CFDMC Healthcare Coalition Preparedness Annex G - Supply Chain Mitigation Strategy

Attestation:

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2022 CFDMC Board Chair

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Record of Changes & Distribution

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Healthcare Supply Chain Operations

The Region 5 healthcare supply chain involves the flow of numerous product types from manufacturer to patient and requires the participation of various stakeholders who work in concert to achieve the goal of meeting patient care needs.

Healthcare supply chain stakeholders include:

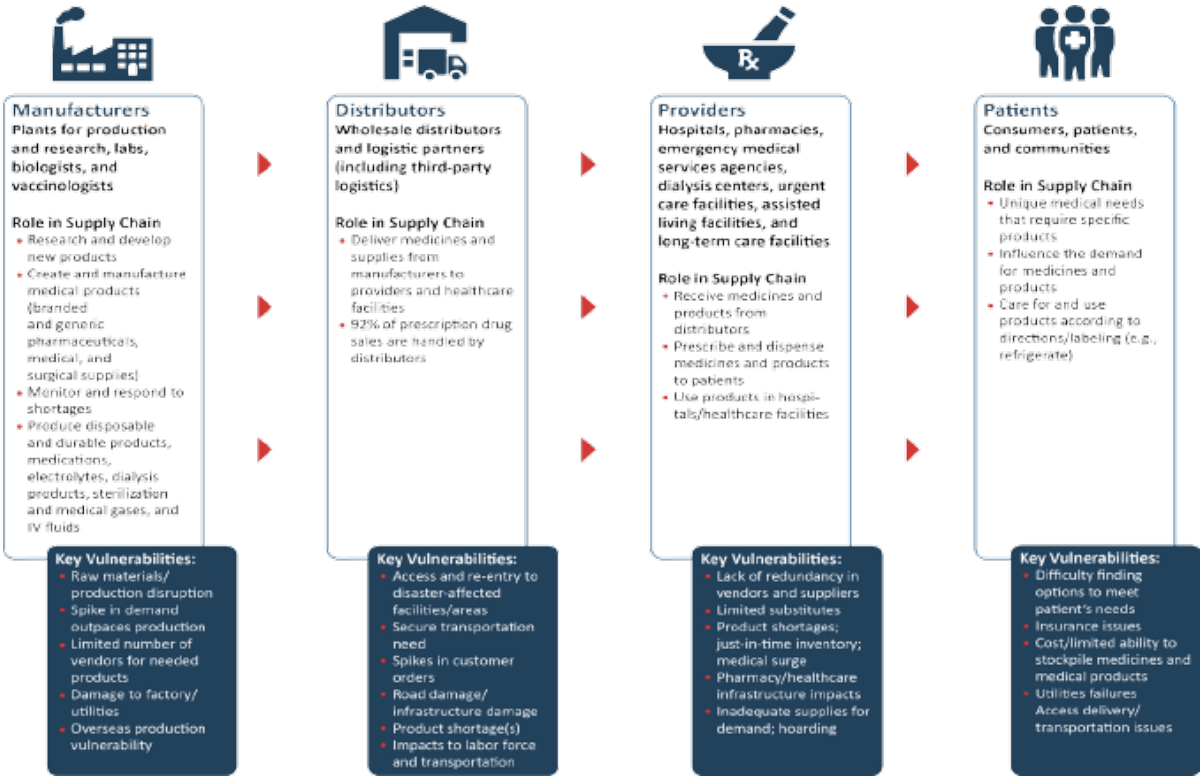
- Manufacturers
- Distributors
- Providers
- Patients
- Healthcare Coalitions
- Federal Programs

Descriptions of each stakeholder, their roles in the supply chain, and a few key vulnerabilities to plan for are included on the next few pages.

Under normal conditions, the complex processes that make up the supply chain are nearly invisible due to steady-state production and delivery of healthcare products. Healthcare supply chain stakeholders adhere to their daily roles and standard operating procedures.

The following infographic displays the normal operations and activities of healthcare supply chain stakeholders and key vulnerabilities for each stakeholder.

Healthcare Supply Chain Under Normal Operations



Supply Chain Hazards, Threats, and Vulnerabilities

The Region 5 healthcare supply chain is dependent on many variables including raw material availability, machinery and parts, workforce, standards compliance, delivery methods, contracts and regulatory requirements, and underlying critical infrastructure systems such as power, telecommunications systems, and transportation (including vehicle and roadway, airport, railroad, and port components). Supply chain can also be impacted by a sudden large surge in demand for products (e.g., PPE during the pandemic), When one element is compromised there can be cascading effects up and down the supply chain. Disruptions to these systems can be caused by various hazards, underlying vulnerabilities, and threats that can directly impact every level of the supply chain. Examples include the following:

- **Natural Disasters** – While hazards vary from region to region, natural disasters have the potential to disrupt the healthcare supply chain in all parts of the world. Common hazards include hurricanes, snowstorms, tornadoes, flooding, wildfires, and earthquakes. All phases and components of the chain may be affected after events regardless of notice and may require assistance with response and recovery efforts.
- **Human-Caused Disasters** – These hazards also vary and can include cyber-attacks, acts of terrorism, and unintentional catastrophes like an oil spill, damage or impacts to goods during delivery accidents, or even unforeseen equipment breakdown.
- **Public Health Threats** – Biological threats can impact the healthcare supply chain by creating both dramatically increased and sustained demand for products, especially medical supplies.

These events include disease outbreaks (of both commonly occurring and emerging diseases) and biological attacks.

Supply chain implications for public health-centric events differ from those of a natural hazard in that public sector partners – via public health officials (state, local, and federal, including the Strategic National Stockpile [SNS]) – can play a significant role in supply chain operations through activation of programs, language included in emergency declarations and public messaging, and more. Vendors for commonly needed products during these events, including vaccines and personal protective equipment (PPE), are often limited. Depending on the nature of the event, demand for these products can far exceed production capacity.

Supply Chain Assessment

Florida's healthcare coalitions worked together to develop a survey to assess supply chain integrity in each region. Inputs into this process included a review of literature regarding supply chain integrity and coalitions' HVAs and JRAs. The Healthcare Coalition Task Force shared the survey tool with all coalitions to ensure that results would provide both a regional and statewide view. CFDMC distributed the survey in both an electronic survey and a Word document. The survey was deployed in two phases. In the first phase, CFDMC sent to survey via email to the Coalition points of contact at every Region 5 hospital. Also in the first phase, CFDMC distributed the survey to the region's nursing homes through multiple methods, including emails to nursing home members, through the CFDMC Long-Term Care Board Member and through the four Florida Healthcare Association District Presidents in Region 5. In the second phase, the survey was sent electronically to all Coalition members.

In the first two phases, respondents reported that in recent events, vendors met their needs in a timely manner. The most significant supply chain challenges were pharmaceuticals, medical supplies, oxygen, blood products, fuel, food and water. Respondents also noted that there are current supply chain gaps during blue skies due to manufacturers' shortfalls, and transportation of supplies following an event at times caused gaps. Respondents felt all the issues seen in recent events would continue to pose challenges in future events.

Respondents reported a wide variety of communication equipment used, including land lines, cell phones, satellite phones, ham radios, walkie talkies, and other emergency alert/notification systems. Respondents reported on vendors/contracts in place. There appears to be diverse vendors across the region for transportation services, medical gas suppliers, fuel suppliers, biomedical equipment suppliers, disposable supply distributors and PPE suppliers. Most respondents use one vendor for blood supplies, and most respondents use one of two vendors for waste management services.

Supply Challenges Noted During Phase I and Phase II:

- There are existing supply shortages prior to an emergency that impact the healthcare system during an emergency.
- Main supply challenges occurred after the event, with manufacturers. In particular, one hurricane event that significantly impacted Puerto Rico on its way to Florida brought the realization of how much production was going on in Puerto Rico and affected supplies moving forward.
- Long term care needs are for power (fuel), food, water, and medical supplies. They discovered that medication delivery is a challenge during a storm situation as the roads close early and do

not open until after the storm. Most used pharmacies are not local and deliver medications multiple times a day. They are unable to fill narcotic medications early due to new laws which can cause a resident to go without medications until the end of the storm.

- Maintaining linen supplies
- Maintaining supplies at correct temperatures post-storm due to no power / water
- Transporting equipment needed
- Getting refrigerated trucks as part of an MOU
- Medical supplies, food and water
- Communication
- Backorders due to manufacturer short fall
- Supplier manufacturing resources being located in affected areas with no secondary source
- Blood product and oxygen supply sources

Steady-State Supply Chain Challenges

To meet patient care demands, all stakeholders should focus on mitigating the supply chain hazards, threats, and vulnerabilities unique to their area while identifying key actions that will enhance resilience during incidents. Some impacts can be greatly reduced through integrated mitigation and planning. Working with providers in the community and distributors to forecast ordering for different scenarios, including emergencies, can help set use and delivery expectations and plans and highlight areas where back up options are required.

Usual system vulnerabilities (upstream and downstream) may include:

- Industrial and personnel – Work stoppages, fluctuating transportation costs or fuel supply issues, geopolitical events, sabotage, market forces, and technological failures may have negative effects and impacts on components of the supply chain, especially those companies responsible for production and manufacturing.
- Operational – These can include production or supply problems such as lack of raw materials, sudden high demand for product, lack of machine parts, regulatory actions (including product recalls), compressed manufacturing timeframes, product liability challenges, just-in-time ordering processes, disparate data systems, product cycles (obsolescence), and data silos between suppliers and providers.
- Just-in-time or low unit of measure programs – Healthcare providers often rely on these programs from their distributors. These programs keep costs down for providers and allow them to reduce labor costs, time, and space required to stock and rotate medical products. While these programs are efficient, they can also lead to fragile supply-demand relationships, especially during emergencies.
    - Just-in-time (JIT) inventory delivery means distributors are servicing provider customers almost daily in order to keep minimal stock (or ”par” levels) at the facility.
    - In low-unit-of-measure (LUM) programs, distributors are the central source of product for facilities and will deliver to the specific departments on demand. In these programs, distributors “break down” product to the “each.” (The “each” is the unit that is used on the patient. For example, distributors may take a box of 100 individually packaged items, break it down, and deliver 5.)

- Hospitals relying on JIT and LUM strategies can be vulnerable to both increased demand for supplies due to patient surges of patients and/or delayed delivery as a result of the effect of the disaster on distributors. Consumer or provider brand (or product) preference for usual medications, equipment, or consumer distrust of novel medications/vaccines.

Pre-Event, Response, and Recovery Considerations

Central Florida is uniquely vulnerable to large scale disasters. The July 2019 US Census estimates 4.5 million people reside in the nine counties representing East Central Florida (Regional Domestic Security Task Force Region 5 or RDSTF-5). Winter residents dramatically increase this population. In addition, domestic and international tourists flock to Central Florida for golf, shopping, water sports, theme parks and conventions. Orlando is the number one most visited destination in the world. Orlando International Airport was the 10th busiest airport in the nation before the pandemic with approximately 50 million passengers each year and rebounded at twice the average rate of travelers in December 2020. Visitors also arrive in Central Florida via cruises at Cape Canaveral, Florida's fastest growing port and the second busiest port in the world, with more than 5 million travelers annually. There are three large chemical manufacturing plants within the region. There are multiple international and commercial airports, as well as both freight and passenger railroad service across the region. All of these factors increase the potential for a large-scale event in Central Florida.

The following sections provide pre-event, response, and recovery considerations for various components of the healthcare supply chain.

Pandemic After Action Report Supply Issues

The Coalition conducted a preliminary after action report in the summer of 2020. The most challenging issue identified was acquisition of personal protective equipment (PPE). The supply chain was not equipped to surge and provide a sufficient supply of PPE for hospitals or across the continuum of care including home health. Previously established systems and processes for requesting resources did not function as planned and it was reported that federal agencies exercised dominion over access to PPE supply chain. During this response it was recognized that many organizations need to determine how to prioritize services and the Coalition and other public response agencies need a system for determining how to prioritize multiple requests for the same resources. Unified command is needed and though some were able to successfully implement ICS, others noted a need for more ICS training and position descriptions. Some facilities had success with just-in-time training systems for PPE use and event updates while others struggled with having to train and re-train staff on PPE and other protective measures.

As the pandemic progressed, it became evident that long-term care facilities lacked expertise and infrastructure in infection prevention and control as evidenced by their inability to appropriately isolate residents and use of PPE.

Below are specific strengths and opportunities noted in the preliminary 2020 COVID19 AAR:

2020 Pandemic AAR - Capability2: Objective 5: Protect Responders' Safety and Health Activity 1. Distribute Resources Required to Protect the Healthcare Workforce

Strengths

Strength 1: Facilities who had centralized management of PPE for the distribution of PPE was successful. One organization had a "PPE Pantry" that allowed them to centralize PPE distribution and manage inventory.

Strength 2: Facilities found it beneficial to prioritize respirator masks to those on COVID units and use of facemasks for everyone else. In addition, facemasks were provided in patient admission packets along with education campaign of "Let's Mask Out COVID."

Strength 3: Use of Elastomeric respirators and PAPRs to help bridge gap in respirator supply.

Strength 4: EMS flagged addresses of those who were COVID positive in order to ensure wearing of appropriate PPE and implemented universal use of appropriate PPE when going to LTC Facilities.

Areas for Improvement

Area for Improvement 1: PPE was not available, the supply chain was unable to meet demand, and facilities had to come up with alternative procedures for the extended use and re-use of PPE. Centralized management of PPE acquisition and distribution at the state, county, and facility level is needed. FEMA usurping of the authority of locals on PPE orders further challenged the supply chain and acquisition of PPE. Also, vendors requiring advance payment also made it difficult to acquire PPE. Checks and balances are needed in the system for PPE acquisition, including allowing the Coalition to assist with access and coordination of PPE. Multiple agreements are needed for access to PPE and access to PPE needs to be ensured across the continuum of care including home health and long-term care.

Area for Improvement 2: Additional resources are needed for fit testing, especially in non-acute care settings, and staff training on proper use and re-use of PPE.

Area for Improvement 2: Re-evaluate hazard vulnerability analysis (HVA) and PPE supply chain.

An additional 2021 AAR was conducted in early 2022. This AAR focuses on efforts in 2021 through early 2022. Below are specific strengths and opportunities noted in the second 2021 COVID19 AAR.

The coalition was able to provide additional PPE, morgue space, ventilators, and support for activation and deployment of response teams to support testing, vaccination, and other healthcare response needs. Opportunities for the coalition include use of online communication systems to share updates real-time, provide references for sources of information, and working with partners to identify opportunities to better prepare for and mitigate supply chain shortages.

Strength – Provision of resources

There was an exponential increase in the use of N95 respirator masks by healthcare workers during the pandemic which in turn increased the demand and need for staff to be fit tested to ensure staff were using the correct size respirator mask. This is an OSHA requirement. The coalition was able to provide Fit testing to healthcare facilities and train-the-trainer training so that healthcare facilities could implement and better sustain their own fit testing program.

The coalition was proactive and polled the hospitals to identify individual needs and provided supplies such as PAPRs, ventilators, and portable morgues during the Delta surge. The coalition supported deployment of a response team to support testing and vaccination clinics. The

coalition needs to maintain their capacity to move quickly when supplies become available to secure them and get them distributed.

<u>Opportunities for Improvement</u> – Provision of resources/resource support and supplies
It is very challenging for healthcare facilities to keep up with fit testing since staff are to be fit tested to the make and model respirator they are wearing. There are now numerous models of N95s on the market and facilities are unable to maintain a steady supply of the same make and model of masks.

Supply chain shortages presented many challenges for all. The coalition needs to strive to identify strategies for mitigating supply shortages including how to better prepare for shortages in the future by exploring regional and out of state back up vendors and increasing stockpiles of various supplies. Planning ahead for how to best access and use state assets and not-for-profit organizations vs. private for-profit vendors may also help with cost containment.

It was difficult working without a state disaster declaration and transitioning to a local response during a national public health emergency and made it difficult to access resources and contain costs. Consideration as to what resources are available when a disaster declaration is in place versus when a declaration in not in place is needed to determine what gaps need to be filled through alternate sources. For example, we need to identify agencies that can assist with storing of decedents when hospitals, funeral homes, and crematoriums are beyond their capacity and there is no state disaster declaration in place to make additional resources available.

The coalition is currently working to provide mental health support and resources to healthcare organization for their staff and it has been noted that this need needed to be identified sooner.

Florida Hospital Association Mitigation Efforts

Following the issues that arose during the pandemic, the Florida Hospital Association began working with all Florida healthcare coalitions to identify supply chain components and develop mitigation strategies to limit short falls.

Manufacturers

Manufacturers create products – including pharmaceuticals, medical, and surgical supplies – using raw materials on-site in manufacturing plants and labs. As a part of the manufacturing process, these companies identify and develop needed products, determine quantities necessary to meet demand, acquire raw materials, conduct safety trials and obtain regulatory approvals as required, and then make and package products for distribution. Manufacturing is a diverse and complex discipline, and the field is made up of countless different stakeholders, including brand and generic pharmaceutical manufacturers, medical supply and device manufacturers, and scores of others. International sources of raw materials and manufacturing sites are common. The following considerations and mitigation and response strategies capture high-level themes common across the different types of manufacturers.

Stage	Considerations	Mitigation and Response Strategies
Pre-event	• **Identify hazards, vulnerabilities, and threats** – In particular, events that could result in potential shortages in critical supplies (e.g., PPE, medications, medical devices) or damage to a production facility. ▪ **Raw materials disruptions** – A variety of events, including natural hazards, can disrupt manufacturer access to quality raw materials. ▪ **Production disruptions** – These can include small-scale disruptions, such as a facility fire or machine breakdown, and larger-scale disruptions, such as a natural disaster in the area. This can also be due to staffing shortages after a disaster, work stoppage actions, or during an epidemic. ▪ **Product shortages** – Shortages in production can occur for a variety of reasons – availability of raw materials, demand outweighing supply, and more. ▪ **Anticipate common supply needs** – Sustained demand for select products is common during disease outbreaks. For example, during the COVID-19 pandemic of 2020, demand for PPE, including N95 masks, increased drastically.	• Design business continuity and disaster recovery plans around hazards, vulnerabilities, and threats identified in hazard vulnerability analysis (HVAs) and risk assessments. • Ensure redundant production capacity or alternate vendors. The Coalition will obtain and share vendor lists. • Ensure business continuity plans clearly identify alternate materials sources and delivery methods and routes based on predicted hazards when available. In addition, develop plans for redundant production capabilities (e.g., identification of plants and facilities that can scale production when needed). • Comply with U.S. Food and Drug Administration (FDA) requirements for product shortage notification. Verified information on shortages is publicly available on the FDA website. • Forecast product demand using historical events (e.g., past flu seasons) and reviewing/revising formularies with distributors and providers. Also determine when products with low production/use might be in high demand if primary products in the marketplace are in shortage.
Response	• Feasibility of surge production – Depending on the event, rapid surges in production may be required. • Damage assessment – Depending on the event, manufacturing may be compromised due to direct impact on the plant, loss of utilities, or impaired transportation. Determining the damage, systems affected, and assistance needed is critical to rapidly restore services. It is concerning that PPE and staff shortages still plague the industry. In fact, "while shortages of staff and PPE decreased slightly from the previous monthly period, around 1 in 9 nursing homes still reported not having a week's supply of PPE. More than 1 in 4 nursing homes reported a shortage of nurses or aides."	• Develop business continuity plans that identify and describe means for scaling production, such as reallocating material use and shifting production schedules for products with less demand, shift/workforce changes, raw materials available, machinery, scheduling, and re-tooling. • Identify other vendors for same/substitute product; ensure ability to coordinate with and refer to in an emergency. • For public health and natural hazard events, manufacturers can use models and experiences from previous events to try to anticipate demand, but production timelines and capacity can limit flexibility to increase production. • Expedite approvals from the FDA to import approved products from abroad. • Obtain assistance through insurance providers, local, state, and federal emergency management

		to restore utilities and essential services or other assistance needed to resume production. Work with emergency management to help communicate what the site produces and the consequences of interrupted production prior to an event and during the response phase.
Recovery	• Resume normal operations and, if needed, repair damage. • Assess the impact of the event to staff, products, etc. • Communicate resumption of normal allocation/delivery/activities.	• Coordinate with distributors to resume normal delivery. • Coordinate, as appropriate, with partners on product availability if event caused a shortage.

Coalitions and Manufacturing

Manufacturing occurs "upstream" in the supply chain. Given HCCs' key role in preparedness, response, and recovery coordination, which occurs further "downstream" in the supply chain, it is not common for HCCs to engage directly with manufacturers. CFDMC will keep current and informed on significant impacts to manufacturing capabilities, such as drug or PPE shortages. CFDMC will share information and strategies for addressing the shortage between providers in their HCCs as well as potentially coordinate information exchange between distributors and providers.

Distributors

Distributors and logistics partners, including third-party logistics providers, acquire medical supplies from manufacturers and deliver them to providers and healthcare facilities. As part of this complex process, they may repackage, re-label, and ensure special handling for products, such as cold chain products requiring climate-controlled environments. A pharmaceutical distributor is more often referred to as "wholesaler," whereas in the medical product supply chain, the term "distributor" is more often used. For purposes of this document, the term "distributor" is used throughout for consistency and clarity.

It is important to note that the primary pharmaceutical distributor for a healthcare facility will likely be different than the primary medical product distributor for the facility. Additionally, many distributors have a primary healthcare provider market, which means the primary distributor for the local hospital may not be the same as the one providing the same supplies for the nearby nursing home.
Providers have primary distributors for medical products and pharmaceuticals. However, they often have secondary distributors and specialty distributors that may focus on specific surgical procedures or equipment. It is important to understand those specialty products that are only available from a single source.

The pharmaceutical supply chain has three large national/multinational distribution companies that control 90% of the market. The companies, known as the "Big 3," are McKesson, AmerisourceBergen, and Cardinal Health. There are also several regional companies that may be significant partners, especially in smaller, more rural communities. CFDMC has identified the below suppliers for our market.

Medical Gas Supplier Contracts/Agreements

- Nexair (formerly Praxair) - they have a disaster plan.
- Airgas
- Matheson
- National contracted vendor with Kindred Healthcare
- Matheson TriGas
- Medlogix

Fuel Supplier Contracts/Agreements

- Cunningham Oil
- Sugarland Supply
- Greens Energy
- National contracted vendor with Kindred Healthcare
- Lynch Oil
- FL City Gas
- Glover oil
- Jet Age Fuel

Biomedical Equipment (e.g., monitors, ventilators) **Contracts/Agreements**

- Aramark / Trimedex Siemens (imaging equipment) General Electric (imaging, patient monitoring, etc.) Sonodepot (ultrasound equipment) RF Technologies (infant security systems) B Braun/Baxter (Prismaflexes) Medtronics (defibrillators)
- Crothall
- Spacelab's Monitors all monitors and telemetry. Ventilators are Covidien. Alaris pumps out large Volume Infusion pumps. Anesthesia carts are GE. PCA pumps are Hospira (Sapphire)
- Carefusion, Phillips
- Our internal Bio Medical Equipment's team maintains our equipment. If they aren't able to maintain the piece of equipment they work with the manufacturer to fit or replace it.
- Mindray, Intermed-national contracted vendor with Kindred Healthcare
- Baxter Braun
- Phillips
- Cardinal
- Medlogix

Disposable Supply Distributors or Manufactures Contracts/Agreements

- Medicine Supply Works
- Medline
- Cardinal Health
- JanPak
- National contracted vendor with Kindred Healthcare
- Daniels

PPE Distributors or Manufactures Contracts/Agreements

- Hotzone
- Cardinal Health
- Medline
- National contracted vendor with Kindred Healthcare
- Grainger

The medical product supply chain is more varied with large national companies and regional companies for healthcare facility types or service lines (e.g., homecare). These distributors often have over 5,000 types of products on hand and depending on the product have approximately 20 to 30 days of inventory that reflects normal customer usage/consumption patterns. Most urban healthcare centers are within 50 miles of a distribution center and most distributors can deliver within 24 hours of an order. Pharmaceutical and medical product supply chains may utilize the services of third-party logistic providers (3PLs) such as FedEx, UPS, and others depending on their business and service model. 3PLs can minimize costs and allow for local distribution through local companies familiar with the community. 3PLs can also enable more frequent deliveries from regional or local distribution centers (some facilities receive up to 4 deliveries per day.)

Stage	Considerations	Mitigation and Response Strategies
Pre-event	• **Determine and communicate product shortages** – When caching is not an option, or when stockpiles are depleted, distributors work with suppliers and customers to communicate availability of product(s) and viable alternatives/substitutions. • **Communicating to customers** – Distributors often offer to provide inventory consultation to their customers, gauging their needs and allowing them to place advance orders to prepare for an event. •**Pre-positioning supplies** – Increasing product inventory in warehouses and onsite at customer facilities (par levels), when possible, is an important pre-event activity distributors and facilities should work together to execute. These may be permanent increases (e.g., for mass casualty events) or temporary (e.g., in anticipation of a hurricane or blizzard). Distributors will often pre-position trucks with supplies along highways to get into the disaster zone promptly after an event (e.g., nearby exits or in rest stops to be able to make local deliveries once roads re-open).	• Develop critical supply lists based on potential events. Work with HCCs and facilities to create distributor or facility-based caches or "push" lists to be delivered in case a disaster strikes and a request is received from the facility to activate their list. In some cases, distributors are included in healthcare facility disaster notifications and will automatically activate the distribution. • Agree to alternatives and substitutions ahead of time. Understand communications and establish alternate forms of communication if primary ordering systems are down. • Work with HCCs and providers to ensure understanding of specific delivery timeframes and vulnerabilities (e.g., if flooding closes a specific bridge, does this compromise delivery from a distributor, or does the distributor potentially need access to high clearance vehicles? • Work with all stakeholders to understand true demand during an event. Providers placing multiple excessive orders with multiple distributors only exacerbates shortages and places additional strain on the supply chain.

	• **Anticipating common supply needs** – Similar to manufacturers, distributors work to anticipate common supply needs and stock warehouses and customers accordingly. A spike in customer orders can be due to actual demand, anticipated demand, or multiple orders being placed with multiple vendors by the same entity in the hopes that one will get filled. • **Access and Re-entry** – Facility access may be a challenge for third-party logistics providers transporting supplies in unmarked vehicles that may need to cross police lines. After a criminal event such as a terrorist attack, additional precautions would need to be taken to verify the origin of delivery vehicles.	• Coordinate through Business Emergency Operations Centers (BEOCs), when applicable and available. • Develop priorities specific to community incidents that will result in common supply needs (e.g., earthquakes, hurricanes, pandemic, Ebola/VHF cases, mass violence incident based on geography and patient population) ▪ Annual influenza season is often used as a model to understand usage/consumption. • Collaborate with state and local authorities and private sector partners to develop a local program for pre-registration of supplier companies and personnel (include 3PLs, law enforcement, and other key stakeholders). ▪ Send delivery drivers letters of access on company letterhead or special "codes" or placards issued by law enforcement to expedite deliveries. ▪ Identify distributor as a key (known) vendor/partner. ▪ Develop Coalition member agreements for storage and distribution of critical supplies as required. ▪ May include Disaster Response Centers where a large facility serves as the hub for storage and distribution to smaller facilities within a region. • Ensure distributors have a means of communicating with Coalition and emergency management and understand how they receive assistance during a disaster that affects distributor operations.
Response	• **Alternative ordering** – During a response, customers often place larger orders than usual. In these instances, distributors will confirm an order that is out of the "norm" before processing. • **Feasibility of Surge Deliveries** – Depending on the event, expedited deliveries may be requested, as well as more frequent deliveries. Considerations for these surge deliveries include those noted below in this section, as well as staff and product availability.	• Create a streamlined communication process for efficient ordering, confirmation, and work to pre-populate orders, including an alternate communications plan. Ensure that the facility is not placing duplicate orders for the same items with multiple vendors (a common situation that leads to significant miscalculation of actual need by distributors and manufacturers). • Provide customers with specific allocation limit amounts for operational planning at healthcare delivery sites.

	• **Alternative transportation and routes** – Identify navigable routes for delivery vehicles, and alternative delivery sites, as required. • **Securely transport deliveries** – Distributors may work closely with law enforcement to receive assistance (routes, escorts). This is especially important during events when road access is compromised.	•Work with manufacturers and parent (corporate) healthcare systems to anticipate needs and move additional materials to the distribution centers ahead of the event or requests. •Be prepared to switch to alternative products when necessary and determine how deliveries will be prioritized if requests exceed inventory. Ensure providers understand how allocation and prioritization will work. •Climate-control technologies in delivery vehicles should be sufficient for prolonged delays in transport. •Source or create processes for obtaining specialty vehicles that may be needed (such as high-water vehicles and boats) as well as additional standard vehicles/drivers to meet increased delivery demands. •Establish relationships and contacts with local emergency management – these may be helpful in restoring services and access to the distribution center, securing specialized vehicles, and allowing access to secure or restricted areas as well as obtaining current information on road status and hazards. Emergency management often does not have awareness of the distributors in their area and the key role they play in disaster response.
Recovery	• Resume normal operations and communicate the resumption of normal allocation / delivery / activities. •Coordinate with manufacturers and providers as needed on product substitutions (which ideally should be identified and agreed to prior to an event) and transition back to primary product when available. • Distributors coordinate on substitutions of the same medical product (e.g., substituting the same generic medicine from a different manufacturer.) They are not involved in decisions regarding substitutions when there is a medical and patient care consideration.	• Coordinate with local authorities on primary delivery route restoration if event caused the need for alternative routes. • Adjust delivery schedules as needed for facilities. • Communicate transition plan and timing back to primary products and normal supply and delivery process.

Providers

Providers are a large and diverse group of facilities and professionals licensed to supply healthcare services and expertise, to include disbursing and dispensing medicines and products to patients. Key activities they undertake within the supply chain include submitting orders to distributors and providing data and information on healthcare services and needs that help identify shortages and potential distribution challenges. The considerations and mitigation and response strategies differ among provider groups considerably. The following table captures high-level considerations generally consistent across provider types but is not intended to be exhaustive.

Stage	Considerations	Mitigation and Response Strategies
Pre-event	•**Identify hazards, vulnerabilities, and threats –** Focus on events that could significantly disrupt supply delivery or compromise current supplies (e.g., by damage or consumption) and those that are most likely in specific regions. •**Define triggers or thresholds for activation of emergency plans** – Emergency plans should include policies and procedures for requesting supplies and managing disruptions in supply chains •**Identify alternative mechanisms for ordering, receiving, and tracking supplies.** •**Identify multiple delivery locations** – Depending on the situation, distributors may make deliveries to individual healthcare facilities/alternate care facilities or a central warehouse where items will be later redistributed. •**Stockpile non-medical product(s)** – Not all supplies providers may need during an emergency are stocked in large quantities by suppliers (e.g., hazmat suits). These should be present on-site in adequate quantities to address expected scenarios. •**Define triggers and thresholds for changes to standards of care** – While implementing crisis standards of care is a last resort, discussing and planning for a system and procedures for operating under these conditions is important, and can have implications on supply orders (e.g., implementing re-use of N95 masks). •**Work with key stakeholders to establish Memoranda of Understanding (MOUs) or Memoranda of Agreement (MOA)** – MOU/MOAs between HCCs, providers, and other	•Develop emergency response and business continuity plans informed by HVAs and risk assessment tools. •Based on HVA and other tools, anticipate commonly needed medications and supplies and consider caching or increasing par levels of those supplies at the facility (space and shelf-life permitting). This may include non-medical supplies such as cots and food or water. • Consider "push" lists of commonly needed medications and supplies to replenish or augment facility stock that the distributor can have available and establish policies on when to request these. •Scenario-based exercises should allow providers to identify thresholds for instituting substitution and conservation procedures and document the process through which this occurs. Exercises should be used to document and determine how these strategies and situational information are communicated to key partners including the Coalition. •Implement pilot programs and training to integrate new products into electronic health records and educate providers on labeling changes. •The facility steady-state drug shortage processes may have applicability for developing disaster shortage policies. •Maintain communications with distributors to understand shortages and delivery issues. Establish alternate communications plan with major distributors in case primary means fail. • Establish an alternate distributors list for critical supplies as well as understand the

	supply chain stakeholders can assist in managing expectations of additional support available during an emergency.	location, transport time, and potential interruptions in delivery between the distributors and provider. •Identify alternate methods and routes for deliveries based on predicted hazards. •Determine the Coalition's role in planning, information sharing, indexing, and managing resource requests/brokering with distributors during an incident.
Response	•**Forecasting needs** – Ability to provide care hinges on having needed supplies on-site and a plan for replenishment. Anticipating supply needs, and capacity for receiving and storing them, are key activities for responses. •**Supply chain support activities** – Providers should alter their practices as appropriate (ideally without compromising quality of care) to decrease demand and increase the safety of substituted supplies. Examples include revising downtime procedures and refrigeration prioritization. •**Coordinate with public sector responders** – Public health and medical sector (ESF-8) typically receives information about supply needs from a facility, and mainly engage with distributors after healthcare facilities report an expected lag in availability of a needed product. •**Partnerships across relevant supply chains** – Relationships with all components of the healthcare supply chain (e.g., linen and blood) and other sector supply chains (e.g., fuel and food) may be leveraged for ad hoc solutions. • **Mitigate or adjust to staff shortages** – Staff absenteeism during events may occur, especially for downstream components (distributors, last mile?, and healthcare facilities). This can be a challenge to maintaining healthcare operations during events, especially for healthcare facilities – including ancillary care.	• Use models, especially those based on past events (e.g., recent catastrophic hurricanes, severe flu seasons) to help determine likely supply needs and quantities and proactively try to obtain them prior to shortage (also understand the potential to return items to the distributor). • Population health data for the surrounding area can inform forecasting efforts. •Work with the Coalition to communicate and share strategies with other facilities, including developing guidance for adapting to crisis conditions when required. •Ensure a mechanism at the facility level for development of clinical recommendations for substitution, conservation, adaptation, re-use, and re-allocation of supplies to ensure consistency. •Contribute to supply chain efficiencies during crises by conserving and using substitute medical and non-medical supplies (e.g., pharmaceuticals, blood products, fuel, medical gases, refrigeration). •Maintain current ESF-8 contacts through trainings, exercises, and other methods. •Activate mutual aid agreements within the healthcare Coalition or with facilities not impacted by the hazard. •Explore and look for options from parent or "sister" facilities for resources if usual methods are not an option or do not provide sufficient resources. •Ensure disaster augmentation plans for pharmacy and supply personnel. Plan for workforce shortages including information for other providers to fill supply/warehouse/ distribution roles and explore and engage with medical volunteer programs including the

		Medical Reserve Corps (MRC) and Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP). • Ensure information sharing with patients regarding services provided, facility status, and any changes they should be aware of with pharmacy supplies and home delivery of medications and medical supplies (e.g., nutrition, oxygen).
Recovery	•Resume normal operations and communicate the resumption of normal allocation/delivery/ activities with distributors and coalition partners. •Communicate to patients and providers about resumption of normal activities/processes. •Manage transition back to daily operations/usual products and practices.	• Disseminate supply chain disruption situation reports to local, regional, and state health authorities as requested. • Coordinate with distributors and others as needed on product substitutions and transitions back to primary product if event caused a shortage. • Share information on sustained supply chain impacts. • Work with distributors to resume normal operations, distribution volumes, and schedule.

Patients

Patients and their caregivers are the primary end-users in the supply chain and typically only engage with providers although certain materials (e.g., nutrition, home dialysis supplies) are sometimes directly delivered to patients by distributors. The diverse needs of patients – from acute care needs to chronic conditions, to unique demands from different demographic groups like pediatric patients – contribute to the complexity of this aspect of the supply chain.

Stage	Considerations	Mitigation and Response Strategies
Pre-event	•**Understand insurer limitations on filling prescriptions** – Generally, insurance plans prevent patients from obtaining a prescription refill before their current supply is depleted or close to it. During a declared disaster, a no refill order may be lifted. •**Identify and plan for critical healthcare equipment delivery and maintenance** – An important preparedness activity for patients is to ensure access to their homes for deliveries of critical supplies such as durable medical equipment (DME) and oxygen, and also to ensure proper refrigeration (if needed) of temperature sensitive medical products.	•"Refill too soon" overrides may be allowed through an emergency declaration or at the discretion of insurance plans during emergencies. These overrides can allow patients to receive a 30-day supply of prescription medicines in advance of a forecasted event. As this is not always the case, it is important for patients to be educated on this issue and know what options they have. •Follow instructions on labels or patient instructions given by providers to help make sure medical supplies are properly administered and maintained by patients. •Plan with distributors to ensure continued access during a disaster for home-delivered

		products and plan how the patient can communicate their new location to a distributor if the patient is forced to relocate during a disaster. •Plan alternate source of refrigeration, if needed (e.g., portable cooler, locations that may have back-up power near the patient).
Response	•**Disseminate information on open facilities and how to access them** – Evacuated patients may not be familiar with or know of nearby open facilities. •**Knowledge of waivers and sources of information (e.g., insurance hotlines)** – Coverage may change during an emergency due to waivers and other exemptions.	•Plan with healthcare providers in advance of an event to identify back up facilities, particularly ones within the insurance network. •Use locator services like Rx Open to identify open pharmacy facilities. • Follow training and awareness campaigns and seek patient resources during emergencies. •Consult with a medical provider in advance if possible if a medication shortage or difficulty accessing medication ensues. An alternate strategy or medication may be temporarily needed (e.g., going to a clinic to receive insulin versus storing it at home). •Understand how health insurance benefits and restrictions may change during a disaster (e.g., in-network coverage changes)
Recovery	• **Transition care and services to a new or temporary facility.**	•Develop continuity of care plans with care teams, including primary care providers, pharmacists, and insurance providers. •Understand timeline for restoration of services / deliveries. •Resume usual medications and schedules. •Plan for deliveries and supply chain needs if temporary healthcare facilities are used or patients relocated.

Coalitions

CFDMC mission is to develop and promote healthcare emergency preparedness and response capabilities in the East Central Florida Domestic Security Task Force Region 5 (RDSTF Region 5), including the following nine counties: Brevard, Indian River, Lake, Martin, Orange, Osceola, Seminole, St. Lucie, and Volusia Counties.

The CFDMC will facilitate healthcare and other partners in working together collaboratively to build, strengthen and sustain a healthcare preparedness and response system within Central Florida and to assist Emergency Management and ESF-8 (Health and Medical) with preparedness, response, recovery and mitigation activities related to healthcare disaster operations.

CFDMC will facilitate information sharing among participating CFDMC members and with jurisdictional authorities to promote common situational awareness. CFDMC can facilitate resource support by expediting the mutual aid process or other resource sharing arrangements among CFDMC members and support the request and receipt of assistance from local, State and Federal authorities

Stage	Considerations	Mitigation and Response Strategies
Pre-event	•**Reconcile and align private sector member business continuity plans and public sector member emergency response plans** – With diverse members, HCCs can help set emergency response priorities and translate resources, needs, and concerns across and between members. With healthcare owned and operated by the private sector but public sector agencies charged with responding, mediation and understanding before an event is essential. •**Foster and forge relationships with supply chain components** – HCCs play an important role in establishing key external relationships and fostering collaboration and partnerships during steady state. •**Determine emergency protocols and procedures** – HCCs can play a lead role in developing and disseminating guidance within their membership on how to conserve, substitute, adapt, re-use, and re-allocate supplies. •**Establish information-sharing protocols and reporting flow** – HCCs should determine how information about impacts to healthcare services and supply alternatives will be shared throughout the coalition. (e.g., through Situation Reports, coordinating conference calls, and event dashboards). • **Include supply chain representatives, specifically distributors and potential manufacturers, in coalition meetings and activities.**	•CFDMC will facilitate relationships through routine coalition interactions (e.g., inviting distributors to coalition meetings, trainings, and exercises). •Understand and document the major distributors in the area including key product lines, location(s), points of contact, and means of delivery. This may include distribution points owned and operated by major healthcare systems. •CFDMC fits in as ESF-8 lead for the region. CFMDC attempts to identify regional resources to fill local needs •Understand the role of the CFDMC in drug and supply shortages when emergency management is not activated (e.g., during steady state operations). •CFDMC's Trauma Advisory Board reviews protocols and procedures for recommendation. •CFDMC has codified essential elements of information (EEIs) relevant to supply chain in emergency operations plans as well as roles and responsibilities for compiling and disseminating information through Situation Reports and other mechanisms. •CFDMC is working to ensure that the coalition role in response is understood by both distributors and providers and that the mechanisms for obtaining emergency management assistance are understood. •CFDMC conducts trainings and exercises to build capacity and identify key coordination points across coalition members. •CFDMC will include supply chain objectives in community-wide exercises to improve engagement and understanding of key issues and solutions.

Response	• **Coordinate response activities across members** – Including through coordination calls, development, and dissemination of Situation Reports, dashboard updates (if applicable), liaising with ESF-8 and emergency management partners. •**Collect and aggregate EEIs** from members and provide this data to local, state, and federal partners. • **Create and share common strategies** for scarce resource management among members. • **Broker or allocate resource requests** (depending on the defined Coalition role).	• CFDMC will establish coordination conference calls or use other information platforms to share information. • The Coalition routinely communicates with major distributors and shares hazard/impact information relevant to supply deliveries and security concerns as well as anticipated needs. •CFDMC will monitor and/or manage response requests, as seen in the state WebEOC, determine allocations and delivery and other operations according to the Coalition role in the jurisdiction. •CFDMC will coordinate guidance for local implementation of crisis recommendations during protracted events (in conjunction with state-level efforts and local subject matter experts). •CFDMC will share identified EEIs with supply chain partners (e.g., distributors, 3PLs) to establish information-sharing expectations and requests.
Recovery	•**Communicate transition from response to recovery** – This might be signaled through emergency operation centers (EOCs) standing down and information sharing cadences slowing. •**Facilitate resumption of normal supply delivery and clinical use.** •**After-action reports and identify lessons learned** – Coordinate with stakeholders to identify opportunities for improvement. •**Incorporate lessons learned** – Integrate lessons learned and best practices into future supply chain integrity assessments as needed for HPP capability requirements.	•CFDMC works with its partners to ensure consistency of delivery/care across region – moving from crisis to contingency and then conventional status for materials use. •CFDMC produces daily situation reports for member agency during events so all partners have working knowledge of situational awareness and unmet needs. •CFDMC shares lessons learned and improvement opportunities with local, regional, and state health authorities.

Essential Elements of Information

Below are the Essential Elements of Information (EEI's) identified by CFDMC multi-disciplinary communications committee.

- General status at the specific location
- Total number of non-ICU inpatient beds, including surge beds
- Total number of staffed available non-ICU beds
- Total number of ICU beds, including surge beds
- Total number of staffed available ICU beds

- Total number of ventilators, including converted machines
- Total number of ventilators available
- Staffing status
- Personal Protective Equipment status
- Additional resource availability, as applicable
- Additional EEIs may be identified based on the specific event reporting date
- hospital name
- county name
- structural damage
- evacuation type
- evacuation status
- reentry status
- power status
- generator fuel status
- generator fuel type
- HVAC generator status
- normal water supply
- dialysis reliable water supply
- sewer status
- immediate needs
- General status of the EMS agency
- Total number of staffed Critical Care Transport ambulances
- Total number of staffed ALS ambulances
- Total number of staffed BLS ambulances
- Total number of paratransit vehicles
- Total number of staffed air medical transport assets
- Additional resource availability, such as ambulance buses and non-medical transport vehicles, as applicable
- Additional EEIs may be identified based on the specific event

Resource Coordination

If a Coalition member organization needs assistance during a disaster response (staff, equipment, supplies, or other resources), the member organization submits a request to the County Emergency Operations Center (EOC). It is the county's responsibility to try to fulfill the individual's request.

If the County EOC is unable to fulfill the request, the County submits requests to the State EOC through WebEOC. Once a request has been received by the State EOC from a county, it is initially processed by the County Liaison Desk under the direction of the Operations Support Branch, who verifies the information. From there, it is assigned to the proper branch for tasking to the appropriate ESF. If the ESF can meet the provisions of the request, resource information is forwarded to the county EOC. If the ESF cannot provide the requested resources, it is then forwarded to the Logistics Section, who will work with either private vendors or through the Emergency Management Assistance Compact (EMAC) to secure the resources. If the resources are identified from private sources, the vendor information is given to the county emergency operations center.

Resources

State, interstate, and federal assistance resource support to local communities are expected to be limited or not available. Sharing of information on how to stretch out resources is a CFDMC responsibility. Below are some resources.

https://www.ins1.org/wp-content/uploads/2021/12/Saline-Flush-and-Vial-Shortage_-WW.pdf

https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/medical-device-shortages-during-covid-19-public-health-emergency

https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/blood-specimen-collection-tube-shortage-frequently-asked-questions

https://www.fda.gov/medical-devices/letters-health-care-providers/update-blood-specimen-collection-tube-conservation-strategies-letter-health-care-and-laboratory

https://content.govdelivery.com/accounts/USFDA/bulletins/30693cb

https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html

https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/strategies-optimize-ppe-shortages.html

https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html

https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html

https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html

https://www.dhs.gov/publication/st-multicooker-decontamination-n95-respirators

https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/gloves.html

https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html

https://www.cms.gov/medicareprovider-enrollment-and-certificationsurveycertificationgeninfopolicy-and/guidance-use-certain-industrial-respirators-health-care-personnel

https://files.asprtracie.hhs.gov/documents/fema-mocc-toolkit.pdf

https://www.cms.gov/files/document/cms-non-emergent-elective-medical-recommendations.pdf

https://www.hhs.gov/sites/default/files/optimizing-ventilator-use-during-covid19-pandemic.pdf

https://www.ems.gov/pdf/Strategy_to_Mitigate_EMS_Workforce_Absenteeism.pdf

https://www.cdc.gov/coronavirus/2019-ncov/community/retirement/considerations.html

https://www.cdc.gov/coronavirus/2019-ncov/hcp/long-term-care.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Flong-term-care-strategies.html

https://repository.netecweb.org/exhibits/show/ppe-cons/ppe-cons

https://www.floridadisaster.org/globalassets/cemp/2020-cemp/2020-state-cemp.pdf

https://f6299184-a3cb-4c34-bb57-9bbf5a2a4016.filesusr.com/ugd/8d7960_b8b765260308483bb9c46c26e8fa45cc.pdf

https://f6299184-a3cb-4c34-bb57-9bbf5a2a4016.filesusr.com/ugd/8d7960_29f1dfa310ba444e95c58cdf93b01516.pdf

https://f6299184-a3cb-4c34-bb57-9bbf5a2a4016.filesusr.com/ugd/8d7960_7e0b2607bd934d00b8542671c1dbfbd9.pdf

https://f6299184-a3cb-4c34-bb57-9bbf5a2a4016.filesusr.com/ugd/8d7960_587c38427e1346d6a4299000c36d2738.pdf

Authority

Statute	Agency	Authority
Chapter 68. Title 42	Federal Government	Provides authority to declare and respond to emergencies and provide aid; to protect public health; implemented by the Federal Emergency Management Agency (FEMA).
Title 42 United States Code Section 264 (Section 361 of the Public Health Service [PHS] Act)	Federal Government Centers for Disease Control and Prevention (CDC)	Under its delegated authority, the CDC is empowered to detain, medically examine, or conditionally release individuals reasonably believed to be carrying a communicable disease. Influenza viruses that cause/ have potential to cause a pandemic are included in the list of quarantinable diseases.
Chapter 252, Florida Statutes Emergency Management Act Section 381.003, F.S.	Governor Florida Division of Emergency Management	Allows Governor to declare a state of emergency. Gives Governor and Division direction and control of emergency management. Allows Governor and Division to delegate authority to carry out critical functions to protect the peace, health, safety, and property of the people of Florida.
Chapter 381, F.S. Section 381.0011, F.S. Communicable Disease and Quarantine Section 381.00315, F.S. Public Health Emergencies and Advisories	Department of Health	Authorizes the department to administer and enforce laws and rules relating to control of communicable disease. Authorizes the department to declare, enforce, modify, and abolish quarantine of persons, animals, and premises. Authorizes the department to specify the conditions and procedures for imposing and releasing a quarantine. Authorizes the State Health Officer to declare public health emergencies and issue public health advisories.
Section 381.0012, F.S. Enforcement Authority	Department of Health	Authorizes the department to maintain necessary legal action; request warrants for law enforcement assistance; and directs state and county attorney, law enforcement and city and county officials upon request to assist the department to

		enforce the state health laws and rules adopted under Chapter 381, F.S.
Section 768.28, F.S. Sovereign Immunity for State Officers and Employees	State Agencies	Protects state employees who administer immunizations as part of their official duties.
Section 120.54, F.S.	State Agencies	Allows state agencies to adopt temporary emergency rules when there is immediate danger to public health, safety, or welfare without going through the normal rule making process.

Acronyms

ACS	Alternative Care Site
BOE	Bureau of Epidemiology
BOL	Bureau of Laboratories
CDC	Centers for Disease Control and Prevention
CEOC	County Emergency Operations Center
CHD	County Health Department
COOP	Continuity of Operations Plan
CRI	Cities Readiness Initiative
DBH	Disaster Behavioral Health
DEMO	Department of Emergency Medical Operations
DMORT	Disaster Mortuary Operational Response Team
DOACS	Department of Agriculture and Consumer Services
ED	Emergency Department
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ESF	Emergency Support Function
FDOH	Florida Department of Health
DOH	Florida Department of Health
HHS	Department of Health and Human Services
IC	Infection Control
ICP	Infection Control Professional
ICS	Incident Command System
ILI	Influenza Like Illness
JIC	Joint Information Center

MOU	Memoranda of Understanding
OEO	FL DOH Office of Emergency Operations
POD	Point of Distribution
PPE	Personal Protective Equipment
PIO	Public Information Officer
RDSTF	Regional Domestic Security Taskforce
SEOC	State Emergency Operations Center
SNS	Strategic National Stockpile
SIP	Special Immunization Program
VAERS	Vaccine Adverse Event Reporting System
WHO	World Health Organization