

Health Impacts of Hurricanes

More Than Just Property Damage

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CDC/NCEH/DEHSP/EMRC/PEMS

2019 Hurricane Season Forecasts

- **Activity for 2019 is predicted to be slightly less in intensity compared to 2018.**
- **A total of 13 named storms, five hurricanes and two major hurricanes are expected this season per the Colorado State University prediction center.**
- **Do not count on the weather getting the memo.**
- **Prepare for the worst, then you will only have GOOD surprises.**

Preparedness for 2019 Season

- **Do not rely on 120 hour warning model!**
- **Preparing self/family will enable you to prepare for your job.**
- **A direct storm impact is not required to have personal and professional impacts from a hurricane.**
- **Some of the worst historical damage is from slow moving or stalled tropical storms, not hurricanes.**

Medical Services Compromised

- **Dialysis clinics**
- **Oxygen concentrators**
- **Home IV therapy**
- **Power loss at medical service companies**
- **Hospitals have limited fuel storage for generators**
- **Extremely limited radio communications backup at medical facilities**
- **Loss of medical refrigeration starts clock ticking on medication shelf life at home, pharmacy, hospital, clinics**
- **Loss of security systems and lighting will require most facilities/stores to close**

Direct Citizen Impacts

- **Loss of home lighting and refrigeration**
- **Loss of news sources (radio, TV, internet)**
- **Outages will eventually impact landlines**
- **Loss of cell phone charging capability**
- **Loss of thermostability due to heating/air conditioning failure**
- **Many hotel companies have a policy to force evacuation if power is not available, to limit liability.**

Risk of Electric Shock

- **Fallen power lines**

- Stay clear of fallen power lines. Call the electric company to report them.
- Watch out for power lines overhead.

- **Flooded homes**

- Turn off power to the home if you can stand in a dry place to do it.
- Otherwise, have an electrician turn off power to the home.
- Never turn power on or off, or use an electric tool or appliance, while standing in water. (Really people?)

- **Water-damaged power tools**

- Never use an electrical device if it got wet.
- If it's still plugged in, turn off the power at the main breaker.
- Wait for an electrician to check the device before using it.

Spoiled or Contaminated Food

- **Spoiled or contaminated food and water can make people sick.**
- **If they get sick, they may have limited access to medical care.**
- **Encourage people to do the following:**
 - Stockpile canned food ahead of time.
 - Keep food fresh.
 - Throw out spoiled food.
 - Clean off canned food. Storing canned goods in gallon zip bags buys time.
 - Use bottled water if possible, boiled water if necessary, especially for infant formula. Only use treated water (disinfected or purified) if bottled and boiled water are not available.

Carbon Monoxide Poisoning

- **Carbon monoxide (CO) is an odorless, colorless gas that can cause sudden illness and death if inhaled.**
- **People might use generators and other power sources if their electricity is out.**
- **The use of alternative sources of fuel or electricity for heating or cooking can cause CO to build up in a home, garage, or camper and to poison the people and animals inside.**

Carbon Monoxide Poisoning: Advice for the Public

- **Never use gas or coal-burning equipment inside your home, basement, or garage. Keep it outside and at least 20 feet from any window, door, or vent.**
- **Use a battery-operated or battery backup CO detector any time you use a generator or anything else that burns fuel.**
- **Never run a car or truck inside a garage attached to your home, even with the garage door open.**
- **Never heat your home with a gas oven.**
- **If you have a carbon monoxide detector and it starts beeping, leave your home right away and call 911.**

Other Health Risks

- **Driving through flood waters**
- **Animals and pests**
- **Psychological harm**
- **Injuries during cleanup**
- **Mold**
- **Hyperthermia and hypothermia**

CDC Hurricane Resources

- <https://www.cdc.gov/disasters/hurricanes/>
- <https://www.nhc.noaa.gov/prepare/ready.php>
- <https://www.ready.gov/hurricanes>
- <http://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/hurricane>
- <http://spaghettimodels.com/>

Hurricane Messaging during the COVID-19 Pandemic

Vivi Siegel, MPH

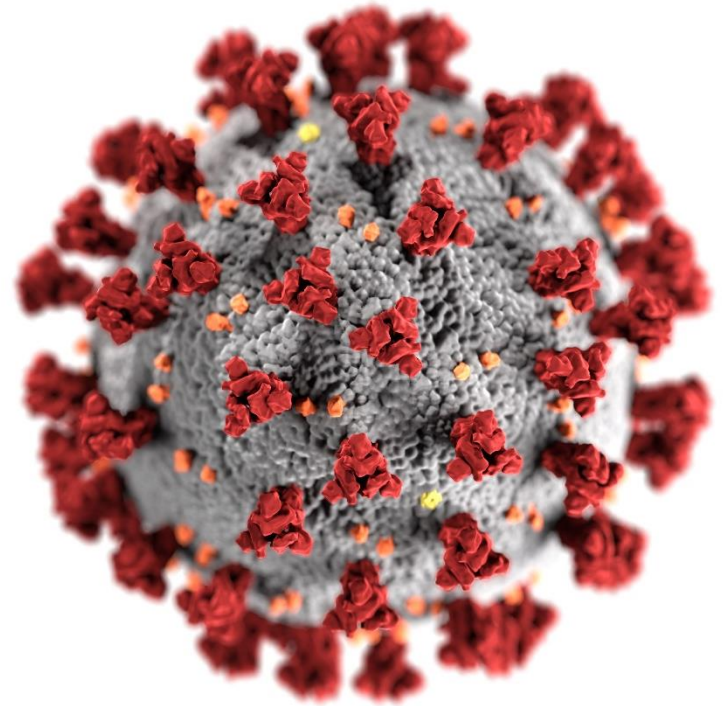
Lead, Crisis and Emergency Risk Communications

Division of Environmental Health Science and Practice

National Center for Environmental Health

EPIC Webinar: 2020 Hurricane Season

May 27, 2020



cdc.gov/coronavirus

COVID-19 Hurricane Messages



Crisis and Emergency Risk Communication



Principles of Crisis and Emergency Risk Communication

Be first, be right, and be credible.

emergency.cdc.gov/cerc



Importance of talking “to” your audience instead of “at” your audience.

Understand who you are talking to.

- Use empathy.
- Speak clearly.
- Use open body language.

Amending Messages for COVID-19: Mental Health

Acknowledge in words the difficulty of dealing with multiple disasters.



- Planning for hurricane season and other potential disasters can be stressful, and because the 2020 hurricane season comes during the [COVID-19 pandemic](#), it may be especially so.
- Taking care of emotional health helps people think clearly, react to urgent needs.
 - Provide resources for the community such as the SAMHSA Disaster Distress Helpline and CDC materials on stress and coping.
 - Provide parents resources for supporting children.
 - Responders may experience secondary traumatic stress.

- [CDC: Coping with a Disaster or Traumatic Event](#)
- [CDC: COVID-19: Stress and Coping](#)
- [SAMHSA Disaster Distress Helpline](#): 1-800-985-5990 or text “TalkWithUs” (for English) or “Hablanos” (for Spanish) to 66746.

Amending Messages for COVID-19: Before a Hurricane

Help people understand how to take COVID-19 protective actions while preparing their families and homes for a hurricane.



- Give yourself more time than usual to [prepare your emergency food, water, and medicine supplies](#).
- Take steps to protect your and others' health when [running essential errands](#) and when filling [prescriptions](#).
- Pay attention to local guidance about updated plans for evacuations and shelters, including [potential shelters for your pets](#).
- Include items such as soap, hand sanitizer, [cloth face coverings](#) in evacuation “go kits.”
- Follow [social distancing](#) recommendations when checking on neighbors and friends.

- [CDC: Preparing for Hurricanes During the COVID-19 Pandemic](#)

Amending Messages for COVID-19: After a Hurricane

Help people take COVID-19 precautions in addition to following regular safety guidance about power outages, food and water safety, and avoiding injuries.



- Continue to use [preventive actions](#) like washing your hands, wearing a [face covering](#) in public, and social distancing during clean up or when returning home.
- It may take longer than usual to restore power and water if they are out.
- If you are injured or ill, contact your medical provider. Keep wounds clean to prevent infection. Accessing medical care may be more difficult than usual.
- It is natural to feel anxiety, grief, and worry. [Coping with these feelings and getting help](#) when you need it will help you, your family, and your community recover.

- [CDC: Preparing for Hurricanes During the COVID-19 Pandemic](#)

Amending Messages for COVID-19: Shelters

Help people understand how to prevent infection if they need to go to a public shelter.



- Check with local officials to see if your shelter location is different this year, including for pets.
- Bring items to help you stay protected: soap, hand sanitizer, [cloth face coverings](#) for people 2 years and older.
- Practice [social distancing](#) in the shelter and help children do the same. Stay at least 6 feet away from people outside of your household.
- Follow disaster shelter policies and procedures designed to protect everyone in the shelter.
- [If you feel sick](#) when you arrive at the shelter or start to feel sick while sheltering, tell shelter staff immediately.


- [CDC Going to a Public Disaster Shelter During the COVID-19 Pandemic](#)

Educational Materials





Hurricane Educational materials – by Topic and Language

Children may not say how they are feeling during a crisis.



Talk to them. Answer questions. Make sure they feel loved.

■ Call SAMHSA's Disaster Counseling Helpline at 1-800-985-5990
Text "TalkWithUs" for English or "Hablamos" for Spanish to 66746

Cómo desinfectar el agua

Después de un desastre natural, es posible que el agua no sea apta para el consumo. Escuche los anuncios de las autoridades locales para saber si puede utilizar el agua.

Con un poco de cloro se puede hacer que el agua se pueda utilizar en forma segura.

Si el agua de la llave es clara:

- Utilice cloro que no tenga otros olores (como limón).
- Si utiliza cloro líquido de uso doméstico al 5%, agregue un poco menos de 1/8 de cucharadita (4 gotas o alrededor de 0.5 mililitros) a un galón (16 tazas) de agua.
- Si utiliza cloro líquido de uso doméstico al 2.5%, agregue un poco menos de 1/8 de cucharadita (4 gotas o alrededor de 0.5 mililitros) a un galón (16 tazas) de agua.
- Mezcle bien y espere al menos 30 minutos o más antes de usar el agua.

Si el agua de la llave es turbia:

- Utilice cloro que no tenga otros olores (como limón).
- Si utiliza cloro líquido de uso doméstico al 5%, agregue un poco menos de 1/4 de cucharadita (16 gotas o alrededor de 1 mililitro) a un galón (16 tazas) de agua.
- Si utiliza cloro líquido de uso doméstico al 2.5%, agregue 12 gotas (1 alrededor de 1 mililitro) a cada galón (16 tazas) de agua.
- Mezcle bien y espere al menos 30 minutos o más antes de usar el agua.


Recuerde que puede ser necesario desinfectar los recipientes antes de utilizarlos para guardar el agua limpia:

1. Utilice cloro que no tenga otros olores (como limón).
2. Agregue 1 cucharadita (4 gotas o 5 mililitros) de cloro líquido de uso doméstico en 1 cuarto de galón (2 onzas, 4 tazas o alrededor de 1 litro) de agua.
3. Vierta esta solución en un recipiente limpio para almacenar y agite bien para asegurarse de que el líquido cubra todo el interior del recipiente.
4. Deje reposar al menos 30 segundos y luego vacíe el recipiente.
5. Deje secar al aire o enjuague con agua clara que ya ha sido desinfectada, si la hay.

■ Nunca mezcle cloro con amoníaco ni con otros productos de limpieza.

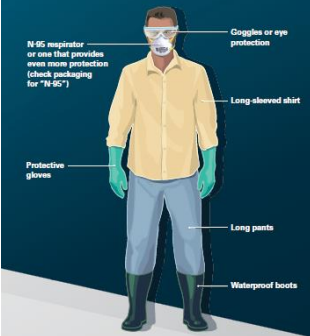
■ Cuando utilice cloro, abra puertas y ventanas para que el lugar se ventile.

Para obtener más información sobre cómo hacer que el agua sea segura después de un desastre natural, visite www.cdc.gov/healthywater/emergency/drink/making-water-safe.html



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

WHAT TO WEAR BEFORE ENTERING A HOME OR BUILDING WITH MOLD DAMAGE



CAUTION!



If you have a breathing problem like asthma, do not enter a building with mold damage. Mold can make asthma symptoms worse.

If you have a weakened immune system (such as from cancer treatment or medicines that suppress the immune system), do not enter a building with mold damage. People with a weakened immune system are more likely to get a serious illness from mold.

Children should also not enter buildings with mold damage.

MORE INFORMATION ON REMOVING MOLD:
www.cdc.gov/mold/cleanup-guide.html


MORE INFORMATION ON WEARING RESPIRATORS:
www.cdc.gov/disasters/disease/respiratory.html

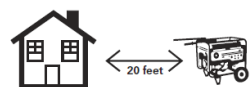
DANGER

CARBON MONOXIDE HAZARD


Using a generator indoors WILL KILL YOU IN MINUTES. Exhaust contains carbon monoxide, a poison gas you can not see or smell.



NEVER use a generator indoors, in garages, or carports.



ALWAYS use a generator outdoors, and at least 20 feet from windows and doors.



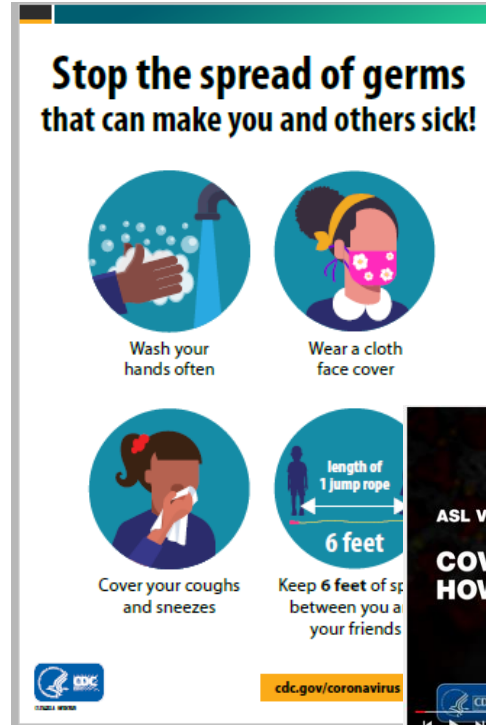
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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<https://www.cdc.gov/disasters/hurricanes/educationalmaterials.html>

COVID-19 Communications Resources

- Materials available in multiple languages
- Printable posters for shelters
- Sign language videos



<https://www.cdc.gov/coronavirus/2019-ncov/communication/>

Social Media: Hurricanes and COVID-19

- twitter.com/CDCEnvironment
- www.ready.gov/hurricanes
- www.weather.gov/wrn/2020-social-media-hpw

 **CDC Environment** @CDCEnvironment · May 7
This year, preparing for #HurricaneSeason is a little more complicated. Give yourself more time to gather supplies, and if possible, include hand sanitizer and cloth face coverings in your Go Kits in case you need to evacuate.
#HurricanePreparednessWeek
bit.ly/35JO794



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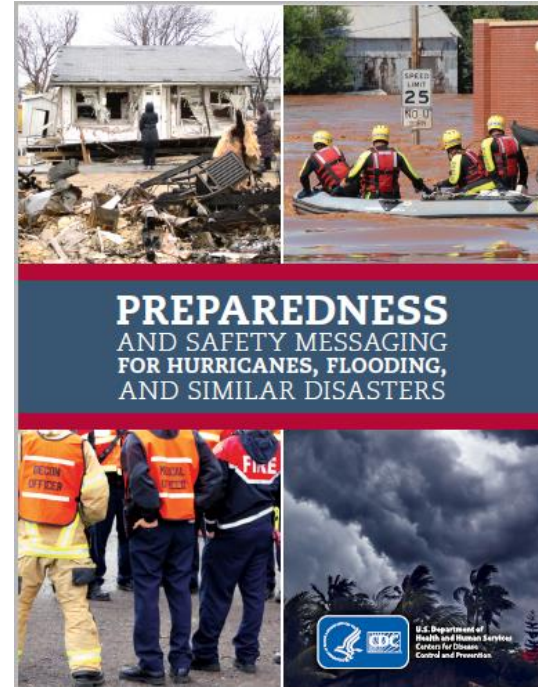


Coordinating Messaging



Phase-based messages: Add in COVID-19 messaging

Phase 1 Immediately preceding landfall – 24 hrs post-storm	Readiness and preparation <ul style="list-style-type: none">• Evacuation guidance• Flood safety• Power outage risks
Phase 2 1-3 days post-storm	Returning home <ul style="list-style-type: none">• Power outage risks• Carbon Monoxide Safety• Safe water and food• Worker safety
Phase 3 3-7 days post-storm	Environmental hazards <ul style="list-style-type: none">• Vector control• Preventing injury• Cleaning and sanitation• Medication storage guidance
Phase 4 2-4 weeks post-storm	Short-term recovery <ul style="list-style-type: none">• Coping with trauma• Mold remediation• Protect from chemicals
Phase 5 1 month post-storm, later	Long-term recovery and resilience <ul style="list-style-type: none">• Coping with trauma• Mold



Coordinating Messages is More Important Than Ever!

- **Clear and share in advance with all relevant organizations.**
- **Allow suggestions and comments – iron out any disagreements.**
- **Decide who leads on each type of message (topic, audience).**
- **During the response, stay in sync through constant contact.**

Considerations for Disaster Shelters During the COVID-19 Pandemic

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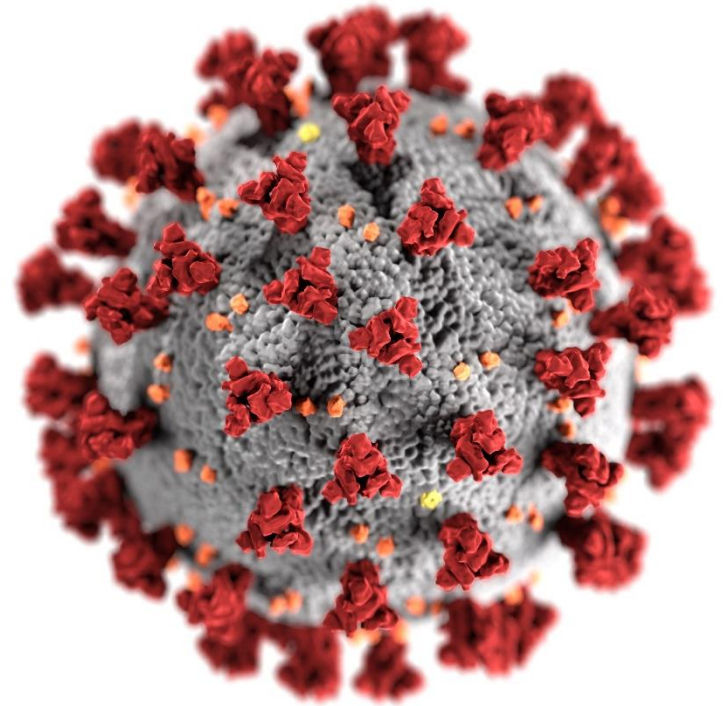
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Hurricane season 2020

- Hurricane season is expected to be more active than average this year.
- In spite of stay-at-home orders, it may become necessary for people to seek safety in evacuation shelters.
- Shared living areas and crowded conditions in shelters require modifications to standard shelter operations.
- CDC developed recommendations to assist shelter staff to reduce the possibility of transmission of COVID-19 among shelter staff, volunteers, shelter residents, and visitors.





Sheltering during the COVID-19 pandemic

Questions

- How do we lower the risk of transmission?
- How do we operate while maintaining social distancing?
- What strategies can we use to monitor illness?
- What do we do if someone gets sick?
- What should people bring to a shelter?
- What are considerations for people in the higher risk category?
- What are considerations for children?
- What if someone brings their pet?

First consideration

Disaster shelter options During Covid-19



Disaster shelter options

Option 1 - Hotels or dormitories

Preferred option:

- Separate rooms lower risk of transmission
- Areas for feeding, laundry, and other services
- Hotels preferred over dormitories because they have private bathrooms, televisions, phones, and bedding



Disaster shelter options

Option 2 - Campgrounds

- People can stay in separate tents, cabins, or RVs
- Many sites have bathrooms, laundry and bathing facilities
- Need to check for accessibility
- Post-hurricane sheltering only



Disaster shelter options

Option 3 - Congregate shelters

- Small shelter (fewer than 50 residents)
 - May need more shelters
 - Less complicated operations
 - May be closer to home than larger facility
- Large shelters
 - Option of last resort
 - Demobilize when safe to do so
 - Move shelter residents out of large shelters as soon as possible



CDC Interim Guidance for General Population Disaster Shelters During the COVID-19 Pandemic



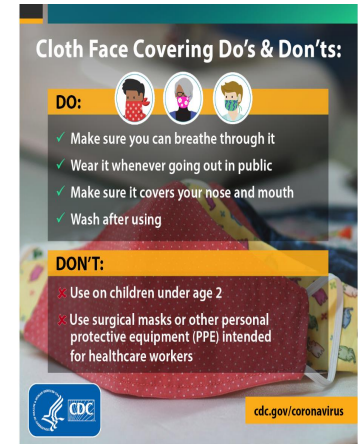
CDC Interim Guidance for General Population Disaster Shelters During the COVID-19 Pandemic

The guidance covers the following topics:

- People who need to take extra precautions
- Screening, monitoring, and isolation
- Intake area and waiting room
- Isolation area
- Discontinuation of isolation
- Information in all common areas of the shelter
- Social distancing
- Food service
- Increased use of supplies
- Cleaning and disinfection
- Air filtration
- Special considerations for children
- Animals in emergency shelters

Key points and important messages

- Alternatives to opening disaster shelters, such as sheltering in-place, should be considered if safe.
- Everyone in the shelter should wear a [cloth face covering](#) at all times except when not practical, such as when eating or showering.
- Access to safe shelter is critical and shelters should not exclude people who are having symptoms or test positive for COVID-19. These individuals should be directed to the isolation area.



Key points and important messages

- Staff should monitor residents for [symptoms of COVID-19](#) and other illness, including mental/behavioral health concerns, and provide a daily update to the local health department.
- Shelters should provide separate areas to isolate residents with symptoms of COVID-19.
- If testing is available, shelter staff, volunteers, and residents should be tested in accordance with state and local health department guidelines.



Key points and important messages

- Use of cloth face coverings, frequent handwashing, social distancing, and frequent cleaning and disinfection should be maintained in all areas of the shelter, including animal area.
- In accordance with the ADA, service animals must be allowed to stay with their handlers unless the animal is out of control or poses a direct threat to health and safety.



CHALLENGES

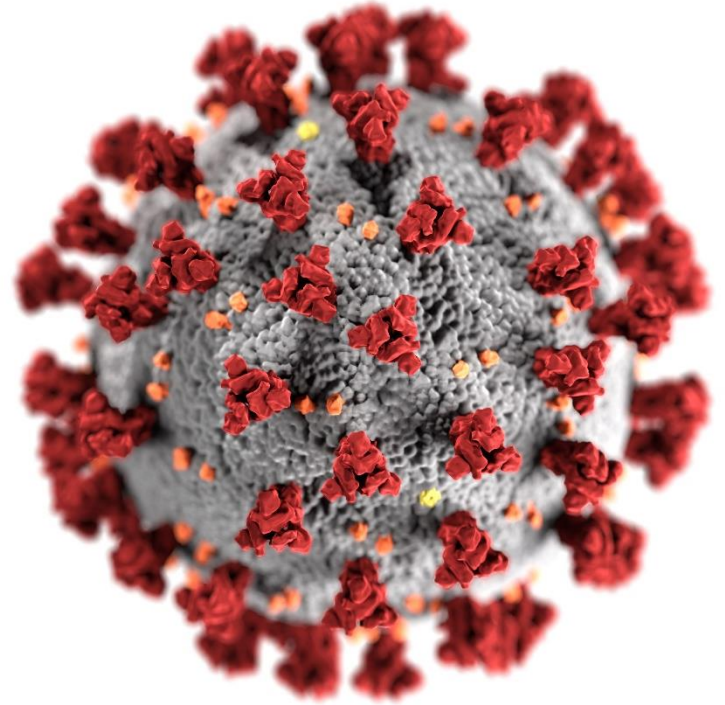


Not a perfect solution

Challenges:

- Some people may be afraid to go to a shelter due to COVID-19.
- There may not be enough masks, face coverings, or testing available for everyone.
- People may not comply with social distancing and other preventive measures.
- May be a heightened level of anxiety in the shelter.
- Options to transport people who can't drive themselves may be limited and increase the risk of exposure.
- Some staff and volunteers may be unable or unwilling to assist in the shelter.

Questions



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

