# Launching C19 Coalition: A Cross-Sector Effort to Double PPE Production and Distribution to Give Every Healthcare Worker the Protection They Need

*April 30, 2020*

*C19 Coalition launches a cross-sector effort and call to action to address medical equipment shortages for America's hospitals and critical infrastructure in partnership with state governments*

## Executive Summary

COVID-19 has put unprecedented strain on America's healthcare system and economy. The sheer volume of personal protective equipment (PPE) required not only for healthcare workers, but for those serving critical infrastructure such as utilities, logistics, and food, has created a fundamental challenge. To get PPE to those who need it most, more than 20 organizations, companies, and philanthropists have joined forces to establish C19 Coalition, which is leveraging its collective assets to combat the problem. C19 Coalition is supported by Schmidt Futures as well as organizations, such as Flexport, HP Inc., Gerber Technology, Helena, Resolution Medical, Formlabs, FIGS, PCH International, The Manufacturing Coalition, Open Source Medical Supplies Group, Cardinal Health, Fictiv, Hardwire LLC, Adaptive Energy, GetUsPPE.org, The COVID-19 Policy Alliance, Operation Masks, Project N95, Tulip, and Volkswagen of America, Stop the Spread, and individuals including Jennifer and David Millstone, Sharon Prince, and Mike Lee and Albert Lee.

Since March, coalition members have manufactured and distributed more than 100 million net new units of PPE across the country. The group is working collaboratively with the National Governors Association (NGA) and directly with states like New Jersey to acquire more information about the greatest needs and how to activate public-private partnerships.

However, more PPE is still desperately needed. The 100 million units represent a fraction of the total need for the healthcare sector alone by the U.S. Department of Health and Human Service (HHS) estimates. One nurse can go through as many as 100 pieces of PPE in a single day treating COVID-19 patients. PPE goes beyond just N95 masks—one set of personal protective equipment includes a mask, goggles, face shield, coverall or gown, shoe protection, and gloves.

With hospitals projecting they will need at least 20 times their regular supply of PPE, HHS estimates that throughout the pandemic, 3.5 billion N95 masks will be required to support the U.S. healthcare system alone. The World Health Organization (WHO) estimates that each month, 89 million medical masks, 76 million examination gloves and 1.6 million goggles will be required for the COVID-19 response. Beyond that, additional supplies will be needed for other frontline and essential workers including firefighters, the police, warehouse workers, grocery staff, and more.

To scale up its impact, C19 Coalition is asking more leaders to join in making commitments to action. The Coalition is also partnering with a number of other groups to invite companies to join this effort, including Stop the Spread, a coalition of 1500+ volunteer CEOs and business leaders working in Washington, D.C. and around the U.S. to catalyze actions and support the government in response to COVID-19.

The C19 Coalition's initial goal is to double its current level of net new PPE production and distribution.

C19 Coalition is actively seeking partnership and commitments to action from other organizations that are working to address medical supply shortages including in the following three areas:

- **States and localities** interested in sharing information about demand needs that coalition members can respond to, including specific facilities that need access to working capital to de-risk PPE purchases.

- **Domestic manufacturers** that are producing or want to repurpose and retool to produce net new PPE and want help from the coalition to access information about demand, pricing, and technical specifications, expertise to help with retooling, FDA, and customs compliance, and connections to distributors to feed into existing healthcare supply chains.

- **Philanthropists and institutional investors** who are interested in providing philanthropic zero interest loans or low interest working capital loans to purchase PPE. This provides 3x leverage in 60 days where capital will be recycled once paid back by healthcare facilities in need within 2-3 weeks and reused to purchase additional PPE for the next hospital and frontline workers.

If you are an organization interested in bringing your efforts into C19 Coalition, fill out this form. For any questions, please contact molly@c19coalition.org.

## Commitments To Action

C19 Coalition partner commitments address three priorities:

1. **Increasing supply of medical-grade PPE through both domestic production and international supply chains**
2. **Enabling more accessible PPE procurement with a $30+ million non-profit Bridge Financing Capital**
3. **Sharing data and intelligence to allow PPE supply chains to respond to demand**

### 1. Increasing supply of medical-grade PPE through both domestic production and international supply chains

*The Need*
While many U.S. companies have already started to repurpose production facilities for medical supplies, efforts have often been independently designed, funded, and managed, leveraging individual or local networks. Many large manufacturers and associations have expressed major challenges rising from a lack of a unified build specification for key items, availability of suitable raw materials, as well as more coordinated support for raw material sourcing, engineering troubleshooting, testing protocols/FDA approval and distribution.

*Coordination Efforts of C19 Coalition*
With the uncertain and rapidly changing environment, it is critical to share as much real-time information and data as possible to allow manufacturers to spin up capacity effectively and sustainably. C19 Coalition is bringing together members with industry expertise to increase net new supply of PPE materials, with the support of collective intelligence built by our group, including demand and distribution partners, from GPOs, medical distributors and healthcare providers in the network.

The emphasis of C19 Coalition coordinating with our members in supporting repurposing and retooling is in four key areas:

- ***Materials and build specifications**:* Getting manufacturers clear build specifications for top priority PPE and medical supplies, sharing material availability and alternative material solutions where relevant for both medical grade and non-medical grade products for essential workers.

- ***Technical and engineering support**:* Getting technical and engineering troubleshooting or planning support from industry experts within both coalition networks.

- ***FDA approvals and testing****:* Getting expedited and updated regulatory information for PPE and other medical items (e.g. FDA exemption categories), providing access to FDA lobbyists and expedited testing.

- ***Demand, distribution and logistics****:* Getting clear demand signals from major medical distributors, hospitals, other commercial customers and governmental entities, as well as distribution and logistics support interfacing with state government procurement, freight carriers, and potential retailers.

*Commitments Made To Date*

- **Flexport**, the digital freight forwarder and customs broker, is offering free customs compliance advice, international trade advisory services, and FDA filing guidance for companies importing PPE and medical supplies into the U.S. in support of COVID-19 relief efforts. This commitment is open for all companies that meet Flexport criteria and will address one of the thorniest bottlenecks in the global supply chain. With U.S. import and foreign export regulations evolving near-daily in response to the pandemic, customs guidance can make the difference between good intentions and putting PPE in the hands of the medical professionals who need it the most. Additionally, since January 2020, Flexport has delivered more than 62 million units of medical supplies with partners such as United Airlines and Atlas Air. Flexport.org has awarded $5.3 million in funds. As of today, Flexport.org estimates that these funds will enable the delivery of more than $90 million worth of PPE and other medical supplies. Moving forward, Flexport is continuing to charter additional capacity into areas of need to ensure swift transportation of COVID-19 supplies.

- **The Manufacturing Coalition** brings together over 200 manufacturing CEOs across 30 states in the U.S., comprising several hundred factories with over $2B in revenues, to help address the urgent need for PPE supplies. This effort is spearheaded by several members of the Young Professionals Organization (YPO), the global leadership community of 29,000 chief executives. As a partner coalition, the Manufacturing Coalition has committed to combat supply chain issues and create long term solutions by manufacturing closer to home. As a priority, their Coalition is committing to produce significant net new supply isolation gowns through establishing a community of practice to share learnings on pivoting domestic manufacturing facilities. C19 Coalition will be supporting this effort through coordination of a series of online webinars, building collective intelligence and facilitating distribution channels to areas most in need. This partnership will ensure medical distributors and hospitals are working in new, closer ways with manufacturers to retool them at unprecedented speed.

- **Hewlett-Packard Inc. (HP)** and its global network of manufacturing partners is working to ensure that 3D printed parts are available to meet the urgent needs of local markets and communities as they battle this pandemic. Together HP and its partners and customers around the world have used HP 3D printing solutions to produce more than 1.5 million 3D-printed parts and growing to help battle COVID-19, producing face masks, face shields, mask adjusters, nasal swabs, hands-free door openers, and respirator parts. HP customers such as Superfeet are producing 40,000 PAPR hoods for hospitals in Washington State, and SmileDirectClub has produced more than 35,000 face shields for healthcare workers in the U.S. and Canada. HP's global network of 3D printing partners (more information here) are available to expedite production of medical supplies, equipment or devices. HP and its partners are making validated design files for many of the parts that do not require complex assembly freely available at this website for download.

- **Gerber Technology,** a leader of integrated hardware and software solutions for the flexible textiles industry, is helping over 1,000 companies across the world produce personal protective equipment (PPE) to make it more widely available. The Gerber PPE Task Force is assisting companies as they increase production or transition to producing PPE by providing free-of-charge resources such as production-ready files, production videos, and a PPE Product Feasibility to help companies determine which PPE products they can quickly produce based on their current manufacturing lines. In addition to the PPE Task Force, Gerber is also offering a "PPE Manufacturer Matchmaking Program" to make collaboration among

manufacturers and suppliers easy. Currently, Gerber's customers are producing 120 million masks and several million gowns per week. Gerber's COVID-19 page here**.**

- **Cardinal Health,** one of the top global manufacturers and distributors of medical supplies and a distributor of pharmaceutical products, is committing to share product specifications for PPE items facing the greatest shortages to support domestic manufacturers who are repurposing facilities. Cardinal is also offering expedited onboarding for new suppliers producing medical-grade products to speed distribution to front-line healthcare professionals.

- **Volkswagen of America (WV)** is working with supply chain partners to pivot production towards fulfilling critical PPE needs. They have ramped up with fabric supplier Faurecia to produce 250,000 surgical masks and 50,000 gowns per week that will help protect health workers across the country. Additionally, VW is using their 3D printing capacity to craft components such as headbands for medical face shields in partnership with the Public Education Foundation of Chattanooga, TN. Looking forward, the VW COVID-19 response team will be focusing on additional technical products such as respirator hoods, as well as identifying opportunities to work with C19 Coalition and other partners to build collective intelligence around emergency response solutions and bolster future PPE shortages.

- **Resolution Medical,** a FDA-registered *in vitro* diagnostic and medical device manufacturer located in Minneapolis, MN, is committing to ramp up production of lattice swabs within one month, from 50,000 to up to 1 million swabs per week. These swabs are in critical need by healthcare providers to conduct COVID-19 testing. To help meet the demand, Resolution Medical is working with digital manufacturing company Carbon's network of dental labs and production partners, as well as its internal printing team, to use Carbon M2 printers to 3D-print these swabs. Resolution Medical has developed, tested, and refined the swabs in collaboration with research teams from BIDMC/Harvard Medical School, Harvard University, and the 3D Printing for COVID-19 Taskforce at Stanford Medicine. Resolution is now manufacturing key components for at least 5,000 protective face shields weekly and working with additional partners to develop an emergency-use ventilator.

- **Formlabs** is a 3D-printing technology developer and manufacturer headquartered in Somerville, MA. Formlabs has collaborated with University of South Florida Health, Northwell Health, and Tampa General Hospital to successfully produce and test a 3D-printed nasal swab used for COVID-19 testing to prepare for emergency shortages that will arise as testing for COVID-19 increases. Formlabs aims to reach production capacities of up to 100,000 swabs per day for delivery to hospitals around the country. They are starting with a commitment for 200,000 swabs for Ohio, in partnership with researchers from Ohio State University. Formlabs is working closely with health systems, government agencies, and a network of over 3,000 user volunteers.

- **Open Source Medical Supplies (OSMS)** is a collaborative effort helping communities self-organize to produce necessary medical supplies for local hospitals, secondary care facilities, and essential services. To further that mission, OSMS commits to curate medically-reviewed design specifications and design packages appropriate for small and medium-size manufacturers that match national and regional information on the highest priority supplies. Further, OSMS will provide guidance for small local manufacturers to collaborate with local medical institutions, community organizing groups, regulatory agencies, and key inbound suppliers to help them prioritize fabrication of PPE items and coordinate efforts to fill critical needs. Finally, OSMS will share aggregated information on inbound manufacturers and suppliers with C19 Coalition members.

- **Fictiv** is a digital manufacturing platform with a global network of vetted and monitored manufacturing partners. In response to the COVID-19 crisis, Fictiv has invested in the upfront tooling costs to produce face shields and make them available as quickly and easily as possible to healthcare agencies, service providers, distributors, and even non-healthcare OEMs (original equipment manufacturers) that are pivoting to support the healthcare industry during this crisis. While pricing has been matched to cost, any

longer term profits beyond initial tooling and unit manufacturing costs will be donated to the COVID-19 Solidarity Response Fund for WHO. Fictiv has produced 10,000 face shields to date that are being distributed to hospitals around the country, and will produce at least an additional 100,000 face shields in the next 6 weeks.

- **Hardwire, LLC** a Maryland manufacturer of armor for military vehicles and personal protection, has added face shields to their product offering to help fight the PPE shortage. Hardwire's face shield provides full facial coverage, is lightweight, can be fully cleaned with solvents, and is reusable. The product has been authorized by the FDA under an Emergency Use Act for use by healthcare providers. The company will be scaling to production volumes of over 500,000 face shields per week, and is delivering on multiple Government contracts. Hardwire also continues to produce and deliver armor to protect the U.S. military and law enforcement officers during this uncertain time.

- **Adaptive Energy,** a fuel cell manufacturer in Ann Arbor, MI, created Arbor Apothecary, a PPE storefront to supply frontline healthcare workers and first responders. The company pivoted over 90% of its production and engineering capacity to designing and manufacturing PPE, and is now producing and shipping over 100,000 face shields, intubation boxes, hand sanitizer, and HealthHandles (touchless door openers) each week to more than 200 state governments, municipalities, hospitals, and nonprofits around the country. The company has re-hired all furloughed workers, tripled its production staff and re-opened two other companies' factories to handle overflow PPE production. Furthermore, Adaptive is leveraging its supply chain and partnering with Ocean World Ventures and associates on the ground in China to vet and source millions of isolation gowns, N95 masks and coveralls for state and local governments and large hospital systems.

- **FIGS**, an American online medical apparel retailer based in Los Angeles, CA, is committed to outfitting America's medical staff with the scrubs they need. To date, they have donated 30,000 sets of scrubs to hospitals impacted most by COVID-19, as well as a $100,000 donation to the Frontline Responders Fund. They are also working with their global supply chain to produce millions of N95 masks and isolation gowns to donate to hospitals.

- **Tulip**, a technology company that provides a digital manufacturing software platform, is committed to supporting manufacturers who are changing their operations to make PPE, or scaling their existing products to support COVID19 mitigation efforts. Tulip is providing access and use of the Tulip platform at no cost to help companies produce new products and increase production volumes. Tulip's app platform is GMP ready and is validated for use in regulatory environments. Additionally, Tulip is providing the manufacturing and logistics platform for ppelogistics.org. PPE Logistics helps manufacturers and grassroots organizations streamline their operations and get PPE to healthcare workers faster. States and organizations across the country are leveraging PPE Logistics to ship PPE to healthcare facilities.

*Who Else Can Help*

- **U.S. manufacturers** can create net new supply of critical items through repurposing existing facilities efficiently and redirecting or substituting raw materials. Ideally, these supplies should be built to specification provided directly from medical distribution partners and/or healthcare providers, especially for items identified by coalition in urgent demand such as medical-grade face masks and isolation gowns. If unable to offer production, manufacturers can lend their technical expertise in assisting others to assist with new designs, alternative materials, production line modification and the like.

- **U.S. manufacturing associations** can help through driving and coordinating efforts for manufacturer members to repurpose or retool existing production lines.

- **Medical distributors** can help through sharing technical specifications for materials in shortage with domestic manufacturers to determine substitutability. For suitable new production shortening their intake processes to onboard new suppliers into their supply chains.

- **Logistics providers** can help support the movement of raw materials and finished goods into the U.S. for production, allocation and distribution, as well as coordinate with net new manufacturing to speed product to the providers and areas in greatest need.

## 2. Enabling more accessible PPE procurement with $30+ million of bridge financing capital

*The Need*

In this new environment, those looking to acquire PPE for healthcare workers are faced with opaque market pricing, brand new vendors, multiple middlemen, and suppliers requiring a minimum of 50 percent upfront just to queue an order. These organizations are overwhelmed, having largely only procured by paying 30 days after receipt through approved vendors. This fundamental payment term difference has become a significant hindrance to getting PPE to workers. This inability to provide upfront capital to guarantee allocation, along with lacking processes to ensure quality of PPE purchased overseas, is what C19 Coalition members are working to solve.

*Commitments Made to Date*

- **Philanthropic foundations and individual donors including Helena, Flexport, Jennifer and David Millstone, Sharon Prince, and Mike Lee and Albert Lee and are providing working capital as interest free loans and renewable grants.** These grants break the stalemate by providing purchase order financing to allow hospitals and other healthcare organizations to purchase PPE quickly. To date, the coalition has deployed more than $32 million in capital to purchase over 38 million units of PPE with a zero percent loss rate. Coalition partner Helena was the first organization to step up, raising and deploying $18 million of non-profit bridge capital. C19 Coalition members will continue to recycle contributions, which provide tremendous leverage of $10 of PPE for every $1 from donor loans, cutting weeks to receiving PPE & costs by half.

- **Coalition members are providing access for smaller volume buyers with this capital.** There are more than 100,000 locations and organizations across the country, such as retirement homes, fire and police departments, hospice facilities, paramedics, community clinics, rural hospitals, tribal governments, and homeless shelters, with limited budgets that currently have few, if any, reliable ways to purchase PPE at affordable prices. Nonprofits such as Operation Masks are committed to using their buying power from large orders in states like New York and Hawaii to serve these smaller orders through its website (shop.operationmasks.org) with price parity of larger orders delivered in days, not weeks.

*Who Else Can Help*

**Philanthropists, businesses, and financial institutions** can provide risk capital to de-risk purchases made on behalf of hospitals or institutions. This allows capital to be rapidly recycled whenever supplies are verified as real and helps prevent fraudulent items entering the medical supply chain. We will make best efforts to return 100% of capital, but there is some risk. With the severity of the lives at stake, we hope funders are willing to share that small risk with frontline workers. Learn more and get involved here.

## 3. Sharing data and intelligence to allow PPE supply chains to respond to demand

*The Need*

PPE resources are in short supply, but without information on demand, it is difficult to deploy U.S. production and logistics capacity effectively. With the uncertain and rapidly changing environment, it is critical to share as much real-time information and data as possible to allow manufacturers to spin up capacity effectively and sustainably.

*Coordination Efforts of C19 Coalition*

C19 Coalition members, leading academics, government leaders, and companies are working together to aggregate and share data on clear demand signals from major medical distributors, hospitals, and other commercial customers, as well as distribution and logistics support interfacing with state government procurement, freight carriers, and potential retailers. This data can help identify areas of current and future shortages to focus efforts on making sure that frontline health workers have what they need, when they need it.

*Commitments Made To Date*

- **GetUsPPE.org** is a grassroots movement founded by physicians and medical researchers on the frontlines of the COVID-19 pandemic. They are building a platform to enable communities to get PPE to healthcare providers on the frontlines of the COVID-19 pandemic. GetUsPPE is committing to share inbound requests for PPE with trusted partners across C19 Coalition and with large corporate donors, while ensuring appropriate privacy protections in place. These data can help accelerate the production of supply by sharing information about the scope of demand. Examples of data partnerships already under way include collaborations with multiple independent regional last-mile delivery programs, existing large corporate and NGO donors, and Project N95, which are using GetUsPPE's data points on over 7,000 healthcare facilities' PPE needs to analyze, match donations to need, and equitably distribute critical protective equipment to frontline healthcare workers.

- **Helena**, a non-profit problem-solving institution, is committing to make available The COVID Network, their free software platform that highlights demand both in real-time and predictively, ensuring supplies can be allocated to the places of most urgent medical need. Helena will also share all supplier and hospital demand data—helping coordinate efforts across the country. Finally, Helena commits to leverage $18.5 million (and counting) in working capital to help bridge the procurement gap and get orders moving out to those who need it, addressing an important barrier to procurement for those organizations that may not have cash in-hand (e.g. hospitals, nursing homes, and rural organizations).

- **PCH International,** a global custom design manufacturing company that works with companies to design, engineer, develop, manufacture, pack out, fulfill and distribute products as well as manage supply chains, is using their 24 years experience in engineering, manufacturing and global supply chain management to build the connection between supply and demand and resolve the PPE crisis. Their focus is on dramatically improving the quality of supply and demand data to greatly improve decision making by states, cities, and hospitals. To improve the data, PCH is committing to provide data on daily demand, daily capacity, transit times, and regulatory standards that they have visibility into to contribute to improved transparency in the PPE market.

- **The COVID-19 Policy Alliance**, led by MIT faculty, is creating data-driven tools to battle the COVID-19 pandemic, focused on high-risk populations such as the staff and residents of long-term care facilities. In partnership with the Massachusetts Senior Care Association (MSCA) and a group of associations in New Hampshire, the team is shipping more than $2 million worth of PPE materials. They have also informed Massachusetts state policymakers on guidance related to the testing of residents and staff in long-term facilities. The analytics team has developed predictive tools that are providing Massachusetts policymakers with operational recommendations to balance the load across hospital systems in the state. The Alliance leadership commits to share data from all its initiatives with C19 Coalition members, policymakers and their advisors.

- **Operation Masks** is a non-profit focused on delivering PPE from the factory to the frontlines. To date, they have shipped 4 million units of protective equipment. Operation Masks commits to using their buying power from large orders in states like New York and Hawaii to serve smaller volume orders such as those from retirement homes, retirement homes, fire and police departments, hospice facilities, paramedics, community clinics, rural hospitals, tribal governments, and homeless shelters, while maintaining price parity with larger orders and delivering within days, not weeks. Operation Masks also commits to open-sourcing their supplier vetting process to C19 Coalition members, supporting a mutually-validated standard that reduces confusion and risk to hospitals and funders interested in purchasing PPE.

Additionally, Operation Masks will publicly share the total capacity of their vetted suppliers.

- **Project N95** is a non-profit rapid response team created to deliver critical equipment to frontline workers as quickly as possible by driving transparency in the market through procurement best practices. To date, they have sourced 75 products from a growing list of thousands of submissions, with a 3.8% approval rate. The team has matched 1,741 organizations (including hospitals, outpatient care facilities, hospices, dental offices, and more) with suppliers and products, addressing 134 million critical equipment requested. Project N95 is partnering with 20 states, 5 localities, and 1 tribal government to support their procurement needs. Current partnerships include GetUsPPE.org, Frontline Impact Project, healthcare associations, and governments at all levels. As part of C19 Coalition, Project N95 commits to sharing inbound equipment requests and sourcing information with trusted partners.

*Who Else Can Help*

- **U.S. academics and data scientists** can leverage their expertise in creating and analyzing datasets, as well as cutting edge machine learning techniques, to help buyers and sellers of PPE understand market trends to meet evolving needs.

- **State and local leaders** can open up data in public or limited access ways and develop APIs to facilitate the development and integration of detailed models of the likely spread of COVID-19 to help manufacturers and logistics professionals meet current and future demand.

- **C19 Coalition members** can share data on incoming demand to help get supply to the people and places that need it most and ensure equitable distribution of critical materials to frontline healthcare workers.

*Interested in bringing your efforts into C19 Coalition? Please fill out this form.*
*For any questions, please contact molly@c19coalition.org.*