Workshop #3: Transportation and Sheltering Logistics during the 2020 Hurricane Season

After-Action Report (AAR)

May-June 2020

Prepared by:

University of South Florida
Old Dominion University

20 June 2020

WORKSHOP #3 OVERVIEW

Workshop Name	Logistics including Evacuation Transportation, Shelter Operations (congregate/non-congregate), and Supplies
Workshop Dates	Wednesday, June 3, 2020
Scope	Workshop conducted virtually through Zoom breakout sessions and asynchronously through Zeetings: https://www.zeetings.com/wieyusuf/0009-8653-0001
Objectives	Discuss disaster preparation and define vulnerable populations in the context of a compound hurricane-pandemic threat.
Threat or Hazard	Compound threat from tropical cyclones during the 2020 Atlantic hurricane season and a global health emergency from the COVID-19 pandemic.
Scenario	A major hurricane triggers a large-scale evacuation across a regions, requiring county and municipal governments to open emergency shelters.
Sponsor	CONVERGE COVID-19 Working Groups https://converge.colorado.edu/resources/covid-19/working-groups
Participating Organizations	State and local public health, nursing, engineering, public administration, emergency management, public policy, community, and academia/research.
Point of Contact	Elizabeth A. Dunn, MPH, CPH, University of South Florida College of Public Health. 361-510-7935, eadunn2@usf.edu Project website: https://sites.wp.odu.edu/hurricane-pandemic/ Please share comments/feedback on this report here: https://forms.gle/xfFGktLJSNifpdbj8

EXECUTIVE SUMMARY

Participants in the CONVERGE COVID-19 Working Group's *Workshop 3 on Logistics* breakout sessions identified key issues that included population considerations, training needs, continuity of operations and resources still available, site planning (i.e., feeding, registration, shelter design, resources, family unity), facility requirements, and supplies needed during a hurricane evacuation.

Operational safety measures and population considerations were mentioned throughout the workshop. This included the need for identifying additional resources, facilities, and staffing to be able to ensure safety is a priority while accommodating social distancing recommendations and the needs of vulnerable populations and staff. Workshop participants emphasized the need to identify new partnerships for critical services and alternative site locations for sheltering to increase evacuation and sheltering capacity. This entailed the need for reassessing existing contracts with transportation and sheltering to ensure they are still operational and have the staffing and resources to support the logistical needs for evacuating vulnerable populations and the public to shelters.

In addition to identifying what is needed for logistical planning there is a need for understanding facility requirements, availability of buildings and needed supplies for operating non-congregate and congregate shelters. Infrastructure and shelter design were discussed to provide context on how jurisdictions are providing support in their shelter operations that maintains infection control measures, social distancing and keeping family units together. Staffing and training needs for both transportation and shelter operations was a concern and various ideas were proposed as solutions.

Questions were raised in the workshop about designing infrastructure in the future that would allow us to have an increased number of facilities for sheltering during a hurricane, or to serve as a refuge of last resort. What does the registration process look like during this hurricane season? How do you handle the demand for personal protective equipment (PPE) and other supplies needed to reduce the risk of contracting COVID-19? A few participants highlighted the need for logistical procedures and guidelines for pet evacuation and pet-friendly shelters along with service animals.

3.1 BACKGROUND AND OBJECTIVES

On Wednesday, June 3, 2020, stakeholders gathered virtually to participate in the third workshop of the *2020 CONVERGE NSF Working Group Stakeholder Conversations on Evacuation Transportation and Sheltering Operations during a Pandemic*. Workshop #3 had 156 registrants in the workshop from 14 states, 9 universities and various disciplines that included public health, nursing, engineering, public administration, emergency management, public policy, aging studies, and graduate studies. Registrant roles included emergency managers, government employees, environmental consultant, chief fire operation, researchers, disaster specialist, analyst, and healthcare practitioners. In addition to 71 total individuals who participated in the Zoom meeting, 4 additional individuals joined an asynchronous discussion on the Zeetings webpage.

Prior to attending, registrants expressed that their most important goals regarding vulnerable populations and planning for the upcoming hurricane season included: finding the best solutions for preparedness and evacuation planning to ensure the safety and resilience of these populations; appropriate shelter management especially the support for the shelter staffing; to address and manage communication regarding shelters and adherence to COVID-19 safeguards; and promotion strategies to strongly advise citizens the importance of planning ahead and deciding on shelter/evacuation plans during the COVID-19 Pandemic. Moreover, registrants sought to understand the community needs and coordinate the evacuation process while maintaining social distancing standards for COVID-19. Example comments from the registration included:

> *"Gaining knowledge and guidance of operating issues during hurricane season." - Director of Operations"*
>
> *"Managing logistics of a hurricane response while handling COVID-19 logistics for PPE." - Planning Division Director*
>
> *"Monitor needs by state and work with FEMA Log to meet those needs." - Mass Care/Individual Assistance Specialist*
>
> *"Ensuring that the survivors are provided with the items they need to assist in their recovery" - FEMA Director/Mass Care*
>
> *"To ensure shelters are established that can provide service to ESRD patients who may require country provided transportation to go to a dialysis center in the area 3x a week for treatment." - Executive Director*
>
> *"To create a plan that will keep both the community and emergency responders safe during evacuation and sheltering by following guidance and infectious disease control measures during any possible severe weather events." - Emergency Planner*
>
> *"To have all essential items regarding sheltering operations available to the public when sheltered (Transportation, food, water, etc.)." - Program Coordinator / ESF6*

3.2 DISCUSSION TOPICS AND QUESTIONS

Workshop 3 consisted of six breakout groups that discussed current questions and logistical considerations during this current hurricane season in consideration of the COVID-19 pandemic. Breakout sessions were simultaneously moderated with the same overlying format:

- **Round One:** *What considerations need to be made regarding evacuations and transportation of clients?*

- **Round Two:** *How can evacuees be distributed across non-congregate and congregate shelter facilities to reduce risk?*

- **Round Three:** *How can hazard control principles be applied to shelter intake processes, physical design, operations, and needed supplies to contain the spread of COVID-19 and maintain health?*

- **Round Four:** 2-minute question burst

3.3 PRELIMINARY QUALITATIVE DATA ANALYSIS

Overall Key Considerations

- **Key Consideration 1:** Operational safety measures and population considerations during the evacuation and transportation of clients

- **Key Consideration 2:** Identify new partnerships for critical services and alternative site locations for sheltering to increase evacuation and sheltering capacity

- **Key Consideration 3:** Facility requirements, availability of buildings and needed supplies for operating non-congregate and congregate shelters

- **Key Consideration 4:** Infrastructure and shelter design to support shelter operations for maintaining infection control measures, social distancing and keeping family units together

- **Key Consideration 5:** Staffing and training needs for transportation and shelter operations

3.4 ROUND ONE: WHAT CONSIDERATIONS NEED TO BE MADE REGARDING EVACUATIONS AND TRANSPORTATION OF CLIENTS?

3.4.1 KEY CONSIDERATION 1: RESIDENTS AND VULNERABLE POPULATIONS

Round one centered on considerations of residents during evacuation leading to key considerations discussed regarding vulnerable populations as well.

- Health status of clients including disabilities that affect mobility and qualifications for staying in a Special Needs Shelter (SpNS)

- Fear Factor for those who are medically fragile that would normally evacuate but believe they are safer at home during a hurricane than they would in a congregate shelter during COVID-19. Number or percent of those who choose to stay at home are unknown

- Concerns regarding infection during the transportation process

- Challenge with people waiting until the last minute

- ○ Plan needed for being able to increase capacity of transporting special needs clients and general population if there is a direct impact to ensure they get out of an area

- Economic Impact of COVID-19 and increased number of vulnerable populations

- Some people may evacuate to distant shelters since these shelters may offer better conditions leading to overcrowded shelters if capacity is limited given social distancing

- Messaging. Some indicated they are trying to do a better job of messaging in preparation for hurricane season with more targeted messaging in specific evacuation areas to limit the number of people needed to be evacuated while still ensuring people are prepared.

  - ○ Focus research on potential evacuee numbers and identify mitigation measures for those who decide to stay and shelter in place

> *"In a normal year, we are telling people to be prepared and have supplies and make preparations and so forth. But for a lot of people, that's going to be so much tougher this year because of the economic impact that the pandemic has had."*
>
> *"Folks are scared, not only because of what the storm can bring, but because of COVID."*
>
> *"The literature that I've seen on using hotels is very positive. We've even talked to some employees saying that it gave them a sense of normalcy and community, [and] demand at the hotel will probably be lower in those hurricane conditions as well." - Assistant Professor*
>
> *"During [Hurricane] Irma we had over-full special needs buses because people waited until the last minute."-Department of Health, Environmental Administration Specialist*

Strategies

- Utilize the CDC's Social Vulnerability Index to estimate demand for transportation by identifying the estimated number of people per evacuation zone that are transportation dependent

- Screening clients, employees, and volunteers at registration

  - ○ Asking screening questions, checking temperatures using a touchless thermometers, and use the Merlin Data Management Guidance

  - ○ Concerns with screening effectiveness due to pre-symptomatic/asymptomatic clients

- Public health/medical personnel can work with registration staff in general population shelters to screen clients upon arrival to determine if someone needs be in isolation area

  - ○ Public health/medical personnel at shelter may direct those with possible exposures to an alternative shelter location following the screening process

  - ○ Authorities may indicate in public messaging for those with potential symptoms or exposures to go to Shelter A instead of Shelter B

- Reserving hotels in medium to large counties that have hotel availability for symptomatic persons and vulnerable populations (65+ and underlying conditions)

- Make sure everybody goes to the right shelter from the beginning to limit interactions

- Recommend Assisted Living Facilities and Nursing Homes be mandated to update their emergency plans to account for COVID-19 this year
  - Identify plans for where they are transporting patients and who is transporting them
  - Sister facilities where a facility my transport their patients ahead of the storm may have requirements before arrival, may refuse accepting patients, and/or may end up having COVID-19 outbreak *--a need for back-up plans or they might end up in your general population shelters without the proper healthcare staff or a caregiver*
- Partner with departments/agencies, nonprofit organizations and faith-based organizations that work with vulnerable populations to disseminate information on available shelters and the registration processes

3.4.2 KEY CONSIDERATION 2: ACTIVE AND SAFE TRANSPORTATION

- Continuity of Transportation Operations:
  - Due to COVID-19 some companies have had financial difficulties or perhaps are going out of business. If local government relies on bus companies that are experiencing these challenges, drivers may not be available, or the company may no longer be a viable resource
  - Even if the current capacity of transport vehicles are available, we may start to notice that it has been diminished/limited due to the daunting environment
  - Contracting buses for evacuation may have some challenges --large number of drivers have been laid off, maintenance technicians may have not maintained vehicles, fleet size may have been reduced.
  - Some transportation companies may have assets available but may not have enough drivers due to their drivers being unionized, meaning they may operate as volunteers
  - There is already a shortage of EMTs and ambulances (private or county owned) to be able to transport clients from hospitals, assisted living facilities, and nursing homes during a typical hurricane event. With CODID-19, it is anticipated that the shortage in ambulances available to provide transport will be even more of an issue, so the reliance on partnering with transportation companies will need to be emphasized
  - In the private sector, concerns for transportation for foreign labor to restore services as transportation capacity is maxed out
- Transporting Clients Safely:
  - Transportation planning will have to adjust their capacity and timing due to social distancing, number of assets available, and extra cleaning
    - Number of people transported will be cut in half (or by a quarter) to maintain social distancing; poses challenges in being able to evacuate everyone in a timely manner.
    - Either more resources will be needed or more time needed to evacuate individuals

- Type of transportation plans needed in place for household pets and considerations for storing/handling personal property
  - Timing will be critical this year due to social distancing; school buses and public transportation buses will not be able to transport as many people as usual with pre-screening before embarking, frequent stops for cleaning, and drop offs
    - Need for training of transport staff
    - Cleaning of vehicles between services, supplies to conduct cleanings and the availability of drivers to be able to move everyone in a timely fashion
    - If it is going to take two or three times longer to evacuate the same number of people, shelters will need to be open earlier and stay open longer
  - Define and approve infection prevention protocols for the transporting entity; work being done nationally and at the state level to implement COVID-19 prevention processes
- Public Response to Transportation:
  - Some people may be reluctant to take public transportation for evacuating due to fear of exposure to COVID-19; may decline transport upon arrive

Strategies

- Contracting with transport companies that can activate 72 or even 94 hours ahead of time for those planning to evacuate

- Preparing public transportation systems (city/regional buses) and clear messaging for evacuation preparations

- Identify and offer pet trailers in some cities for those needing to evacuate; if some people do not have a cage, they may need to have their pet with them on the bus or take their pet with them to a hotel; concerns about hotel pet policies

- Additional procedures will need more time. Plans need to consider opening up their shelters sooner, meaning more resources will be needed and staffing. Things that are done pre-landfall in the shelter 12 to 36 hours ahead of time may need to be changed to 48 or 72 hours ahead of the storm

- Need to think about increased time and using modelling tools like HURREVAC for decision-making to determine how much time is actually needed to get people to a shelter

- Add additional buses and transport options for evacuation along with pre-screening processes for evacuees before they arrive at the shelter. Buses should be at 50% capacity - every other seat

> *"...We're looking at trying to do a better job of messaging for preparation and more targeted specific evacuation areas to limit the number of people that we need to evacuate, still getting people prepared, and trying to reduce the evacuee numbers, but still mitigate those that stay in shelter-in-place."*

3.4.3 KEY CONSIDERATION 3: REACHING NEW TYPE OF FACILITIES AND CONCENTRATION POINTS

- Increase focus on identifying alternative shelter locations:
  - Large empty warehouses or stores like Kmart, Sears or JC Penney in addition to public schools
  - Sheltering at universities that are not being used
  - Considering hotels for increasing additional capacity required by COVID-19.
    - Some areas are currently using 1-2 hotels specifically for vulnerable populations and to get the homeless off the street.
    - Negotiations with local hotels to establish shelters for residents living in low lying areas or substandard housing to avoid placing large number of evacuees together
  - In some areas where the American Red Cross assists with sheltering, there is some indication that they will only be able to assist with sheltering in hotels and providing supplies; however, if a jurisdiction is using schools/stores, there may be limited assistance

Strategies

- The American Red Cross has developed sheltering frameworks and a checklist for COVID-19 non-congregate and congregate sheltering (*see resources section*).
- New standards for special needs clients are 160 ft^2 –four times more than the traditional 40 ft^2 per person

> *"One of the things that we've been looking at is if our normal points of evacuation are going to be available? I know we evacuate a lot of our nursing homes off the coast, and a lot of the nursing homes we move those people to are not going to be accepting evacuees. So, we now have to find a new location for them."*
>
> *"That timing component is going to be even more critical this year knowing that with social distancing, for example our school buses, and our public transportation buses are not going to be able to shuttle as many people as they normally do and there may be intermittent stops for cleanings between pickups and drop-offs."*
>
> *"In storm surge zones, we are trying to get people out still. The threat there is much greater than at a shelter, even if COVID-19 is present. Weighing the risks, we feel this is the better method. Outside storm surge zones, we are promoting 'Know your home' --if built to code and in a safe space, maybe stay home." - Emergency Management Coordinator*

3.4.4 GENERAL SUMMARY OF THE ROUND

In this round, there was a focus on transportation needs due to physical distancing along with non-congregate sheltering. Participants discussed the need to increase time to get people to safety (decreased capacity on transport, decreased transport, increased complexity, increased sheltering spaces likely further away, etc.). Messaging is critical for people to prepare in advance for compounding hazard events. In this sense, managing people's expectations for what shelters will entail and encouraging people to take action earlier were mentioned. In addition, the issue of

transportation planning for evacuees and workers (e.g. shelter staff/volunteers, disaster cleanup and power crews) was discussed. Eligibility for transportation and for whom transportation is provided needs to be taken into consideration as well as availability to those with mobility issues or disabilities.

Across the groups, the adherence to safety guidelines across various sectors during evacuations was emphasized with special considerations for infection control measures taken into considerations for public transportation and buses that will be used for evacuating residents. Discussions included the importance of establishing plans for funding reimbursements, evacuating and planning ahead of a storm, and making sure vulnerable populations have priority for non-congregant sheltering. Many groups discussed shelter planning considerations for pets, and whether COVID-19 will change current guidelines to the possible spread of COVID-19 from animal to animal, animal to human, and human to animal spread since there is a lack of information about this topic.

3.5 ROUND TWO: HOW CAN EVACUEES BE DISTRIBUTED ACROSS NON-CONGREGATE AND CONGREGATE SHELTER FACILITIES TO REDUCE RISK?

3.5.1 KEY CONSIDERATION 1: AVAILABLE SHELTERS

- Alternative Shelter Locations:
    - University Dorms
    - Sheltering people with COVID-19 in hotels and motels
- Sheltering during the Recovery Phase:
    - Private sector restoring services (e.g., electricity) sets up base camps, may need to look at similar strategies for recovery
        - Support staff that are working the incident and they have mobile sleep trailers that typically hold 30 to 40 personnel
        - Identify Campgrounds with proper sanitation and amenities for recovery operations
    - RV trailers and mobile homes
- Utilizing Hotel for Non-Congregate Sheltering:
    - Procedures for moving people from one shelter to another; determine when to stop movement of clients to appropriate shelters or hotels
    - Issue of liabilities and damage to hotel reputation due to hosting COVID-19 positive clients
    - Generator capacity of non-congregate shelters requires conducting an assessment of the hotel/motel to see if it has full generator capacity for electricity-dependent clients and if the load on the existing generator will be enough. The hotel and their engineering teams will need to develop a plan for loss of power

- Need for host-sheltering agreement statewide and even in multistate regions to ensure local shelters are not overrun.

  - Reimbursement process prevents the host county from getting paid, meaning policies needs to be state or federally mandated

- Paying clients that are evacuating from low-lying areas, emergency response workers, at-risk populations and COVID-19 positive competing for non-congregated sheltering

  - Securing hotels depends on jurisdiction size; securing rooms for 300 people is easier than larger jurisdictions securing 2,000-4,000 rooms

  - Some hotels reserve rooms ahead of time for FEMA workers, for power company workers, and others that will need to come in and to respond, so that depletes the number of available rooms for citizens

  - Many hotels book up only to close due to being in an evacuation zone leading to the displacement of those who were staying in those hotel rooms

---

"What do I have for space and facilities to use, which ones are going to be used for congregate sheltering and which ones are going to be used for non-congregate sheltering?"

"Important to note that evacuees have the option to go to a hotel out of the evacuation zone. These are the same hotels being looked at for Non-Congregant Shelters."

"...the shifting of populations from their normal environments into new environments and higher-density environments is a specific concern, especially with the infectious disease piece -- going into the shelters, going into hotels, going into families' homes. So, if they're bringing something from their location or if they're picking something up in a new location, that's a definite concern."

Strategies

- Normally have had an advertised list, but this year looking at an online registration and triage process to have people pre-register for shelters to receive notification where to go

  - Strategy limits interaction with staff to reduce exposure by assigning people to a specific location (i.e., school, hotel) and keep congregate shelter capacities low

- Getting messages out early and engaging those with medical, cognitive, functional, and special needs or challenges

- Getting people to actively engage in the sheltering process

3.5.2 KEY CONSIDERATION 2: PROCEDURES WITHIN THE SHELTER

- When hotels are being utilized as non-congregate shelters, plans for feeding are needed to determine who will be in charge of providing meals for evacuees

- ○ Plans to work with the hotel to provide meals, managed like a congregate shelter with NGOs providing food drop off, food delivery services, or local government

- Plans in place to ensure individuals and families know the rules for wearing masks inside the shelter and if it is required when clients are sleeping, or for special needs clients

  - ○ CDC recommends keeping masks on children 2+ years old which may be difficult to enforce

  - ○ Consideration for those that sleep with breathing assisted devices such as a CPAP or those that use a nebulizer or inhaler

> *"The crew supervisor who might be in charge of let's just say 10 people, that person will be in charge of going and procuring those meals or securing them, they don't have to buy them. They need to secure them and bring them back to their folks and they're going to either eat in their areas or in their vehicles. So we're getting rid of the meal tent."*

Strategies

- Using faith-based organizations (Salvation Army, Mercy Chefs) to provide food via pick up or delivery. Set plans and commitments for how many feedings during the week and on the weekends to determine if more than one vendor/partnership is needed for coverage and how it is packaged (takeout containers) and procedures for delivery

3.5.3 KEY CONSIDERATION 3: FAMILY SEPARATION, SPACING, AND REFUGE OF LAST RESORT

- Concerns regarding Family Separation:

  - Many groups discussed the separation of families is of concern due to restrictions due to the implementation of social distancing and limited capacity of shelters. Will there be particular reasons that might heighten the possibility of families to be separated than normal?

  - Special needs shelters will have one caretaker that will be allowed to come with the shelter client instead of 2+ members of the household being able to accompany them which means they may have to evacuate to a different shelter

  - May see a reduction of persons coming in with their loved ones that have special medical needs or older adults not feeling comfortable evaluating; may cause heightened stress of those in the shelter that did evacuate despite family members refusing to evacuate

- Shelter Spacing:

  - o Spacing and amount of square footage needs to take into consideration social distancing and measures to reduce footprint especially for those that evacuate with a large number of family members

    - ▪ Shelters facing a severe reduction in shelter footprint may be of concern if jurisdictions do not have enough retrofitted shelters in the area to meet the demand

- o If a family comes into the shelter and have already been living together, can they be put in a smaller space? Or still required to be spaced out? Many are considering isolation areas in shelters but may or may not want to put entire family groups in isolation. May want to presume all as positive in the family unit if they live together

- Refuge of Last Resort (ROLR) verses Shelter of Last Resort (SOLR):

- o Refuge of Last Resort (ROLR) is a venue concept for people who can not reach the shelters and have to go to church, restaurant or near-by location that may be safer than their own home, and could be used when a hazard is imminent or has no warning; a ROLR is different from a Shelter of Last Resort (SOLR) since they will not have staffing or services

  - Many people may wait until the last minute to evacuate leading to areas being cut off from surge of water, heightened wind speeds, or gridlock on roads

  - If unable to reach a shelter, individuals may need to find alternative locations that could serve as a refuge of last resort --church/mosque, restaurant, community center

Strategies

- CDC has pushed out guidance for COVID-19 on congregate sheltering recommending that persons from the same household be placed closer together but should be separated from others using social distancing guidelines

- In congregate shelters, looking at total number of people vs. square footage is important

- Identify potential facilities that are closer to the roads, so when there is a mandatory evacuation order, those evacuating can access a ROLR if unable to reach designated shelters

"A lot of people sometimes have the misperception that the shelter is going to be almost like a hotel stay. We tell them: 'Don't think of this as Disney cruise lines, think of this as Ernest Hemingway's 'Old Man and the Sea.' It's not going to be an optimal experience. It's just going to be something to get you through those few nights until the worst part of the storm passes.' Even with our special-needs shelters and our general-population shelters, the fundamental message still remains the same that when folks think of shelters, they think of that as their last resort or last refuge place."

"The problem with screening evacuees is it does not address pre-symptomatic or asymptomatic evacuees. May create a false sense of security." - Emergency Preparedness Coordinator

"Shelters should be able to keep families together unless one person needs to isolate. Families can group in a smaller space (per person) while maintaining the appropriate lower density overall."

3.5.4 GENERAL SUMMARY OF THE ROUND

Conversations focused on non-congregate and congregate shelter facilities requirements, availability, supplies, and family separation. One point that was brought up is that many nursing homes are private, so they typically come up with their own plans or may not have plans that take into consideration challenges that COVID-19 may cause to be able to evacuate their facilities. Participants brought up concerns regarding continuity of care and who is in charge of making decisions before and after the population is moved. Conversations included the idea of potentially evacuating people earlier than their standard times and in regard to how spontaneous shelters are managed. Some brought up the idea of maybe identifying places that often serve as a spontaneous shelter during an event and reaching out to them to help develop plans/protocols for COVID-19.

3.6 ROUND THREE: HOW CAN HAZARD CONTROL PRINCIPLES BE APPLIED TO SHELTER INTAKE PROCESSES, PHYSICAL DESIGN, OPERATIONS, AND NEEDED SUPPLIES TO CONTAIN THE SPREAD OF COVID-19 AND MAINTAIN HEALTH?

3.6.1 KEY CONSIDERATION 1: INFRASTRUCTURE AND LAYOUT OF SHELTERS

- Communication and Technology:

  o Operations of shelters are moving into more online. What if IT or electronics go down. Back-up system if they are going to tech for shelters?

  o Registration (and other services) done virtually via call center- significantly reducing the # of in-person staff

    ▪ Use an app for registration to reduce paperwork/person to person contact

  o If telemedicine services and technology is being used, there needs to be a plan in place for situations where the communications networks are down

    ▪ teleHealth can be used for both medical concerns along with behavioral health and mental health issues

    ▪ Identify 2 clinicians to serve as the medical point of contact for the shelter with 2 additional clinicians on standby for shelter behavioral health needs

    ▪ Utilize community support call centers such as 311 (Virginia) or 211 (Florida)

  o UV air treatment for infection control in shelters

- Pre-planning and Shelter Considerations:

  o Ventilation can be an issue if the power goes out

  o Consider a combination of guidelines as used by churches, hospitals and other public-facing entities (i.e. restricting the number of clients who enter for intake, providing

masks, hand sanitizers, using messaging/signage, maintaining safe distancing, cordoning off of seats in waiting rooms)

- o Identifying points of access and exterior doors to ensure people are not going in and out of the shelter without proper screening, or from letting people in that did not register

- o Identify security concerns and have adequate security on site to assist with heightened issues with people not wanting to follow COVID-19 safety protocols (i.e., refusing to wear masks)

- Shelters Layout and Design:

  - o Classrooms utilized for social distancing

  - o Safer traffic flow requires enlarging or changing the footprint

  - o Wheelchair access including ADA compliant restrooms, ramps and other amenities

  - o Reducing capacity of shelters and reduce number of staff by having shelter residents help run the shelters

    - ▪ Identify an Isolation area, anyone at high risk or people that have tested positive will be at the non-congregate shelters, and look at lessons learned from American Red Cross that is currently operating shelters after flooding or tornado events

- Intake Process and Registration:

  - o Cannot eliminate risk to COVID-19 but limiting contact to population and staff for harm reduction and expose ideal practices

  - o Challenges before with Hurricane Irma and people sitting outside of shelters in the heat waiting to register/enter shelter

    - ▪ Shade tents outside to reduce possibility of heat exhaustion or increased temperature that will affect temperature checks/pre-screening

  - o Pre-registration or touchless/automated registration to triage evacuees to different shelters

Strategies

- One option could be a call center (totally virtual) to do screening for need, registration, and assignment to site. Would only need to self-identify upon arrival at a hotel or congregate site. Hotel staff could do normal check-in and limited staff at the site would be required to check-in at the congregate site

- Shelter residents can be assigned to specific zones/pods within the schools and provided a color-coded armbands to indicate what area they will be staying in specifically. Staff and clients will not be permitted to leave their zone

- Reaching out to all residents in our Access & Functional Needs Registry to drill down on preparedness planning for this hurricane season. Starting with all those who historically seek out sheltering, list going to a shelter as their evacuation plan or live in low-lying areas. Work with these residents (as most are at high risk to COVID-19) to work on alternate plans (such as evacuating away from the coast to stay with friends or family)

- For those who drive personal vehicles to shelters, they will receive drive-up COVID-19 screening (few questions) and temp check. Then asked to park, given a number and when staff is ready for them, they'll come up for shelter in-take so that people aren't waiting together. Estimates that an additional 6-8 staff will need to be assigned to intake per shelter to not slow the process too much

> *"The idea behind online registration and triage would be in addition to potentially keeping our staff a little bit safer, it would allow us to assign people a [shelter] location." - Emergency Coordinator*

3.6.2 KEY CONSIDERATION 2: STAFFING AND TRAINING

- Need more volunteers and janitors to help with cleaning high touch areas (requires additional resources and training to make the cleaning effective).

- People who volunteer tend to be older, so they are more at risk from COVID-19; need to figure out how to get more volunteers, especially when people are scared to volunteer.

- Important to include needs for housing for emergency personnel coming into the area as part of planning for overall housing. In the past, they have used up a lot hotel rooms.

- The American Red Cross is requiring staff to have training for COVID-19. *What training is required for staff and volunteers with other agencies on the virus?*

- Spontaneous volunteers do not typically work in a shelter because you have to have training and a background check

- Training to include information on how chemicals that kill viruses have long chemical to surface contact times; the product may need to be on a surface 3-10 minutes to be effective.

- Training of staff and volunteers to use PPE correctly

- Holding of safety briefings to determine their safety status - train staff, prepare evacuees, and enforce in shelters

  - Temperature checks

  - Handwashing measures, sanitization /hand washing, social distancing

  - Having medical staff on-site to ask follow-up questions to determine eligibility for congregate and non-congregate shelters.

- ○ Medical staff (nurses) to do triage and ask those questions to decide who goes where (congregate vs. non-congregate sheltering).

- Length of shift for staff at 12 hrs on, 12 hrs off with 6 days on and 1 day off

> *"As to physical design of shelters, need to be sure that any queue for the intake (which will no doubt be longer) occurs inside, not in the elements. That then brings up how to do this and still have COVID distancing."*

Strategies

- People who need to be assisted in evacuation to pre-sign, the reduced capacity and greater vehicles and pre-screen for COVID-19 means that the list may need to be revised this year with additional criteria. Something needed before a hurricane.

- Sufficient screening and additional logistics to make the screening useful (e.g., if screening using temperature, people waiting in the sun will have a higher temperature).

- For high touch surfaces, deciding the shelter into smaller zones and more cleaning time may help. Remember chemical contact times. How long they have to sit, have to train volunteers to clean properly

- Have to remove PPE between each client contact and important to identify ways to minimize client contact to reduce burn rate for PPE. If you can find a way to digitally check into the shelter where you can wipe a surface after they're done can eliminate or minimize contact between volunteer and client. Need to spend more on the IT side but can reduce burn rate, or an app for check-in.

3.6.3 KEY QUESTION 3: SUPPLIES

Personal Protective Equipment (PPE):

- Availability of PPE during the hurricane season due to limited supplies

  - ○ Staff/volunteers need to reduce contact with others to minimize PPE burn rate

- Add a supplemental plan for specific circumstances for a pandemic which includes reconsidering decision timelines, shelter plans, and modifications to normal procedures for what is needed during the pandemic

- PPE is 1 identifying what the burn rates are going to be at shelters, if we have to provide for evacuee and staff/volunteers, trying to figure out what we need to stockpile vs are our supply lines robust enough to be able to get that.

- Need gloves for people who engage in high touch work.

- Disposal of PPE may need special bins to but those in, train people how to remove them safely and dispose them in separate bins. *Would you not just consider all trash infected and have to handle it all in this manner?*

- Need gloves for those working in high touch areas and feeding

> *"Our logistics folks are looking at... do they need to stockpile versus do they think the supply lines can get them what they need in the event we need to increase our purchase rate?"*

- Hand Sanitizer:
  - Hand Sanitizer may be in issue obtaining
  - Contact your local distilleries to inquire about get hand sanitizer (i.e., Dark Door Spirits distillery in Tampa)
- Other Items:
  - Identify what each jurisdiction could provide to maintain cleanliness, improve sanitation protocols, and to maintain client comfort. *Could we use mats and equipment that can be easily wiped down by staff?*

Strategies

- Ask people to come with masks but do not count on it.
  - preparedness messaging to include what supplies are needed in your disaster kit related to COVID-19
- Training people to use PPE effectively
  - Keep in mind, PPE must be removed between each client contact otherwise cross contamination is a concern
- Contact your local distilleries to inquire about get hand sanitizer (i.e., Dark Door Spirits distillery in Tampa)

3.6.4 KEY QUESTION 4: FEEDING OPERATIONS

- Providing food requires additional logistics
  - Food needs to be boxed/packaged
  - Strategy for delivering food to COVID-19 positive clients
  - Maintaining food temperature to prevent other foodborne illnesses
- How do you manage food services with COVID-19? Can't have mass feeding but individual boxed feeding which takes up more space, more prep, more logistics. For isolation would put it down, step back, and then let them pick it up. Also have to maintain food temp so other illnesses don't happen.
- People who are vegetarian/vegan and considering dietary needs along with all the other food logistics.

Strategies

- Meals Ready to Eat (MREs) instead of dining in congregate areas or being served meals in a congregated area

> *"Generally, with a normal shelter, you would have a congregate feeding program that goes along with that. How do you deal with congregate feeding while you're still trying to maintain sanitary conditions and social distance? Suddenly you're not able to just heat a tray of food, for example, that one person is serving out because that one person could make a whole lot of people sick."*

3.6.5 GENERAL SUMMARY OF THE ROUND

The conversation was focused on shelter management and the realistic rules that shelters could enforce. There were a lot of questions about how rules will be enforced, PPE availability, shelter registration, and will masks be required to be worn. This round had fewer answers and more questions.

In this session, registrants expressed their concerns and thoughts regarding how to manage the transportation in general, what to bring to shelters for the public and how to ensure that the contractors are ready and have the appropriate supplies. Also, there were concerns regarding the shortage of the supplies and how the Florida emergency management center is working already on managing the supplies for example, in the hospitals. The group did discuss their current preparedness for example some are doing the walk-through drills to the shelters and online training of the staff.

3.7 ROUND FOUR: 2-MINUTE QUESTION BURST

3.7.1 QUESTIONS RAISED

Questions about Mitigation Strategies and Infrastructure:

- *Are we building new schools, universities, houses of worship and other large facilities with sheltering in mind to be able to serve a multi-use purpose? Do you require building codes/give incentives to the private sector with large numbers of employees to retrofit/build their facilities to shelter their own workforce/employees/students?*

  - *Can one of the longer-term building mitigation and resilience plans in the coming decades be that all government facilities, new schools, community centers need to take into consideration that they will be used as shelters and have them designed appropriately?*

  - *What design features or codes need to be taken into consideration that build community resilience and mitigate from storms?*

- *What about physical design features for shelters pertaining to ADA standards including handicap ramps, low sinks, accessibility for wheelchairs.*

  - *What hurdles do you face regarding ADA compliance in some of the shelters, especially for shelters built before building codes required ADA standards to be able to house medically fragile populations?*

Questions about Evacuation Procedures and Transportation:

- *How are we going to address people that are moving from other areas? What criteria can be given to the public for encouraging safe travel, especially for vulnerable individuals?*

- *Many people who evacuate later are working jobs until right before they need to evacuate. What if they have to wait until the last minute to evacuate? Will it be mandatory for non-essential services and businesses to close with enough time for their employees to evacuate?*

- *With COVID-19 and more people not working, how will that affect people's ability to evacuate or when they evacuate?*

- *What is the timeframe for messaging for hurricane preparedness? Will encouraging people to stay with family and friends with safe houses work? Do you encourage businesses owners to shelter their employees if their facilities are outside of an evacuation zone?*

- *What happens if thousands of people need to be evacuated but we have limited capacity of transportation?*

- *What about businesses and hotels that have not come back in operation due to COVID-19 to allow people to stay in their building or to transport clients?*

- *An important issue is indicating how people find out where the location of their designated shelter is.*

- *How do you enforce people wearing masks during transport & do you refuse service if they do not comply? What if they become hostile if they do not want to wear their mask?*

Questions about Shelter Locations and Registration:

- *Additional research and data needed on how effective/not effective shelter screening processes are based on screening for symptoms.*

- *Taking temperature on entry, what do you do if they are running fever? What if they have a sunburn and there is an indication that they have a temperature over 100 degrees? How often do you take their temperatures?*

- *If there is a rush of people showing up at the last minute and your facilities are at capacity, how do you register them safely out of the weather and shelter in a safe manner?*

- *What if nursing home or assisted living facility residents are brought/dropped off at the shelter because their sister facility turned them away?*

- *Do people need to pre-register for general population shelter?*

- *How will touchless registration work? What electronic registration systems are people using?*

- *What about using nursing facilities, clinics or ambulatory surgical centers closed during the hurricane for those with special needs or COVID-19 positive?*

● *How feasible is it to use university classrooms for sheltering, especially since many universities are online for the summer or will be closed during a hurricane event?*

● *How will considerations differ between vulnerable populations that are currently housed and those who are facing homelessness?*

● *How do you enforce people wearing masks in shelters? What if they become hostile if they do not want to wear their mask? Will there be more security in place other than one police officer?*

● *Would you move people who have COVID-19 to a different shelter? Have had conversations about a "hotel corona" where all COVID-19 positives are there. But if the storm is bearing down, what are the risks of trying to get them to a COVID-19 shelter, may be better to look at the footprint with facilities and see what area within those shelters can be cordoned off as an isolation corner.*

Questions about Personal Protective Equipment (PPE):

● *Are supply lines struggling? Right now, they're keeping up, but if you add in 4000 evacuees and shelters, will dramatically increase burn rate. So, are you able to slowly add to what your ordering to keep up with COVID-19 and stockpile for a hurricane potential?*

● *What supplies will be available when a storm hits? Will all shelter workers have PPE?*

● *Once vendors are identified that can support the demand for PPE, how do you enforce people consistently wearing them in the shelter? What happens if you run out of PPE?*

● *Sometimes it is difficult to breathe through the cloth masks and even more difficult when carrying heavy items so people may be tempted to remove their mask. Or what about when people are sleeping in the shelter? Any suggestions?*

● *Will people in shelters be required to wear masks? Will people be turned away if they do not have masks? Will there be enough PPE? Will children be required to wear masks? Are people allowed to sleep without a mask on? What about individuals with cognitive or underlying health concerns that would hinder them from wearing a mask?*

Questions about Staff and Volunteers:

● *How burnt out are all the first responders and government employees (i.e., public health, emergency management, social services, homeless services) already going to be by the time hurricane season really ramps up during a COVID-icane or other disaster type event?*

● *How much medical staffing should be at shelters?*

● *Many concerned with staffing. Reports that many staff have indicated that they are afraid of contracting COVID-19 and would rather get a disciplinary action than go to the shelter. -- What if the staff don't show? Will government employees that refuse to work in a shelter be fired or under investigation/suspended?*

- *What will happen if your staff get infected with COVID-19? Are their legal ramifications or concerns for loss of life?*

Questions about Operations during the Storm:

- *What are the COVID-19 and sheltering guidelines for pet-friendly shelters? Do those with comfort animals get a separate area?*

- *If someone begins to have COVID-19 like symptoms in a special needs shelter, does the non-ill caregiver go to an isolation area with them?*

- *What is the scenario if a shelter runs out of PPE?*

- *How do you ensure continuity in managing health and prescriptions/medications in shelters?*

- *Are we putting more people at risk when those in medically friendly and special needs shelters show up with caregivers and additional family members?*

- *Do CPAPS have any dispersion issues? Nebulizers, CPAPs, run a significant risk of aerosolizing the virus while in use.*

- *Could we use this opportunity to test everyone staying in the shelters for COVID-19? Could help with contact tracing if we know where people were assigned within the facility to notify them once the results come in that they tested positive and that they need to self-isolate? Or asked to quarantine if they were in close proximity to those that test positive*

Questions about Administration and Finance:

- *How will resource tracking work? How does reimbursement work for supplies and staffing?*

- *Does the government cover the bill if citizens stay in hotels on their own if infected? Where do they send the bill? Do they send it to the state government or local government? How do you distinguish between the average citizen that on their own decides to go to a hotel/motel versus those under the FEMA non-congregation sheltering waiver and will do that with the county program? How does that work?*

Questions about Recovery:

- *Do you require everyone that stayed in an evacuation shelter to self-quarantine after?*

- *What does recovery look like for residents and staff/volunteers? What if sheltering is needed for weeks or even months after the storm hits?*

- *What are the logistical needs for decontamination procedures once the shelter is closed? Where do you conduct decontamination? What supplies are needed?*

3.8 REFERENCES AND RESOURCES

The following resources and documents were identified by participants in Workshop 3 (Logistics) of the CONVERGE NSF Working Group.

- *American Red Cross COVID-19 Operational Decision-Making for Shelter Facility Opening Checklist:* https://files.nc.gov/ncdhhs/documents/files/dss/dcdl/programcompliance/PC-01-2020a1.pdf

- *American Red Cross Disaster Health Services Procedures in COVID-19 Congregate Shelters*: https://nationalmasscarestrategy.org/wp-content/uploads/2020/04/DisasterHealthServicesDHSResponsibilitiesCOVIDCongregateShelters.pdf

- *American Red Cross COVID-19 Shelter Health Screening Using Personal Protective Equipment*: https://nationalmasscarestrategy.org/wp-content/uploads/2020/05/COVIDShelterHealthScreeningUsingPPE.pdf

- National Mass Care Strategy is a collaborative process led by the American Red Cross, Federal Emergency Management Agency and National Voluntary Organizations Active in Disaster who developed the following guidelines:

    - *COVID-19 Sheltering Congregate Guidelines*: https://nationalmasscarestrategy.org/covid-19-sheltering-guidelines/

    - *COVID-19 Sheltering Non-Congregate Guidelines*: https://nationalmasscarestrategy.org/covid-19-sheltering-non-congregate-guidelines/

    - *State Mass Care COVID-19 Guidelines*: https://nationalmasscarestrategy.org/state-mass-care-covid-19-guidance/

    - *COVID-19 Feeding Guidelines*: https://nationalmasscarestrategy.org/covid-19-feeding-guidelines/

- *Coronavirus Disease 2019 (COVID-19) Merlin Data Management Guidance*: www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/_documents/covid-19-merlin-guidance.pdf

- HURREVAC Storm Tracking and Decision Support Tool for Government Emergency Managers: www.hurrevac.com

- *COVID-19 Pandemic Operational Guidance for the 2020 Hurricane Season*: https://www.fema.gov/media-library/assets/documents/188203

- *CDC Interim Guidance for General Population Disaster Shelters during the COVID-19 Pandemic*: https://nationalmasscarestrategy.org/wp-content/uploads/2020/05/CDC-Interim-Guidance-for-General-Population-Disaster-Shelters-During-the-COVID-19-Pandemic.pdf

3.9 PROJECT TEAM

PRINCIPAL INVESTIGATORS

Dr. Joshua Behr, Old Dominion University, Institute for Coastal Adaptation and Resilience

Dr. Wie Yusuf, Old Dominion University, Institute for Coastal Adaptation and Resilience

Dr. Jennifer Marshall, University of South Florida, College of Public Health, Sunshine Education Research Center (ERC), Chiles Center for Healthy Mothers and Babies

Elizabeth Dunn, MPH, CPH, University of South Florida, College of Public Health, Global Disaster Management, Humanitarian Relief, and Homeland Security

OLD DOMINION UNIVERSITY

Dr. Rafael Diaz	Ren-Neasha Blake
Dr. Jennifer Whytlaw	Taiwo Oguntuyo
Dr. Nicole Hutton Shannon	Oge Agim
Carol Considine	Tihara Richardson
Saige Hill	Eduardo Landaeta
Sara Brennan LaBelle	Pamela Antwi-Nimarko

UNIVERSITY OF SOUTH FLORIDA

Dr. Kelsey Merlo	Mitchell Jaskela
Blake Scott	Melanie Cruz
Beatrice Smith	Megan Montoya
Michael Shekari	Carson Bell
Kayla Jones	Amanda Rivera
Madeleine LaGoy	Sinjana Kolipaka
Ahlam Farzan	