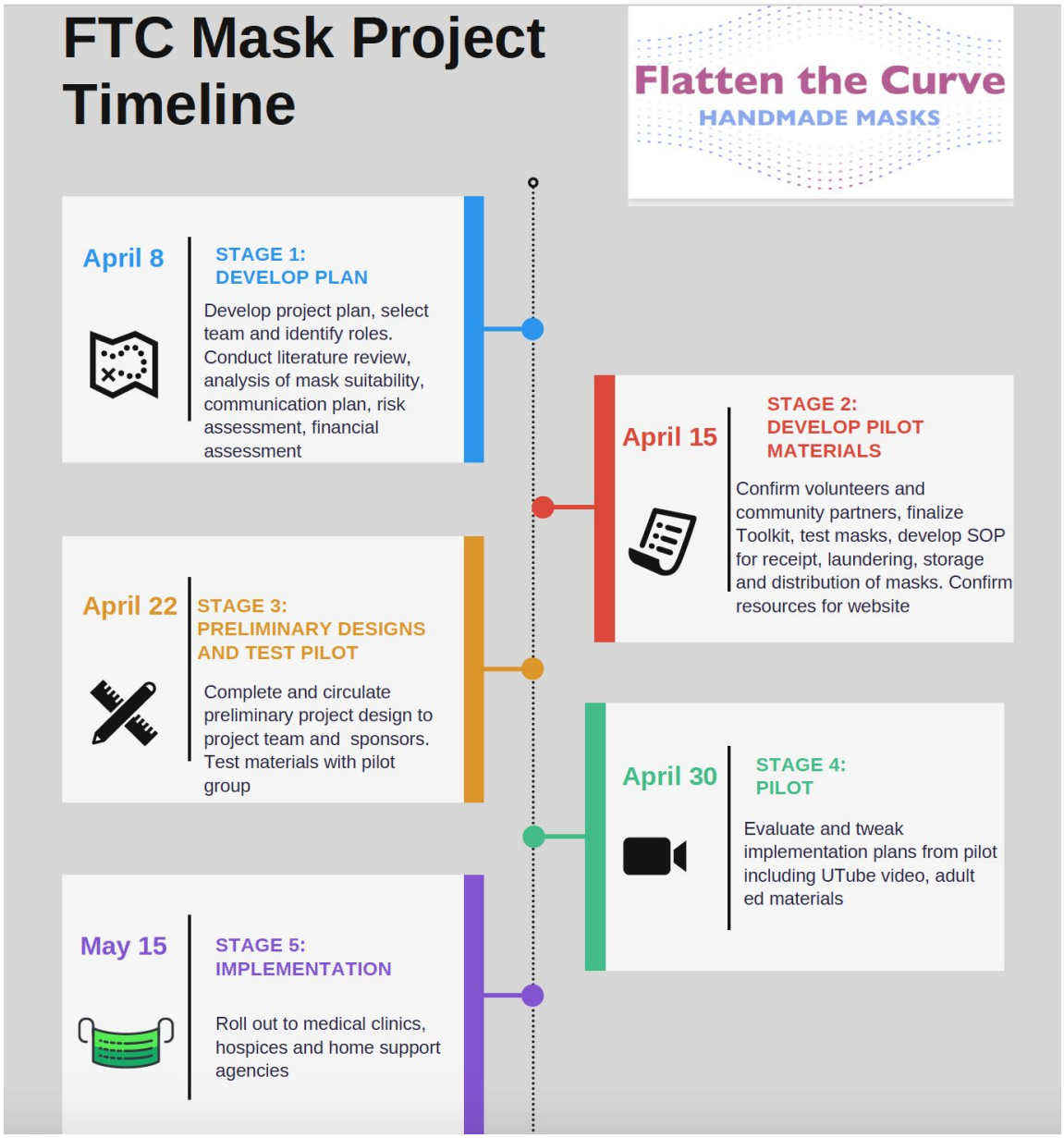
Risk	Impact	Probability	Mitigation Strategy
Speed to market	High	Medium	All hands-on deck
Quality of the mask	Medium	Low	Standardizing education materials and sourcing products
Volunteer resources	High	Medium	Recruit +++ communications plan
Availability of materials	High	High	Speed sourcing products and developing partnerships with clothing manufacturers
Scope creep (demand exceeds our ability to fulfill)	High	Medium	Adhere to project deliverables and deadlines
Competing grass-roots projects	High	Medium	Collaborate/joint ventures

There has been an abundance of grassroots sewing groups that are struggling to find fabrics and elastics to make cloth masks. Availability of these materials are a scarce resource and pose significant risk to the project The Sewing FTC Mask Team has been putting together a list of resources for volunteers to access materials. As well, we are in early discussions with clothing and fabric companies to assist us in accessing fabric and elastic..

Principles for Working Together

We value each other's strengths through recognition, encouragement, feedback and accountability. We interact with each other, work and make decisions with integrity. We take pride in and respect each other's diversity and connect through our shared values.

Phase 1 Pilot: Timeline



Roles and Responsibilities

Core Project Team

Role	Accountable
Project Lead	Susan Scott Gabe
Planning	Audrey Ple + Irving Ozier
Research + Best Practices	Susan Scott Gabe + Shauna Butterwick
Mask Designer and Production	Lynne Gray
Communications + Creative Design	Joyce Ozier
Volunteer Coordinator	Anne Rowland
Logistics and Distribution	Myrna Leslie
Adult Education	Shauna Butterwick
Treasurer	Tim Wyman
Website	Teresa Beere Johnson

Advisory Panel

Role	Accountable
Research and Evaluation	Virginia Flintoft
Manufacturing + Production	Nancy Lord
Medical	David Hunt
Community Outreach	Lulu Leathley

Sponsors

Company	
Annex Consulting Group	
Cloth Studio	
Creekside Village Connexions	
Daniadown	
Eco-Masks	
Magenta Marketing	
S Gabe + Associates	
The Printing House	

Community Partners—Pilot

Company	Sector
The Dugout	Community Agency- staff and volunteers
May's Place	Hospice- staff and volunteers
HomeCare Assistance	Home Support Agency- staff and clients
Spectrum Health	Medical Clinic- staff
West 10th Medical Clinic	Medical Clinic Staff

Literature Review and References

1. Dephino RA. Every American should wear a face mask to defeat Covid-19. STAT [Internet], 2020 Apr 02 [cited 2020 Apr 06]. Available from: https://www.statnews.com/2020/04/02/every-american-should-wear-a-face-mask-to-defeat-covid-19/

2. D'Andrea T. Wearing face masks is the prudent thing to do. Toronto Star [Internet], 2020 Apr 06 [cited 2020 Apr 07]; Opinion. Available from: https://www.thestar.com/opinion/letters_to_the_editors/2020/04/06/wearing-face-masks-is-the-prudent-thing-to-do.html

3. World Health Organization. Advice on the use of masks in the context of COVID-19 [Internet]. Geneva: World Health Organization; 2020 [cited 2020 Apr 07]. Available from: https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)- outbreak

4. Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19): recommendations for cloth face covers [Internet]. Atlanta, GA: Centers for Disease Control and Prevention; 2020 [cited 2020 Apr 06]. Available fromhttps://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html

5. Tasker JP. Canada's top doctor says non-medical masks can help stop the spread of COVID-19. CBC News [Internet], 2020 Apr 06 [cited 2020 Apr 07]. Available from: https://www.cbc.ca/news/politics/non-medical-masks-covid-19-spread-1.5523321

6. Wei WE, Li Z, Chiew CJ, Yong SE, Toh MP, Lee VJ. Presymptomatic transmission of SARS-CoV-2 — Singapore, January 23–March 16, MMWR Morb Mortal Wkly Rep. 2020 Apr 01 [Epub ahead of print]. Available from: https://www.cdc.gov/mmwr/volumes/69/wr/mm6914e1.htm#suggestedcitation

7. Saunders-Hastings P, Crispo JAG, Sikora L, Krewskia D. Effectiveness of personal protective measures in reducing pandemic influenza transmission: a systematic review and meta-analysis. Epidemics. 2017;20:1-20. Available from: https://doi.org/10.1016/j.epidem.2017.04.00

8. Suess T, Remschmidt C, Schink SB, Schweiger B, Nitsche A, Schroeder K, et al. The role of facemasks and hand hygiene in the prevention of influenza transmission in households: results from a cluster randomised trial; Berlin, Germany, 2009-2011. BMC infect Dis. 2012;12:26. Available from: https://dx.doi.org/10.1186%2F1471-2334-12-26

9. Aiello AE, Murray GF, Perez V, Coulborn RM, Davis BM, Uddin M, et al. Mask use, hand hygiene, and seasonal influenza-like illness among young adults: a randomized intervention trial. J Infect Dis. 2010;201(4):491–8. Available from: https://doi.org/10.1086/650396

10. Simmerman JM, Suntarattiwong P, Levy J, Jarman RG, Kaewchana S, Gibbons RV, et al. Findings from a household randomized controlled trial of hand washing and face masks to reduce influenza transmission in Bangkok, Thailand. Influenza Other Respir Viruses 2011;5(4):256-67. Available from: https://doi.org/10.1111/j.1750-2659.2011.00205.x

11. Cowling BJ, Chan KH, Fang VJ, Cheng CK, Fung RO, Wai W, et al. Facemasks and hand hygiene to prevent influenza transmission in households: a cluster randomized trial. Ann Intern Med. 2009;151(7):437-46. Available from: https://doi.org/10.7326/0003-4819-151-7-200910060- 00142

12. MacIntyre CR, Cauchemez S, Dwyer DE, Seale H, Cheung P, Browne G, et al. Face mask use and control of respiratory virus transmission in households. Emerg Infect Dis. 2009;15(2):233-41. Available from: https://doi.org/10.3201/eid1502.081167

13. Barasheed O, Alfelali M, Mushta S, Bokhary H, Alshehri J, Attar AA, et al. Uptake and effectiveness of facemask against respiratory infections at mass gatherings: a systematic review. Int J Infect Dis. 2016;47:105-11. Available from: https://dx.doi.org/10.1016/j.ijid.2016.03.023

14. Bae S, Kim MC, Kim JY, Cha HH, Lim JS, Jung J, et al. Effectiveness of surgical and cotton masks in blocking

SARS-CoV-2: a controlled comparison in 4 patients. Ann Intern Med. 2020 Apr 6 [Epub ahead of print]. Available from https://annals.org/aim/fullarticle/2764367/effectiveness-surgical-cotton-masks-blocking-sars-cov-2-controlled-comparison

15. Canini L, Andreoletti L, Ferrari P, D'Angelo R, Blanchon T, Lemaitre M, et al. Surgical mask to prevent influenza transmission in households: a cluster randomized trial. PloS One 2010;5(11):e13998. Available from: https://doi.org/10.1371/journal.pone.0013998

16. MacIntyre CR, Zhang Y, Chughtai AA, Seale H, Zhang D, Chu Y, et al. Cluster randomised controlled trial to examine medical mask use as source control for people with respiratory illness. BMJ Open. 2016;6(12):e012330. Available from: https://doi.org/10.1136/bmjopen-2016- 012330

17. Leung NH, Chu DK, Shiu EY, et al. Respiratory virus shedding in exhaled breath and efficacy of face masks. Nat Med. 2020 Apr 03 [Epub ahead of Print]. Available from: https://doi.org/10.1038/s41591-020-0843-2

18. Government of Canada. Considerations in the use of homemade masks to protect against COVID-19: notice to general public and healthcare professionals [Internet]. Ottawa, ON: Government of Canada; 2020 [cited 2020 Apr 06]. Available from: https://www.canada.ca/en/health-canada/services/drugs-health-products/medical-devices/activities/announcements/covid19-notice-home-made-masks.html

19. Davies A, Thompson KA, Giri K, Kafatos G, Walker J, Bennett A. Testing the efficacy of homemade masks: would they protect in an influenza pandemic? Disaster Med Public Health Prep. 2013;7(4):413-8. Available from: https://doi.org/10.1017/dmp.2013.43

20. Dato VM, Hostler D, Hahn ME. Simple respiratory mask. Emerg Infect Dis. 2006;12(6):1033-4. Available from: https://dx.doi.org/10.3201/eid1206.051468

21. Rengasamy S, Eimer B, Shaffer RE. Simple respiratory protection--evaluation of the filtration performance of cloth masks and common fabric materials against 20-1000 nm size particles. Ann Occup Hyg. 2010;54(7):789-98. Available from: https://doi.org/10.1093/annhyg/meq044

22. MacIntyre CR, Seale H, Dung TC, Hien NT, Nga PT, Chughtai AA, et al. A cluster randomised trial of cloth masks compared with medical masks in healthcare workers. BMJ Open. 2015;5(4):e006577. Available from: http://dx.doi.org/10.1136/bmjopen-2014-006577

23.
van der Sande M, Teunis P, Sabel R. Professional and home-made face masks reduce exposure to respiratory infections among the general population. PLoS One. 2008;3(7):e2618. Available from: https://doi.org/10.1371/journal.pone.0002618

24.
Kwok YL, Gralton J, McLaws ML. Face touching: a frequent habit that has implications for hand hygiene. Am J Infect Control. 2015;43(2):112-4. Available from: https://doi.org/10.1016/j.ajic.2014.10.01

25.
Garcia de Jesus, Erin. Can fabric masks stem the coronavirus spread? Science News. 2020 Available from: https://www.sciencenews.org/article/covid-19-can-fabric-cloth-masks-stem-coronavirus-spread

Other Resources

1.
Public Health Ontario (2020 April 7). 2019-nCoV – What We Know So Far About...Wearing Masks in Public. *Synopsis.* Retrieved 2020 April 16 from https://www.publichealthontario.ca/-/media/documents/ncov/covid-wwksf/what-we-know-public-masks-apr-7-2020.pdf?la=en1.
How to Significantly Slow the Coronovirus (Czech Republic Video)
https://www.youtube.com/watch?v=HhNo_IOPOtU
2.
Shukman, D. (2020 April 02). Coronovirus: Expert panel to assess face mask use by public. :*BBC News*. Retrieved from https://www.bbc.com/news/science-environment-52126735
3.
Sorkin, A.D. (2020 April 02). The Case for Everyone to Start Wearing Masks or Bandannas: *New Yorker.* Retrieved from https://www.newyorker.com/news/daily-comment/the-coronavirus-case-for-everyone-to-start-wearing-masks-or-bandannas
4.
Jeremy Howard: Jeremy Howard is an entrepreneur, business strategist, developer, and educator. He is a founding researcher at fast.ai, a research institute dedicated to making deep learning more accessible. He is also a Distinguished Research Scientist at the University of San Francisco, a faculty member at Singularity University, and a Young Global Leader with the World Economic Forum. He has created this video about making cloth masks:

Video: How To Make a Cloth Mask
Washington Post Staff (2020 April 05).. How to Sew Your own fabric mask. *Washing Post*. Retrieved fromhttps://www.washingtonpost.com/health/2020/04/05/how-sew-your-own-fabric-mask/?arc404=true

COVID-19

FTC Mask Project

Volunteer Training Toolkit

April 21, 2020

APPENDIX B
Mask Options

Multi-ply cloth mask

Option A: Preferred option with ear loop elastics

Option B: Alternative option with headband elastics (only as required for those who cannot wear option A)

Note:
Spectrum Health received qty 50 masks, various styles, as a trial. Option A was preferred due to lower opportunity for contamination as well as comfort. 95% of the pilot will manufacture option A and 5% option B.

APPENDIX C

Material Requirements

Supplied by FTC Masks Project Team

1. FTC Mask Toolkit
    - Overview, Pattern, and sewing Instructions
    - YouTube video instructions
    - Production support

2. Materials if needed*

Supplied by Volunteer Sewer

1. Sewing machine
2. Sewing tools (cutting scissors, pins, iron, etc.)
3. Materials*

FTC Mask Material* Requirements

Fabric** (outside)	Any new solid colour or patterned fabric: ● 100% cotton fabric (minimum 350 thread count)—preferred or ● 100% cotton t-shirt material
Fabric** (inside)	Any new colour fabric (a lighter shade preferred): ● 100 % cotton fabric (minimum 350 thread count) 100% cotton—preferred ● 100% cotton t-shirt material
Fabric** (middle protective layer)	● 100% new cotton flannelette any colour
Elastic	2 x 7” long pieces per mask any colour: ● 1/4 inch wrapped woven elastic—preferred ● Other widths may work, please check by emailing contact@ftcmasks.org
Nose Bridge	6” long piece per mask: ● Pipe cleaners—preferred or ● Heavy-duty twist tie (plastic coated)
Thread	● 100% cotton, silk finish—preferred ● Polyester

*Materials may be supplied by FTC Masks project team, the volunteer sewer, or a combination of project team and volunteer sewer

**Must be new fabric and not recycled fabric

APPENDIX D

Resources

Company	Contact
Dragonfly Quilting	17802 66 Ave, Surrey, BC;+1 800-663-0226
Fabric Fabric	Website
Fabric Time Solutions	1325 East Pender 604-360-0822
Pfaff on Granville	Sabine Bolzner 604 734 7007
Hamels Fabrics & Quilting	Website
Atex Designer Fabrics	Website

APPENDIX E
Care of Masks

COVID-19

FTC Mask Project

Care of FTC Masks

April 21, 2020

APPENDIX F
Glossary of Terms

Asymptomatic

When a patient is a carrier of an illness but does not show symptoms. People are thought to be most contagious for COVID-19 when they are most symptomatic, according to the CDC, although researchers are still investigating how its spread might be possible at other times, including during the incubation period (called “pre-symptomatic transmission”) and even after symptoms have resolved.

Community transmission

In the case of COVID-19, it means that an infected person has not come into known contact with anyone who is infected and that the source of infection is unknown.

CDC

Centers for Disease Control and Prevention (the U.S.'s health protection agency and a leading reliable source for COVID-19 updates for the U.S.).

COVID 19

A mild to severe respiratory illness that is caused by a coronavirus (Severe acute respiratory syndrome coronavirus 2 of the genus Betacoronavirus), is transmitted chiefly by contact with infectious material (such as respiratory droplets), and is characterized especially by fever, cough, and shortness of breath and may progress to pneumonia and respiratory failure.

Droplet transmission

A form of direct transmission, this is a spray containing large, short-range aerosols (tiny particles suspended in air) produced by sneezing, coughing, or talking. Droplet transmission occurs—in general and for COVID-19—when a person is in close contact with someone who has respiratory symptoms.

Hand hygiene

A key strategy for slowing the spread for COVID-19. Washing hands with soap and water for at least 20 seconds is one of the most important steps to take to protect against COVID-19 and many other diseases.

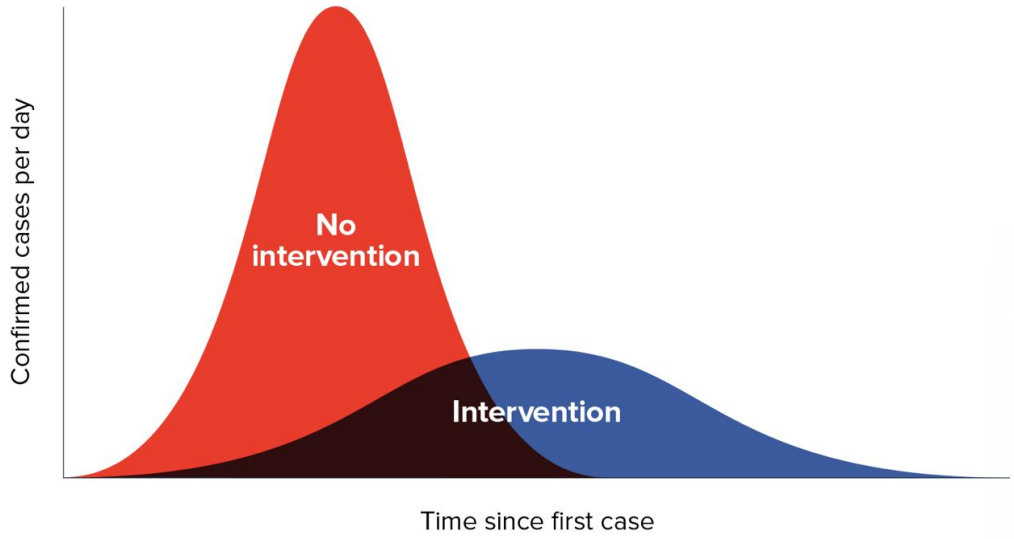
Face mask

Loose-fitting paper or cloth masks that form a physical barrier between the wearer and other people, with the purpose being to prevent the wearer from spreading germs when they sneeze or cough. They also can remind the wearer not touch their face.

Flattening the curve

Flattening the curve refers to a graph that illustrates the spread of a disease and the ability of health systems to cope.If a large number of people become infected and require medical care, it can overwhelm the overall health-care system. This can result in shortages of protective equipment, hospital beds or even doctors and nurses.

Without mitigation, social distancing and all the rest, epidemiologists and other health experts predict a sharp increase in COVID-19 cases that looks like a tall, narrow spike on a graph. By following guidelines, the projected model looks shorter and spread out over time. The curve is flatter, milder, less pronounced. The hope of flattening the curve is to reduce fatalities by buying hospitals time to treat and scientists time to discover therapies and create a vaccine.



Incubation period

The time between when a person is infected by a virus and when he or she notices symptoms of the disease. Estimates of the incubation period for COVID-19 range from 2-14 days, but doctors and researchers may adjust that as more data becomes available.

N95 respirator

A respirator that filters out 95% of virus particles. This is the gold standard or healthcare workers and are in short supply now.

Pandemic

Relates to the geographic spread of a disease. The WHO designated COVID-19 as a pandemic on March 11, citing the spread of the new virus to several countries.

PPE

This is shorthand for personal protective equipment, and for health-care workers on the front line, it includes isolation gowns, foot covers, eye gear, face masks and gloves.

Respirator

For COVID-19 purposes, a respirator is not a machine to help one breathe a type of face mask that doesn't just act as a barrier but also filters out virus particles before they can be inhaled.

Social distancing

Putting physical distance between yourself and other people. This means avoiding groups of people (parties, crowds on sidewalks, lines in a store) and maintaining distance (approximately 6 feet) from others when possible. This is a key strategy for avoiding COVID-19 infection and to flatten the curve.

Self-quarantine, self-isolation

People who largely stay inside their own home, hotel room or other space are said to self-quarantine or self-isolate. For example, many governments are asking travelers returning from afflicted areas to self-quarantine for two weeks. However, there's a technical difference. Quarantine refers to people who appear healthy, but could be at risk for exposure or infection. Isolation refers to separating positive or presumptive cases (see above) from the healthy population.

Quarantine

The separation of someone who has been diagnosed with an illness, has symptoms of the illness, or has reason to believe they were exposed to the illness, from other people. The duration of a quarantine is guided by the incubation period for the particular illness. Quarantine can be imposed on a person or self-administered.

WHO

The World Health Organization, which is an agency of the United Nations responsible for international public health.