

Supply Ready

Leading Practices for Disaster-Related Supply Chain Resilience in Community Health Centers

Written By Healthcare Ready
Sponsored By Centene Charitable Foundation

January 2023

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Executive Summary

Community health centers (CHC) provide primary and preventative care to more than 29 million Americans in medically underserved areas across the country. The impacts of public health emergencies and disasters—both natural and otherwise—can be more severe for CHCs than other health systems due to a variety of factors. Ninety-one percent of CHC patients are low-income, and 42 percent of health centers are in rural communities, highlighting just two of the many factors that contribute to CHCs typically having more narrow operating margins than hospitals.

During disasters, in addition to maintaining regular services, CHCs serve a critical role in helping to offset medical surge scenarios across healthcare systems and infrastructure. However, limitations and variability around funding sources, along with challenges associated with having a smaller physical footprint (compared to larger, more resourced facilities, such as hospitals), compound the challenges CHCs face in disaster response.

Healthcare Ready and Centene Charitable Foundation partnered together to conduct a needs assessment to highlight leading practices for CHC supply chain resiliency in disaster response. The findings from that assessment are compiled in this free, online resource to benefit CHCs and other stakeholders to strengthen the capabilities and capacities of CHCs before, during, and after disasters.

Through review of publicly available literature on disaster-related supply chain practices and a series of discussions with key stakeholders, this study identified seven leading practices for CHC supply chain resiliency during disasters.

Leading Practices for CHC Supply Chain Resilience

Be Prepared for Disaster-Related Supply Scenarios

Disaster scenarios can lead some vendors to restrict supply availability. Being aware of such practices (known as “allocation”) and having strategies in place to mitigate potential disruptions to procurement can help organizations overcome supply chain constraints during disasters.

Increase Purchasing Power via Group Purchasing Agreements and/or GPO Membership

Facilities can aggregate purchasing power by partnering with other facilities and/or gaining membership to a Group Purchasing Organization (GPO).

Leverage Partnerships to Increase Supply Chain Resilience

Internal and external partnerships are essential to disaster response. Evaluate and build partnerships with other facilities, vendors, and emergency response entities; and strategize/align on respective roles and responsibilities in advance of a disaster.

Promote Greater Information Transparency: Jurisdictions, Health Centers, and Suppliers

During steady-state, provide centralized information for your facility's expected response and anticipated needs with internal and external stakeholders, including external vendors, suppliers, and response agencies within your jurisdiction.

Increase Supplies On-Hand to Meet Demand During Times of Surge

For facilities with the capacity to do so, augmenting supplies on-hand can mitigate against disruptions caused by short-term events. There are several creative strategies to store excess inventory for facilities that have limited physical space.

Use Non-Traditional Vendors to meet Supply Needs

When traditional suppliers are not able to meet supply demands, non-traditional suppliers can be used as alternatives. Leverage partners, including state primary care associations and other non-governmental organizations to help vet newer suppliers in an emergency.

Have a Communication Plan in Place for Coordinating Donations

Donations from private businesses and charitable organizations can be welcome or unwelcome gifts depending on whether there are operational constraints for accepting and managing donating product. This report provides recommendations for facilitating communication between donors and recipients to streamline donations.

This report is intended for CHCs, state primary care associations, prospective donors, medical-surgical suppliers, and other key stakeholders to better understand disaster-related supply challenges faced by CHCs, and potential mitigation strategies to support supply chain resilience for future disasters. As illustrated by the COVID-19 pandemic and other recent events, CHCs are the front-line for public health response. Enhancing supply chain resilience for CHCs will lead to greater community resilience, and faster recovery from disaster future disasters.

1. Introduction

Community health centers (CHC) provide primary and preventative care to more than 29 million Americans in medically underserved areas across the country. Ninety-one percent of CHC patients are low-income, two-thirds of patients are minorities, and 42 percent of health centers are in rural communities.¹ The impacts of public health emergencies and disasters (natural and otherwise) can be more severe for CHCs than other health systems, such as hospitals, or privately-owned clinics due in part to their geographic locations, cost of care associated with CHC patients, and generally smaller operating budget with limited flexibility around funding sources.^{i,ii}

For the purposes of this report, CHCs refer to all funded and unfunded Health Resources and Services Administration (HRSA) Health Center Program grantees, including Federally Qualified Health Centers (FQHCs) and FQHC look-alikes. Practices in this report can also be applied to healthcare facilities that operate with similar goals and operating constraints as CHCs.²

The combination of scenarios created by the COVID-19 pandemic—fewer in-person visits for non-essential services leading to decreased revenues, staffing challenges, rapidly changing operating environment and surge in COVID-19 related patient services—created even greater challenges for CHCs to sustain essential services to communities that have been historically medically underserved. Recognizing the unique challenges faced by CHCs during the COVID-19 pandemic and other disasters, Healthcare Ready and Centene Charitable Foundation partnered together to conduct a needs assessment highlighting leading practices in healthcare supply chain resiliency practiced by CHCs.

This report is being shared as a free, online resource to benefit CHCs and other stakeholders to help strengthen the capabilities and capacities of CHCs and the communities they serve.

Community health centers provide critical primary and preventative care services to low-income, minority, and uninsured populations throughout the US. Throughout the COVID-19 pandemic, health centers shifted and expanded operations to administer testing, vaccinations, and other pandemic-response needs.³ As a critical safety net resource to millions of Americans, they must be resourced appropriately to ensure critical services can continue amidst disasters.⁴

ⁱ Special medically underserved populations may include migratory and seasonal agricultural workers, persons living without homes, and residents of public housing.

ⁱⁱ defined as “entit[ies] that serve population[s] that [are] medically underserved, or special medically underserved population[s] comprised of migratory and seasonal agricultural workers, the homeless, and residents of public housing”.

About Healthcare Ready

Healthcare Ready is a 501(c)(3) nonprofit organization that works to ensure patient access to health care in times of disaster and disease outbreaks. Established in 2007, Healthcare Ready functions as a critical and non-traditional response arm coordinating the federal government and the private sector (manufacturing, supply chain and healthcare support and deliver) as a public-private partnership that works to bridge the private sector health care supply chain with public health and emergency management on preparedness, response, and recovery efforts. Their mission is to build and enhance the resilience of communities before, during, and after emergencies. Learn more at HealthcareReady.org.

About Centene Charitable Foundation

The Centene Charitable Foundation (the “Foundation”), is a private nonprofit focused on investing in economically challenged communities, is the philanthropic arm of Centene Corporation (“Centene”). The Foundation supports projects and initiatives strategically aligned with Centene’s purpose-driven culture and enhances the work Centene is doing to remove the barriers to wellness underserved and low-income populations face. The Foundation is committed to addressing social determinants of health and improving health equity in three distinct areas of focus: Healthcare Access, Social Services, and Education.

2. Methodology

Information for this report was gathered from publicly available sources on supply chain practices of healthcare facilities during disasters and during steady-state. Information was also gathered through semi-structured discussions with representatives of state primary care associations (PCA), CHCs, and other stakeholders with subject matter expertise in healthcare supply chains.

Scope and Definitions

This study focused on healthcare supply chain needs related to CHCs, and medical-surgical supplies. For the purposes of this report:

CHCs encompass all funded and unfunded HRSA Health Center Program grantees, including FQHCs and FQHC look-alikes.⁵

Medical-surgical supplies include masks, gowns, gloves, needles, blood pressure cuffs, personal protective equipment (PPE), and other non-pharmaceutical materials and supplies.

Information was gathered from February 2022-August 2022. Perspectives, and leading practices are inclusive of learnings from the COVID-19 pandemic as well as other events that have impacted the healthcare supply chain, including events that have led to disruptions in manufacturing, distribution, transport, or procurement of medical-surgical supplies.

Data Collection Methods

Discussion participants were sought from all FEMA regions, US territories, associations representing health centers, as well as private sector manufacturers and operators who facilitate donations between CHCs and private companies. Over 50 emails and calls were made to solicit participation in this study from aforementioned stakeholders. In addition to direct outreach to CHCs, PCAs and private sector stakeholders, invitations were extended through professional associations, and via social media (Twitter, Facebook). In total, contributions to this study were made from 28 PCAs, two CHCs, and three interviews held with stakeholders with subject matter expertise working with healthcare supply chain operations. A description of participating stakeholders is listed in Table 1.0.

Table 1.0 Stakeholders Discussions

Stakeholder	Discussions	Stakeholder Descriptions
Primary Care Association (PCA)	24	<p>Four PCAs were interviewed over a 30 minute to one-hour Zoom call, with one interviewer and one note-taker. Twenty additional PCAs also participated via webinar where participants responded to poll questions and shared anecdotes on unique experiences.ⁱⁱⁱ</p> <p>PCAs from FEMA Regions 2, 7, 9, and 10 participated in this study. The PCAs in Regions 9 and 10 serve 8.4 million patients a year, collectively. The PCA in Region 7 serves over 113,000 patients and the PCA from Region 2 serves over 1.5 million patients.</p>
Community Health Center (CHC)	2	<p>The two participating CHCs (from the same PCA) serve urban and rural communities in FEMA Region 10. Between the two CHCs, they serve 91,000 patients.^{iv} Both CHCs had similar operating budgets of around \$1 million.</p>
Other Stakeholders^v	3	<p>Other stakeholders include subject matter experts on cooperative procurement strategies for healthcare facilities. Representatives of a medical supply company for hospitals and clinics also participated.</p>

Limitations

The information presented in this report offers valuable insights and is shared with the intent to support further study on the topics being discussed. The findings are not generalizable or representative of capabilities and capacities of all CHCs across the US.

ⁱⁱⁱ Other participants were also present in this call, but only 22 participated in polling. Of those 22 PCAs, two had previously participated in separate discussions.

^{iv} Based on most recent annual reports.

^v American medical supply and service distributor serving health care facilities across the United States.

3. Background: Challenges to Supply Chain Resilience

Public health emergencies can affect CHCs in several ways. In addition to potentially sustaining physical damages requiring patient evacuation or suspension of services, patients typically seen by CHCs may experience disproportionate consequences from disasters related to existing social determinants, and, historically worse health outcomes that are associated with certain socioeconomic factors.

More than 17,000 CHCs operate in 14,000 medically underserved areas across the country, and there is significant diversity across patient populations, staff capabilities, funding resources, and other community resources (including, for example, proximity to other health systems). During times of disaster, CHCs continue to provide services to meet the healthcare needs of vulnerable communities, and they also play a critical role helping to offset medical surge conditions in other healthcare facilities, such as hospitals and emergency rooms.^{6,7} Despite the critical role they play in the overall healthcare delivery system, funding and resources limitations can constrain their ability to sustain normal operations during disasters.

Limited Funding for Community Health Centers

CHCs are funded through a variety of sources, including reimbursements from Medicaid, Medicare, and private insurance; and federal and state grants.⁸ The composition of funding varies by facility, geography, and over time. A 2019 audit of CHC revenue trends by the Government Accountability Office found the amount of federal and state grants attributed to CHCs' revenue decreased (38 percent) over the period from 2010 to 2017. Over the same time period, the number of health centers increased (1,124 centers to 1,373 centers), and 7.7 million more patients were served.⁹ According to the *2021 National Association of Community Health Centers (NACHC) Chartbook*, reimbursement from Medicaid and other third-party payers are around 30-50 percent less than the actual cost of care to the patient. In other words, health centers are being reimbursed *less* than the actual cost to care for a patient.

When third-party payers and federally funded programs pay more, health center savings are "reinvested into patient care, care innovations, and expanded services to address current and emerging health needs."¹⁰ Funding variability, declines in grant funding, and insufficient increases in funding to meet expansion needs, all pose serious threats to the viability of CHCs in medically underserved areas across the US.

The Community Health Center Fund was originally authorized in 2010 under the Affordable Care Act, which granted CHCs an \$11 billion increase in funding over a five-year period and has since been extended three times. There were significant concerns over potential loss of this funding in 2019 and 2020 – amidst the onset of the COVID-19 pandemic. After several temporary extensions, a three-year extension was granted in December of 2020 to provide funding through October 2023.

Recognizing the significant strain CHCs were under in responding to the emerging COVID-19 public health crisis, HRSA granted CHCs about \$9.3 billion in additional funding in response to the pandemic at the beginning of 2020 and through 2021. Despite the extension of baseline funding for health centers and the temporary increase in funding for pandemic response, such reactionary funding to public health emergencies falls short of creating meaningful, lasting capabilities and capacity for responding to future disasters.¹¹

Programs Supporting Preparedness Capabilities and Capacity

The CMS Emergency Preparedness Rule and state primary care associations (PCAs) established via HRSA's Health Center Program help build preparedness and response capabilities within CHCs. The Emergency Preparedness Rule, for instance, requires participating providers to meet a set of standards and practices to enhance their emergency preparedness capabilities, including requirements for having an emergency preparedness and response plan, and demonstrating the ability to work with government emergency response organizations to disaster response needs. State PCAs help build preparedness and response capabilities within CHCs via networking, facilitating information sharing, and helping connect resources to where needs are during disasters. PCAs can also serve as a liaison between CHCs, HRSA, emergency management agencies, and relief agencies, and private donors, critically connect need to available resources.¹² During Hurricane Irma, for example, Florida Association of Community Health Centers, aided in supply storage and relief resources.¹³ The CMS Emergency Preparedness Rule does not provide funding, whereas funding for state PCAs and preparedness support is provided by the HRSA Health Center Program.

Limitations for Keeping Extra Supplies On-Hand

Just-in-time ordering refers to the practice of purchasing and using supplies when they are needed. The model is a useful and cost-effective strategy for health care facilities that don't have the ability to store excess inventory and can help to mitigate inventory risks such as wasted product that are passed expiration.¹⁴ However, the model also relies on a well-functioning supply chain, which can be disrupted at varying points of the global process for manufacturing and distributing healthcare supplies by natural disasters and other events, including staffing shortages within distribution (e.g., truckers strike), scarcity of raw and starting materials leading to manufacturing disruptions (e.g., plastics, active pharmaceutical ingredients).

Maintaining an inventory of backup supplies is one strategy for mitigating against impacts to just-in-time ordering practices, but the costs and overhead related to managing a large, excess inventory isn't always practical for CHCs. In discussions for this study, both PCAs and CHCs identified a lack of physical space as a constraint to storing extra inventory. Participants shared stories for how existing space was repurposed, or how short-term rentals were used to increase available storage space to store the added inventory required during the COVID-19 pandemic.

Workforce Challenges

In 2021 alone, CHCs administered 18 million tests and over 20 million vaccines while still maintaining existing services for their communities.¹⁵ Despite the increased workload associated with the pandemic, federal funding has remained stagnant, and prolonged stress from the pandemic has

only exacerbated existing healthcare worker shortages.^{16,17} Stagnant funding prohibits health centers from hiring and retaining experienced staff, investing in care for patients, expansion of services, and other growth strategies.

In an informal poll taken during a webinar with the PCA Emergency Management Coalition, 17 of 22 PCAs reported that funding and staffing availability/bandwidth were the largest contributing factors to member CHCs not having dedicated staff to manage supply chain operations or inventory.^{vi} When asked, "Does your CHC (or PCA) have dedicated staff to manage supply chain operations or inventory?", respondents shared anecdotally that most of their members do not have dedicated or trained supply chain management staff that understand leading inventory practices. Improving this situation could be addressed by providing support in the form of supply chain training, skills development, and education around technology platforms. Facilities that do have dedicated supply chain staff can set up practices for knowledge retention and transfer, including developing training manuals, creating and maintaining clear processes for procurement, etc.

"Some of our CHCs have set up warehouses. Others have found repurposed closets for more storage..."

—PCA representative from the Pacific Northwest

"Most converted administrative space to storage space..."

—PCA representative from the Northeast

17 of 22 PCAs polled indicated neither PCA nor member CHCs have dedicated staff to manage supply chain operations.

^{vi} This poll was conducted via Zoom on May 18, 2022 by Healthcare Ready, during a collaborative call with the Emergency Management Assistance Compact. Twenty-two unique PCAs participated in this poll.

PPE Procurement When Competing with Larger Facilities

COVID-19 Spotlight

The global nature of the COVID-19 pandemic created widespread supply chain impacts that were unprecedented in scale. Lockdowns in countries with major manufacturing and logistics footprints (China, for instance), quickly led to impacts in available medical supply in the US.¹⁸ As the world competed for the same pool of resources—gloves, masks, other PPE and medical supplies necessary for treating patients—available supplies in the global market rapidly dwindled.¹⁹ Vendors attempted to control the depletion of supplies by placing customers on allocation to limit the amount of available product that could be ordered by a single source. Many resorted to using past order histories to strategize how much product customers could order during the pandemic, which precluded some facilities from being able to fulfill increased supply needs caused by COVID-19.

According to NACHC, the lack of PPE was the greatest challenge at CHCs to provide COVID-19 testing in the summer of 2020.²⁰ In all six one-on-one interviews with CHCs and PCAs for this study, supply chain-related challenges that were mentioned included commercial procurement, and the ability to receive available donations of medical-surgical supplies (specifically PPE and durable medical equipment). Study participants also shared that other issue, such as staffing and supply shortages, limitations in funding, inexperience with global procurement, and lack of storage space also made it difficult to respond to new operational challenges created by the pandemic.

From study discussions: One CHC from the Pacific Northwest stated the greatest lessons they learned on procurement and planning is the “need to have back-up suppliers” and “having emergency stock on-hand.” Blood pressure cuffs were mentioned by a CHC in FEMA Region 10 as a challenge to get from one supplier. This CHC looked for grants and worked with their pharmacy team to help procure these supplies in ways that they hadn't previously, before the pandemic.

A PCA in the Midwest identified “staff turnover” and “basic understanding of supply chain management” as two major challenges to implementing resilient supply chain practices.

Smaller health care clinics with limited funding resources were not able to procure supplies in the same ways that other healthcare facilities or systems could due to purchasing minimums and increased costs imposed by vendors during the pandemic. The competitive landscape of PPE procurement turned into a “wild west,” where bigger (better resourced) healthcare facilities and providers were more likely to be able to acquire PPE and other critically needed medical supplies.²¹ PCAs shared anecdotally throughout this study, that rural CHCs often experienced the most difficulty in sourcing PPE during the height of pandemic due to limited purchasing power and distance from partners or hubs that could otherwise provide assistance.²²

“Clinical staff [did not] have any training on supply chain and [were] being told to make these orders.”

—PCA representative from the Midwest region

4. Key Disaster-Related Supply Chain Challenges and Potential Solutions

This section is intended to highlight several strategies that can be used to help mitigate against disaster-related impacts to CHC supply chains. Not all suggested strategies may be feasible by every CHC. However, these strategies are shared with the intent to be useful as a potential model for future practices that can be tailored to the unique needs and resources of CHCs.

Leading Practices for CHC Supply Chain Resilience

- A.** Be Prepared for Disaster-Related Supply Scenarios
- B.** Increase Purchasing Power via Group Purchasing Agreements and/or GPO Membership
- C.** Leverage Partnerships to Increase Supply Chain Resilience
- D.** Promote Greater Information Transparency: Jurisdictions, Health Centers, and Suppliers
- E.** Increase Supplies on Hand to Meet Demand During Times of Surge
- F.** Use Non-Traditional Vendors to Meet Supply Needs
- G.** Have a Communication Plan in Place for Coordinating Donations

A. Be Prepared for Disaster-Related Supply Scenarios

For this community needs assessment, there are two descriptions of *allocation*; one referring to CHC-to-vendor allocation and the other, vendor-to-CHC allocation, commonly referred to as *needs-based-allocation*. Needs-based-allocation is initiated by vendors (or distributors) in order to prevent over-ordering of supplies during widespread supply chain constraints. It includes limiting the amount of supply that is ordered or delivered to prevent an artificial shortage caused by panic buying (i.e., over purchasing) and/or stockpiling. When needs-based-allocation is initiated, distributors will allocate supplies to CHCs based on each center's previous supply order numbers, with the intent of ensuring that customers will still receive *some* quantity product.

In other words, needs-based-allocation helps vendors ensure their customers receive as close to their usual ordering numbers as possible during times of strain. During the COVID-19 pandemic, for example, when PPE was in short supply, CHCs were not able to order increased quantities because they had never before ordered at such large volumes. One CHC in FEMA Region 10 indicated that they were precluded from increasing supply orders by at least one supply vendor that based allocation on past order history, preventing them from ordering additional supplies that were needed to meet the growing demand within their facility.

In the case of allocation between CHCs, a PCA with logistical capabilities may act as a vendor, fielding and receiving large donations during an emergency, and then distributing the donated supplies across their membership – a scenario observed during the COVID-19 pandemic. The supplies are meant to be routed equitably, in accordance with the needs of each facility. While this method cannot prevent shortages at every

facility, it can improve relationships between members (and with their PCA) so they can better communicate their supply needs. It is important to note that this method of allocation is less common, as not all PCAs possess the capacity or ability to support warehouse maintenance and distribution.

B. Increase Purchasing Power via Group Purchasing Agreements and/or GPO Membership

CHCs can also source materials through contracted group purchasing agreements. Being a member of a Group Purchasing Organization (GPO) helps CHCs gain access to quality products at lower costs by combining their purchasing power with that of other facilities. A GPO is defined by the Healthcare Supply Chain Association (HSCA) as “an entity that helps healthcare providers... realize savings and efficiencies by aggregating purchasing volume and using that leverage to negotiate discounts with manufacturers, distributors and other vendors.”²³ For example, HSCA annually decreases the cost of supply-chain-related buying by 13.1%, with an estimated \$34.1 billion annually saved for the healthcare system.²⁴

GPOs can also help members address supply shortages during disasters, as was observed during infectious disease outbreaks like the COVID-19 pandemic and the 2014 Ebola outbreak, and other events. Following Hurricane Harvey and Irma, GPOs assisted with collecting and dispersing supplies to hospitals that were affected by the storms and experiencing shortages. Also during the 2017 hurricane season, in response to Hurricane Maria, GPOs navigated pharmaceutical shortages caused by damaged manufacturing infrastructure in Puerto Rico.²⁵

Some state PCAs provide group purchasing benefits to members. According to PCAs interviewed for this study (FEMA Regions 1, 2, and 9), some health centers manage their own group purchasing agreements, while others utilize the PCA's benefits. [Community Health Ventures](#) is a business affiliate of NACHC, serving NACHC member PCAs and health centers. Similarly, the Massachusetts League of Community Health Centers established the [Commonwealth Purchasing Group](#) to alleviate economic issues associated with purchasing for their health centers and affiliated non-profit organizations.

C. Leverage Partnerships to Increase Supply Chain Resilience

Diverse, meaningful partnerships can help build resilience.²⁶ While it is important to have open communication during an emergency, building the foundations of an effective partnership starts *before* disaster strikes.²⁷ This includes getting to know potential partners (e.g., healthcare suppliers, other CHCs, PCAs, local health departments, emergency management associations), understanding their capacity to support healthcare needs during surge events, understanding organizational roles, setting agreed upon goals, and developing an action plan for a mutually beneficial partnership.

Well-developed partnerships, both internal and external, are characterized by the diversity in actors and the quality of communication across stakeholders. Successful and resilient internal partnerships engage all areas of staff: clinicians, IT, administrative staff, emergency operations staff, etc. Inclusion of these diverse perspectives allows for more robust emergency response planning and the ability for each stakeholder to communicate how they can support response operations. Similarly, external partnerships prove to be successful

when CHCs recognize needs they are not able to cover themselves, and form relationships. Building this network of partnerships decreases gaps in capacity to comprehensively respond to disasters, and subsequent consequences faced by communities. This response network builds community resilience by strengthening capacity of local community-based organizations, there by fortifying pillars sustaining the community.

According to interviewees, some PCAs facilitate partnerships between CHCs and local government, Medicaid directors, state health departments, and other groups. These strategic partnerships help build resilience by providing health centers with diverse resources to improve patient access to care, increase preparedness capabilities, and enhance overall performance to meet patient's needs.²⁸ For instance, during the COVID-19 pandemic, one PCA revealed how they utilized their relationship with their state public health department to acquire grant funding for CHCs, specifically for PPE procurement. This supplemental COVID-19 funding provided CHCs greater purchasing flexibilities to more nimbly respond to the rapidly changing needs of the pandemic, including purchasing PPE when, and in the quantity, they needed.

One PCA with a primary membership of rural clinics noted in discussions for this study that members who established partnerships with local health departments during steady-state were consistently able to secure more PPE and testing supplies during the pandemic.

Internal and external partnerships were essential to ensuring health clinics could operate as safely as possible during the pandemic thanks to increased transparency and communication, which enhanced situational awareness of challenges that CHCs were facing. As noted above, health centers that had previously cultivated relationships with their local government agencies were more likely to receive timely and consistent help in sourcing PPE and other supplies than their counterparts who

“[Acquiring PPE] was very dependent on relationships at the [facility] level. You definitely saw a lot more response from CHCs and public health departments that had really great relationships. They were able to get supplies, they never got de-prioritized...”

—Representative of Mid-western region PCA

had no previous communication – highlighting the value of partnerships during times of strain. There is also potential value in forming relationships with local suppliers in lieu of larger, national suppliers. Local vendors have smaller customer bases and can allocate supplies to local CHC customers, who would otherwise have less purchasing power on a national supplier scale. Creating and/or maintaining such partnerships ahead of the next disaster will help increase purchasing options for CHCs.

D. Promote Greater Information Transparency: Jurisdictions, Health Centers, and Suppliers

During a crisis, health centers play an important role in maintaining consistent, transparent communication between partners. Based on the CMS Emergency Preparedness Final Rule, a quality communication plan is reviewed and updated at least every two years, is compliant with federal, state, and local laws, and identifies how

the health center will coordinate patient care within the facility and across providers.²⁹ To achieve this, CHCs must centralize information that is easily accessible and shareable amongst partners in order to share relevant, up-to-date documents and resources (i.e., supplies, stockpiles, and storage facilities, donation coordination, funding opportunities and medical volunteers) across networks.³⁰ To account for supply needs, having a dedicated and skilled supply chain manager to serve as the CHC's designated point of contact may be a best practice. This study found, however, that not all CHCs have access to such staffing resources, highlighting a potential gap in CHC's capacity to effectively communicate supply needs.

Regarding communication with suppliers, health centers are responsible for relaying supply needs (product, quantity, and frequency of need) to vendors and suppliers. Conversely, suppliers relay to CHCs what resources or supplies they can provide, fulfillment and delivery statuses, and allocation updates. Working through a disaster, both suppliers and health centers must be able to express realistic needs and communicate expectations to support supply and demand.³¹ This assessment concluded that CHCs who promote greater information sharing and transparency with partners across the supply chain and within their jurisdiction often fare better during disasters that disrupt the supply chain as they are better equipped to predict shortcomings and implement mitigating tactics.

E. Increase Supplies on Hand to Meet Demand During Times of Surge

While some interviewees cited that increasing supplies on-hand as a successful strategy to mitigating impacts during the COVID-19 pandemic, many CHCs are unable to do so due to funding constraints and storage limitations. As observed during the pandemic, increasing days-on-hand inventory allowed some facilities to move away from a just-in-time ordering, a strategy which can increase the risk of customers experiencing shortages when demand quickly outstrips available supply. This assessment identified several leading practices that CHCs deployed to support increased days-on-hand, including increasing storage, more accurately forecasting supply needs, strengthening inventory management, and having dedicated supply procurement staff members to support these efforts.

Notably, increasing storage capacities during the pandemic was a valuable tool for CHCs to support the increased demand of critically needed supplies, especially during the beginning stages of the pandemic. Supplies that were needed specifically to combat COVID-19 were seen as a temporary and acute need, so setting up or renting temporary storage units served as a flexible, temporary solution to housing large quantities. Going forward, this practice can help CHCs make swift adjustment to meet response-specific supplies needs. If increasing storage is not feasible, bolstering inventory management capabilities of CHCs (from a staffing bandwidth and skills perspective) may help address supply challenges. These practices involve rotating inventory (either with regional partners or with vendors) based on expiration dates so that supplies do not expire before use.

In the absence of time or resources, it may not be feasible for CHCs to implement these practices. One strategy to improve supply procurement is designating a staff member to support inventory management activities, such as ordering and performing inventory to ensure these processes are managed responsibly. This person should ideally receive supply chain training and eventually develop forecasting skills needed to accurately predict supply needs. There are many tools and systems to support such skills including online tracking and smart reporting tools that

track inventory, update patient records, and automate online managerial approval processes. These tools keep detailed reports, automate order preparation, provide usage warnings, and track patient per day costs – metrics that may significantly help CHCs more efficiently manage their supply needs and ordering processes.

F. Use Non-Traditional Vendors to Meet Supply Needs

During the pandemic when supplies like PPE were difficult to acquire, healthcare facilities across the nation turned to non-traditional vendors to meet supply needs. Non-traditional vendors included companies that did not previously have a history of manufacturing healthcare-related supplies but leveraged their production capabilities to support healthcare needs during the pandemic. To support members as they explored non-traditional vendors, three PCAs recounted their experiences “serving as a hub for vetted vendors and resources,” helping to connect vetted (verified supply and capability to distribute) suppliers with recipients in need.

At a time when CHCs (especially smaller health centers) were facing staffing shortages exacerbated by the pandemic, searching for and vetting suppliers proved to be a significant support for already over-burdened CHC staff.

CHCs took on considerable financial and physical risk contracting with some non-traditional manufacturers and vendors due to uncertainty related to the quality of product, legitimacy of the company itself, and lead times to get the finished products. Several online platforms were stood up to consolidate lists of non-traditional vendors for healthcare entities use such as, the Association for Healthcare Resource & Materials Management’s (ARHMM) [vetted non-traditional suppliers](#), the Biotechnology Innovation Organization’s (BIO) BIO Hub, and [GovShop](#). These online platforms helped CHCs navigate the serious risk that counterfeit materials posed to the healthcare sector, which was already under tremendous strain. Tools such as these platforms should be leveraged by CHCs in the future to streamline vetting processes and more efficiently identify potential suppliers.

The pandemic emphasized the need to vet vendors ahead of a disaster and diversify supplier networks to reduce CHCs’ dependencies on one or two companies. While there are challenges to identifying such companies, organizations like AHRMM have successfully helped supply chain professionals sift through non-traditional (or “grey”) manufacturers and suppliers and could be leveraged by CHCs during future disasters.

G. Have a Communication Plan in Place for Coordinating Donations

CHCs may also be recipients of donated goods. Understanding the difficulties that smaller healthcare facilities faced in obtaining critically needed products (e.g., PPE, hand sanitizer, ventilators) during the COVID-19 pandemic, various charitable partners stepped up to donate supplies. Breweries and chemical manufacturing companies, for example, converted product lines to instead produce hand sanitizer. Health center interviewees commented that local businesses reached out to understand how they could help support financially, through in-kind donations, or with non-monetary or in-kind donations. During disasters (beyond COVID-19), it is common for charitable organizations to reach out to health centers or PCAs to assess needs and understand how they may be able to assist.

CHCs can also proactively sign up for donation mailing lists to be notified about donation opportunities.

Facilitating successful donations of available supply can be made complicated by logistical constraints (e.g., storage or transportation capability requirements of recipients), issues with regard to exact specifications of a product, or quality. These issues highlight the importance of facilitating communication and collaboration across organizations *before* moving forward with a donation. This requires (a) potential donors to connect with recipients and communicate around details of available donations and understand recipients' capabilities and (b) potential recipients to effectively communicate specific needs.

To help donors and potential CHC recipients to navigate such conversations, examples of questions or considerations for discussion are provided in Table 2.0.

Table 2.0 Communicating Effectively: Supply Donors and Recipients

Questions for Donors	Questions for Receiving Entity
<p>Establishing Communications with the Recipient</p> <ol style="list-style-type: none"> 1. Who is the point of contact for all coordination efforts? 2. Do we have the CHC address? 3. Where are the receiving facilities? <p>Understanding the Request</p> <ol style="list-style-type: none"> 4. What is the estimated # of supplies needed? 5. When is the donation needed by? (i.e., is this an urgent request?) 6. Is this a one-time donation? Or re-occurring? <p>Ensuring Recipient can Receive the Donation</p> <ol style="list-style-type: none"> 7. Is the facility able to accept pallets or small loads? 8. Will staff be available at the receiving facility to unload and organize? What is the contact info for them? 9. What is the donation receiving hours? <p>Assessing Recipient's Storage Capabilities</p> <ol style="list-style-type: none"> 10. Do the facilities have proper storage capabilities? (i.e., physical storage space, temperature control, etc.) 	<p>Establishing Communications with the Donor</p> <ol style="list-style-type: none"> 1. Who is the person we are holding responsible for all communication and coordination with the donor? 2. Did we give the donor accurate drop-off location information? <p>Communicating Needs</p> <ol style="list-style-type: none"> 3. Have we communicated the urgency of this request? 4. Have we confirmed the # of supplies needed? <p>Understanding Requirements for Receiving the Donation</p> <ol style="list-style-type: none"> 5. Are we receiving at the health center or another facility? 6. During what hours can donations be received? (And will there be staff to receive donations?) 7. Do staff have to be on-site to receive and unload donations? If so, who? <p>Ensuring Storage Capabilities</p> <ol style="list-style-type: none"> 8. Do we have the proper storage capabilities? (i.e., space, temperature control etc.)

5. Conclusion

CHCs face unique challenges for procuring and storing medical-surgical supplies, especially during events that drive high competition across healthcare stakeholders. Research has shown that CHCs often have less funding than is needed per uninsured patient, and that they typically operate with much narrower operating margins than hospitals (about half compared to hospitals in 2016). Enabling CHCs to instill the leading practices presented in this report will require continued funding to support the maintenance and expansion of existing CHC services for primary and preventative care. Increased funding, and as applicable—greater flexibility for how funds are used during disasters—will help create CHCs in their ability to more rapidly address operational impacts caused by disasters.

Appendices

Appendix A: Key Terms

Term	Definition
Government Mass Care	The medical care and related medical supplies and infrastructure that is needed to deliver care and supplies to a community following a public health event (or disaster). Mass care requires strong coordination and collaboration between stakeholders across public health and healthcare response. ³²
Healthcare supply chain	The process of organizing, monitoring, and distributing medical supplies, services and medicine to healthcare facilities and patients. ³³
Allocation (center to center) <i>The sharing of resources between CHCs</i>	During a public health emergency where medical surges can create an increase in demand that outstrips the supply of available medical supplies, allocation will be implemented. ³⁴ If a hospital or region is confronted with a severe shortage of life sustaining treatments where all preventive and preparatory measures have been exhausted, including access to needed resources at other hospitals resources will be put on allocation to ensure that critical life-saving supplies are triaged within a CHC or network of CHCs, appropriately. ³⁵
Allocation (vendor to center) <i>The sharing of resources between distributors and CHCs</i>	The process of limiting the amount of supply that is ordered or delivered to prevent an artificial shortage caused by stockpiling. During times of severe shortage, distributors will make the decision to begin allocating supplies to CHCs based on previous supply orders to ensure that more facilities are able to receive product.
Group Purchasing	An entity that helps healthcare providers, such as hospitals, nursing homes and home health agencies, realize savings and efficiencies by aggregating purchasing volume and using that leverage to negotiate discounts with manufacturers, distributors, and other vendors. ³⁶
Cooperative purchasing	An arrangement between multiple businesses to combine their supply needs into one contract to increase collective buying power. ³⁷
Steady-state	Operations that transpire before or between emergencies.
Emergency-state	Operations that take place during an emergency response.
Community Health Center / FQHC	Community-based health care providers that receive funds from the Health Resources and Services Administration (HRSA) Health Center Program to provide primary care services in underserved areas. ³⁸
State Primary Care Association	State or regional nonprofit organizations that provide training and technical assistance (T/TA) to safety-net providers, like health centers.
Supply Chain Resilience	Supply chain resilience refers to the ability of a given supply chain to prepare for and adapt to unexpected events; to quickly adjust to sudden disruptive changes that negatively affect supply chain performance; to continue functioning during a disruption (sometimes referred to as “robustness”); and to recover quickly to its pre-disruption state or a more desirable state. ³⁹
Medical-Surgical Supply Chain	The networks and systems that move and distribute medicines, medical products, and healthcare services from manufacturer to patients. ⁴⁰

Appendix B: Guiding Questions for Discussions with Subject Matter Experts

1. Please briefly introduce yourself and your relevant expertise in healthcare supply chains.
2. We're interested in laying out the landscape for how healthcare supply chains function during times of crisis and in steady-state, especially from the perspective of community health centers given their challenges in getting supplies during the COVID-19 pandemic.
 - a. Can you briefly describe how the supply chain functioned before COVID-19, and how it changed following the pandemic?
 - b. With respect to critically needed supplies, are there any changes in supply chain practices that would or should be applied in the future?
 - c. Are there any unique procurement practices or considerations that smaller health facilities should leverage?
3. We're interested in learning more about cooperative purchasing in your words.
 - a. Can you please define cooperative purchasing agreements? Group purchasing agreements?
 - b. Any benefits of one over the other or compared to other options?
 - c. What potential challenges should smaller health facilities expect to face in seeking to sign on to group purchasing opportunities?
4. What leading practices would you recommend for smaller-scale health facilities seeking to improve supply chain resilience?
 - a. What nuance should smaller health facilities be aware of in terms of setting up and negotiating contracts related to cooperative purchasing?
 - b. How can CoSi's research or other research on cooperative purchasing be applied to help smaller healthcare facilities be more prepared for disasters?
5. Any final thoughts or comments?

Appendix C: Poll Questions

Participants voluntarily responded to the following questions asked via Zoom poll on this call.

1. Does your CHC (or PCA) have dedicated staff to manage supply chain operations or inventory?
2. Does your PCA manage group purchasing agreements on behalf of members?
3. Do your CHCs purchase through group purchasing agreements?
4. Have your CHCs increased purchasing to have more supplies on hand?
5. What are your leading constraints in managing supply chain effectively?

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