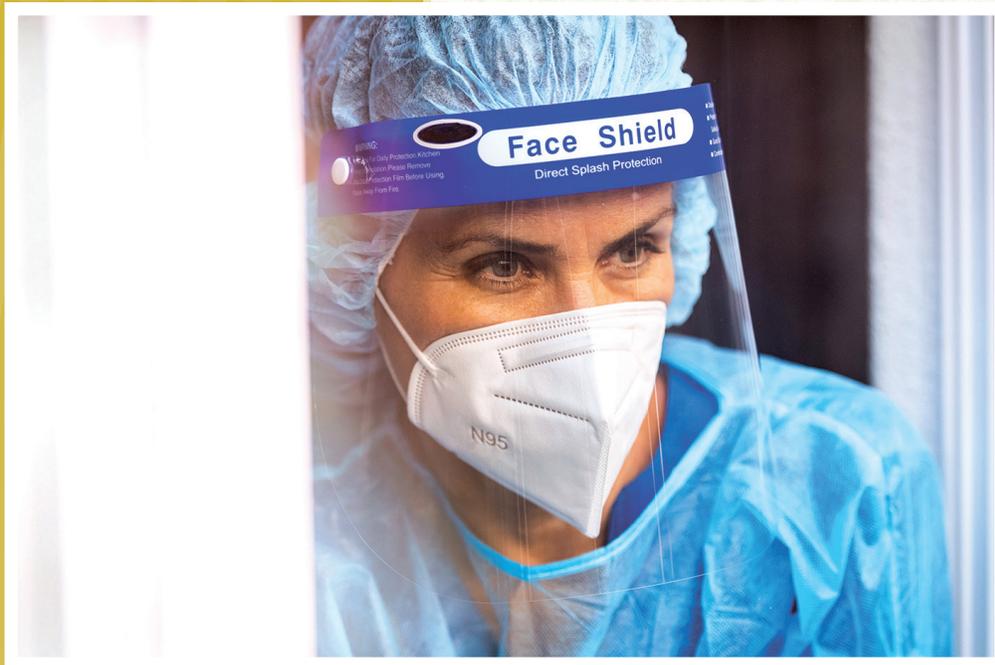




Office of the Auditor General of Ontario

Value-for-Money Audit:  
COVID-19  
Personal Protective  
Equipment Supply



*December 2021*



# Personal Protective Equipment Supply

## 1.0 Summary

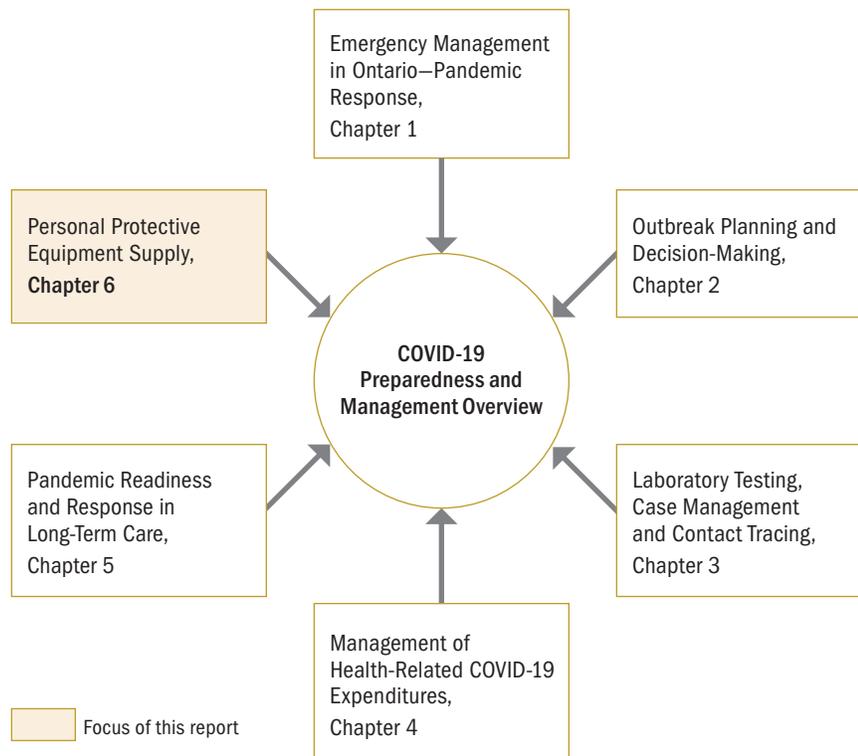
This report is one in a series of reports undertaken by our Office on the province’s response to coronavirus disease 2019 (COVID-19) (see **Figure 1**). This report, **Chapter 6** of our *COVID-19 Preparedness and Management Special Report*, looks at the preparedness and response of the province in procuring, managing and distributing personal protective equipment (PPE)

for both the health sector and non-health sector as a result of the COVID- 19 pandemic. It also looks at related issues such as transparent communication by the province on the allocation of PPE and violations of requirements for access to and safe use of PPE in the workplace.

Overall, our audit confirmed that Ontario was unprepared to respond to the COVID-19 pandemic with sufficient PPE as a result of the long-standing issues identified but not addressed by the Ministry

**Figure 1: Six Key Areas of the COVID-19 Audit by the Office of the Auditor General of Ontario**

Prepared by the Office of the Auditor General of Ontario



of Health (Ministry) dating back as early as the Severe Acute Respiratory Syndrome (SARS) outbreak in the early 2000s. Faced with this situation, the Ministry partnered with Ontario Health and the University Health Network and Ontario's Shared Service Organizations to purchase PPE as quickly as possible given the initially limited availability of PPE.

The Ministry had not maintained a sufficient centralized emergency PPE stockpile, leaving the province with minimal usable PPE inventory (for example, all N95 masks had passed their expiry date) to distribute in a time of crisis, at a time when we also noted that the Ministry was receiving over 1,600 requests for PPE, between February 5 and March 18, 2020.

In addition, we confirmed there was no legislated requirement for the province to monitor whether individual health-care providers maintained sufficient supplies of PPE as recommended under the Ontario Health Plan for an Influenza Pandemic (Health Pandemic Plan). Although provincial plans were under way to centralize provincial procurement, central procurement was not in place when the pandemic emergency was declared in Ontario. The province's procurement of PPE was decentralized and fragmented. As a result, the province had to develop new ways of procuring PPE and obtaining province-wide information on PPE consumption rates, needs and availability during the pandemic.

Our testing confirmed that PPE was allocated in accordance with a newly developed Ethical Allocation Framework. However, we also noted that the province did not publicly and transparently communicate how it was allocating the scarce PPE stocks, and did not make public how and whether the newly developed Ethical Allocation Framework was used to guide its PPE allocation decisions.

The following are some of our significant observations:

- **Most PPE in the provincial emergency stockpile had expired by 2017.** Our 2017 audit of Emergency Management in Ontario found and publicly reported that more than 80% of the pallets of stockpiled PPE supplies had already

expired and the Ministry had begun destroying the PPE without replacing it. Had the PPE in the emergency stockpile been properly managed and rotated out for use in the health-care sector before it expired, and the supply had then been replenished, the Ministry could have been in a better position to distribute needed PPE when the pandemic hit.

- **Ontario's 2019 initiative to centralize the province's procurement and supply chain was still under development and was not ready to address the shortage in PPE supply.** An expert panel created in 2016 to review and recommend improvements to the health-care supply chain recommended in 2017 the need for centralized data collection and management to inform a centralized procurement and supply chain system. In March 2019, the government of Ontario announced its plan to deliver a supply chain centralization initiative for the Ontario Public Service and broader public sector. When COVID-19 spread into Ontario and escalated to a pandemic in March 2020, this initiative was still under development.
- **The Ministry of Health did not know if individual health-care providers maintained sufficient local supplies of PPE.** Although the Ontario Health Plan for an Influenza Pandemic recommends that health-care providers maintain their own four-week emergency supply of PPE, no requirement was put in place to have the Ministry monitor and confirm that these stockpiles were being maintained or have the health-care providers regularly report and confirm their amounts.
- **The Ministry of Health did not have complete and consolidated information on PPE in the health-care sector at the start of the pandemic to make informed decisions.** The Ministry had to create new reporting channels to obtain information about PPE availability and use in the health-care sector. In January 2020 the Ministry contacted health-care providers to obtain this information voluntarily from them, and contacted suppliers for information on supply. On March 27, the Minister of

Health issued an order to health-care providers under the *Health Promotion and Protection Act* requiring them to report the quantity of PPE they had, their PPE consumption rates and forecasts of future supply levels, beginning April 1. Initially, this information was collected by Ontario Health. On June 5, 2020, the Ministry of Government and Consumer Services took over this responsibility.

- **The Ministry of Health’s PPE data collection and analysis, procurement, storage and distribution systems were not ready for a pandemic.** The Ministry had to develop a new PPE procurement process during the pandemic. Recognizing that the provincial emergency stockpile had mostly expired, that the health-care sector had significant PPE procurement needs beyond the quantity on hand, and that the Ministry did not have sufficient procurement experience or the ability to respond quickly in a competitive environment for PPE procurement, the Ministry and Ontario Health informally partnered with the University Health Network (UHN) to help procure PPE for the provincial emergency stockpile. A Memorandum of Understanding was subsequently drawn up with an effective date of March 13 and signed in August 2020 between the Ministry of Health, Ontario Health and UHN. On March 19, 2020, the Ministry of Health and Ontario Health also partnered with the Ministry of Government and Consumer Services and health sector Shared Services Organizations (Plexxus and Mohawk Medbuy) to consolidate planning, sourcing and monitoring of PPE. Warehouse capacity needed to be expanded with the support of shared service organizations.
- **The province did not publicly communicate how it was planning to allocate and ultimately allocating scarce PPE in Ontario.** While the government’s Control Table, responsible for PPE, used an Ethical Allocation Framework developed on April 10, 2020 to determine who was to receive scarce PPE and when, it did not make the Ethical Allocation Framework public as British Columbia

has done. One of the key principles in the development of this framework was to foster trust, which should be achieved by communicating the Framework, including the rationale for the criteria informing the decisions, in a clear, transparent and timely manner. Although we noted that on May 14, 2020, the Ethical Allocation Framework was mentioned in a web-posted decision note of the Control Table as a “next step,” it was not publicly posted and disclosed. In contrast, the province did make its Ethical Framework for COVID-19 Vaccine Distribution public in December 2020.

- **Health-care workers were not always properly protected with PPE.** Our review of violation orders issued by the Ministry of Labour, Training and Skills Development in 2020 found a tenfold increase in orders issued for PPE violations to health-care providers (including long-term-care homes and hospitals), with 229 orders issued in 2020 compared to only 22 in 2019. PPE violations resulted from the lack of sufficient training of employees by employers on the proper use and storage of PPE during work breaks, employees’ lack of access to appropriate PPE when required, and employers failing to ensure that employees were trained on how to properly wear and use PPE.
- **Centralized Supply Chain Ontario (Supply Ontario) was established on November 5, 2020 by Ontario Regulation 612/20: Centralized Supply Chain Ontario, with the mandate of centralizing the province’s procurement and supply chain, including the supply chain for the broader public sector, which includes the health-care sector.** The government created Supply Ontario to centralize and streamline the public and broader public sector’s decentralized procurement processes. Supply Ontario will also be responsible for collecting and analyzing inventory, procurement and other data relevant to the centralized supply chain. In January 2021, the Ontario government appointed the first members of Supply Ontario’s Board of Directors. The goal is to have the agency fully operational by November 2023.

This report contains eight recommendations, with 16 action items, to address our audit findings.

## Overall Conclusion

Our audit confirmed that Ontario was unprepared to respond with sufficient personal protective equipment (PPE) to the COVID-19 pandemic as a result of the long-standing issues identified but not addressed by the province dating back as early as the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003.

The Ministry of Health (Ministry) did not have on hand and ready for distribution the PPE stockpile required under the Ontario Health Plan for an Influenza Pandemic (Health Pandemic Plan). With an up-to-date stockpile in place, Ontario would have been in a better position to provide PPE to health-care providers who needed PPE the most in the early weeks and months of the pandemic, when global demand for PPE significantly exceeded supply. Despite recommendations in the Health Pandemic Plan to have health-care providers maintain their own four-week emergency supply of PPE, many health-care providers did not have this level of supply on hand and the Ministry did not have responsibility to monitor the level of supply they maintained. At the onset of the COVID-19 pandemic, the Ministry lacked information on the supply and need of PPE in the health-care sector and had to create new reporting channels to collect the information during the pandemic.

However, recognizing that it did not have sufficient procurement experience, the Ministry of Health along with Ontario Health responded quickly and partnered with the University Health Network on March 13, 2020 to help procure PPE for the provincial emergency stockpile.

The province distributed PPE using its Ethical Allocation Framework, but did not publicly communicate this framework, which guided its decisions on the allocation of scarce PPE.

## OVERALL MINISTRY RESPONSE

The Ministry of Health (MOH) and Ministry of Government and Consumer Services (MGCS) agree with the recommendations made in this report and are committed to building on them and the lessons learned from the COVID-19 pandemic to ensure Ontario is better prepared and able to respond to future emergencies by ensuring access to critical personal protective equipment to keep Ontarians safe.

We agree that the effectiveness of pandemic response and preparedness depends on having the right information to plan and forecast, sourcing strategically and ensuring the right balance of domestic and international sources of supply, having effective stockpiling and distribution strategies across the province, and ensuring transparency in the distribution of supplies.

Given the global scarcity of PPE during the initial stages of the pandemic, MOH, MGCS and partners mobilized quickly to acquire and supply PPE for workers in the health system and other critical sectors. This included creating task force teams to aggressively source PPE in a globally constricted market, launching the Ontario Together Fund to help establish stable, reliable, Ontario-made sources of PPE, and building capacity and systems to understand the need for PPE and distribute across the province.

As Ontario moves to a more modern supply chain for the public sector, including the establishment of Supply Ontario, we will incorporate the lessons learned and ensure that the right infrastructure and capabilities exist to be prepared and to respond in the future, keeping Ontarians safe and protected by ensuring secure access to PPE, the capacity to produce critical supplies domestically and the ability to understand ongoing and evolving requirements.

We would like to thank the Auditor General and her staff and acknowledge their work over the course of this audit.

## 2.0 Background

### 2.1 Overview

Personal protective equipment (PPE) helps prevent those who use it from being exposed to infectious diseases or other hazards. Most items of PPE do this by providing a barrier between the wearer and their environment. PPE mainly comprises wearable equipment such as aprons/coveralls/gowns, face shields/goggles, gloves, masks, respirators, hair covers and boot covers. Hand sanitizers and disinfectant wipes have sometimes been described as PPE as well.

**Appendix 1** depicts and describes the different types of PPE. PPE is a part of a hierarchy of infection prevention and other hazard controls shown in **Figure 2**.

According to Public Health Ontario, although the use of PPE is the most “visible” in the hierarchy of infection prevention controls, since you can actually see people wearing it, while the other controls are more process-oriented and less obvious to an observer, PPE is still the last tier in the hierarchy and should not be relied on as a stand-alone primary infection prevention control.

### 2.2 Infectious Disease Transmission

A key way to reduce the spread of infectious diseases such as COVID-19 is to identify the route of transmission. The method by which a disease spreads also

informs which PPE should be used and when it should be used to protect individuals. Infectious diseases can be transmitted by direct or indirect contact.

#### 2.2.1 Direct Contact Transmission

Direct contact transmission occurs when disease-causing micro-organisms pass from an infected person to a healthy person; for example, through contact with bodily fluids such as sweat or tears. Direct contact transmission can also occur through the spray of respiratory droplets when an infected person coughs, sneezes, sings or speaks. Respiratory droplets can travel through the air, but since these larger droplets typically fall to the ground within a few feet, this type of transmission requires people to be physically close to each other.

#### 2.2.2 Indirect Contact Transmission

Indirect contact transmission of infectious diseases can occur when a healthy person touches their mouth, eyes or nose after touching the surface of a contaminated object. This type of transmission is most common when the surface is one that is frequently touched.

Such surfaces include door handles and elevator buttons. Some infectious micro-organisms can also remain suspended in very small aerosol droplets and be indirectly transmitted when a healthy person inhales the aerosol droplets previously exhaled by an infected person.

**Figure 2: World Health Organization’s Hierarchy of Infection Prevention and Other Hazard Controls**

Source of data: National Institute for Occupational Safety and Health

Control	Description	Example
Elimination or Substitution	Physically remove the hazard, or substitute the hazard to reduce risk	Individuals are requested to stay at home, work remotely from home and avoid public areas, in order to be physically removed from the hazard of infectious disease.
Engineering Controls	Isolate people from the hazard	Infectious patients are moved to isolation rooms, reducing potential exposure to other patients in the hospital.
Administrative Controls	Change the way people work	Potentially infectious patients are detected and isolated through an effective screening and triage process.
Personal Protective Equipment (PPE)	Protect the worker with Personal Protective Equipment	Hospital staff are equipped with masks, gloves and gowns, which they safely don and doff (take on and off) before and after treating potentially infectious patients.

### 2.2.3 COVID-19's Mode of Transmission and Ontario's Resulting Health Sector PPE Requirements

Scientific research on the routes of transmission of COVID-19 is ongoing. In a May 20, 2021 publication, Public Health Ontario indicated that transmission of COVID-19 most frequently and easily occurs during unprotected close contact within 2 metres of an infected individual (for example, during a conversation with inadequate distancing, no barriers and no personal protective equipment).

Public Health Ontario's May 20, 2021 publication also stated that COVID-19 could be transmitted over distances greater than 2 metres under specific conditions, such as prolonged exposure to droplets and aerosols in a poorly ventilated space.

On May 7, 2021, the Centers for Disease Control and Prevention in the United States issued a scientific brief indicating that there are special circumstances under which airborne transmission of COVID-19 beyond 2 metres appears to have occurred, and on June 29, 2021, the Public Health Agency of Canada updated its virus transmission guidance to acknowledge aerosol transmission of COVID-19. Specifically, it noted that the virus spreads from an infected person to others through respiratory droplets and aerosols when an infected person breathes, coughs, sneezes, sings, shouts or talks. The droplets vary in size, from large droplets that fall to the ground rapidly (within seconds or minutes) near the infected person, to smaller droplets, sometimes called aerosols, which linger in the air, especially in indoor spaces.

As of the end of May 2021, the Public Health Ontario website noted that the Ministry of Health's Directive #5 is the provincial baseline standard for provision of personal protective equipment (PPE) for hospitals, long-term-care homes and retirement homes.

The initial Directive #5 was dated March 30, 2020 and subsequently revised on October 8, 2020, and was issued by the Chief Medical Officer of Health. It was updated once again on April 7, 2021. **Appendix 2** has

the text of the latest Directive #5. The key information in the directive is as follows:

- Health-care employers must provide workers with information on the safe use of PPE, and health-care workers must be trained in putting it on and taking it off.
- Health-care employers must assess the available supply of PPE on an ongoing basis and explore all available avenues to obtain and maintain a sufficient supply.
- If shortages are anticipated, the government and health-care employers must communicate their supply levels and develop contingency plans.
- Before a health-care worker interacts with a patient or resident, someone in a regulated health profession (such as a doctor or nurse) must assess the risk of the interaction, and if they determine that the health-care worker needs to wear PPE at the level of protection of a fit-tested N95 respirator or higher, the health-care employer cannot deny them access to it.
- If a setting is experiencing a COVID-19 outbreak, a health-care worker in close contact with a suspected or confirmed case of COVID-19 can demand and must receive an N-95 respirator.

All staff and visitors at long-term-care homes must wear surgical or procedure masks at all times. The only exceptions are staff who are on break, not in a resident area and at least 2 metres away from others. Outdoor visitors can wear just a face covering (such as a non-medical mask) rather than a surgical or procedure mask.

As well, Public Health Ontario stated in its technical brief of May 20, 2021 that, given updated information on COVID-19, droplet and contact precautions continue to be recommended for the routine care of patients and residents with suspected or confirmed COVID-19. Droplet and contact precautions include, for example, wearing a mask and eye protection within 2 metres of a patient or a resident, wearing gloves and a long-sleeved gown if touching someone or in the presence of patients with suspected or confirmed COVID-19. The same technical brief also states that airborne precautions

should be used when aerosol-generating medical procedures (AGMPs) are planned or anticipated to be performed on patients with suspected or confirmed COVID-19. AGMPs include intubations, tracheotomies and ventilation, which could expose the health-care worker to infectious micro-organisms from the patient's airways. Airborne precautions include wearing an N95 respirator that has been fit-tested and seal-checked.

### 2.2.4 The Precautionary Principle, a Lesson Learned from the SARS Pandemic

The COVID-19 pandemic struck Ontario 17 years after an earlier coronavirus—Severe Acute Respiratory Syndrome (SARS)—required the province to declare a provincial emergency in March 2003. In June 2003, the province of Ontario established the SARS Commission (Commission), an independent commission to investigate the SARS virus, including how it came to the province, how it spread and how it was dealt with. In 2007 the Commission published its report, which included recommendations to better prepare the province to respond to future infectious disease emergencies. One key recommendation for any future infectious disease crisis was to adopt the precautionary principle, which says that reasonable efforts to reduce risk need not await scientific certainty, especially during the early stages of an influenza pandemic when scientific evidence on the severity of a novel virus is limited. The report found that the spread of SARS was exacerbated in part because the province did not consistently apply the precautionary principle.

The precautionary principle has been incorporated into the Ontario Health Plan for an Influenza Pandemic (Health Pandemic Plan). The first Health Pandemic Plan was developed after SARS, in 2004, and it is to be updated annually. According to the Health Pandemic Plan, which was last updated in 2013 (see **Chapter 2, Outbreak Planning and Decision-Making** of our *COVID-19 Preparedness and Management Special Report*, issued in November 2020), the then Ministry of Health and Long-Term

Care was not to await scientific certainty before undertaking actions to protect health. For example, the Ministry of Health and Long-term Care is to consider the precautionary principle when developing recommendations and directives related to occupational health and safety measures, and infection prevention and control (IPAC) measures.

The precautionary principle has also been incorporated into health legislation. For example, under the *Health Protection and Promotion Act*, the Chief Medical Officer of Health must consider the precautionary principle when issuing a directive to a health-care provider or health-care entity relating to worker health and safety in the use of any protective clothing, equipment or device. The precautionary principle was one of the drivers of the specific provisions of Directive #5 (summarized in **Section 2.2.3**) in promoting health-care worker health and safety in accessing and using PPE.

## 2.3 Ontario Health-Care Employers Are Responsible for Safety of Their Employees, Including Ensuring Employees Use PPE Appropriate to the Hazard

As is the case in other provinces such as British Columbia, Alberta and Manitoba, employers in the health-care sector in Ontario are legally responsible for the safety of their employees. This responsibility is laid out in the *Occupational Health and Safety Act* and where it applies, Ontario Regulation 67/93 (Health Care and Residential Facilities). Employers are also responsible to provide training to their employees on the appropriate use of PPE to prevent exposure to infection.

Pursuant to the *Health Protection and Promotion Act*, health-care employers must also adhere to directives issued by Ontario's Chief Medical Officer of Health. For example, the directives state that hospitals, long-term-care homes and retirement homes are responsible for providing PPE appropriate to the hazard to their staff. In addition to the Act and the

directives, health-care employers should also adhere to Public Health Ontario guidelines.

Ontario hospitals, long-term-care homes, and primary care providers such as family doctors, clinics and retirement homes are responsible for securing and buying their own supply of PPE. These organizations are specifically expected under the Health Pandemic Plan to maintain a four-week supply of PPE for emergency situations.

Pre-pandemic, when health-care employers needed PPE, they usually purchased it from suppliers that facilitated the purchases directly from manufacturers and distributed the PPE to employees. Three of the main distributors and/or suppliers of PPE in

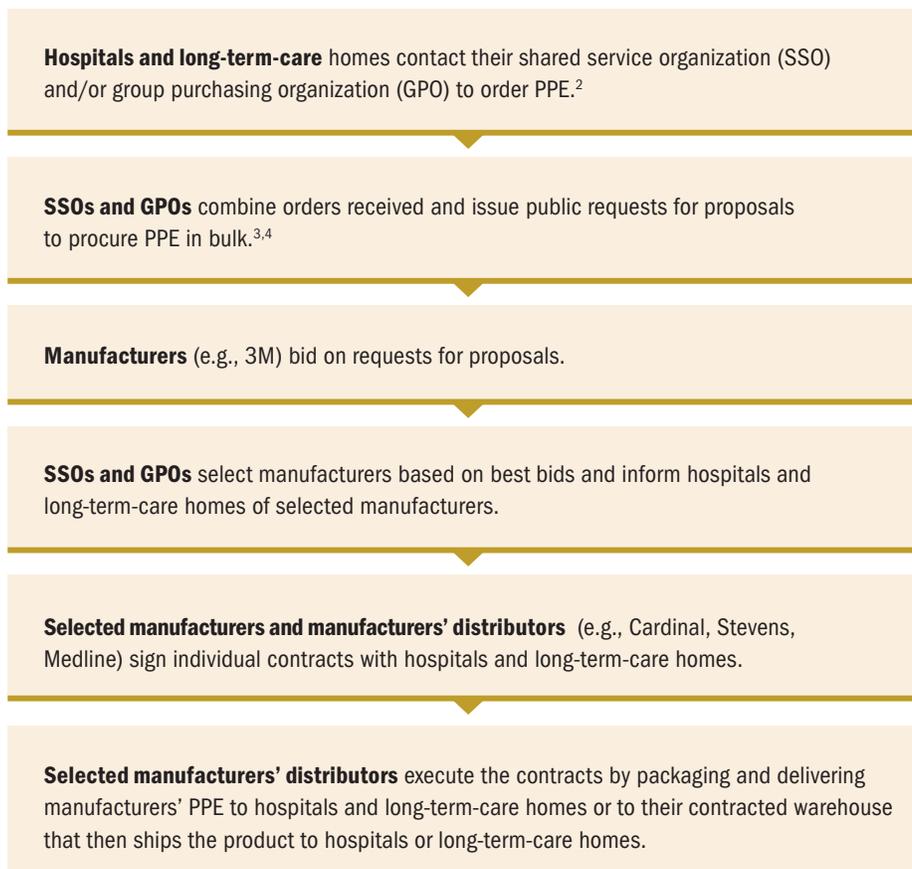
Ontario are Cardinal Health, Medline/Medical Mart and Stevens.

This supply chain, where each end-user procures PPE on its own, is considered to be decentralized. Of all end-users in the province, Ontario hospitals procure PPE in the greatest quantities and at the greatest frequency. As such, many of them are members of group purchasing organizations and shared service organizations. This enables them to benefit from economies of scale in procuring PPE. **Figure 3** illustrates a simplified and typical version of this supply chain process.

If a health-care employer cannot obtain the necessary PPE through a supplier (because, for example, demand throughout Ontario has exceeded

### Figure 3: Supply Chain Process for Hospitals and Long-Term-Care Homes<sup>1</sup> to Obtain PPE Directly from Manufacturers and Distributors

Prepared by the Office of the Auditor General of Ontario



- 1 Most hospitals and some long-term-care homes participate in this process because they consistently use significant quantities of PPE. Procurement options for the health-care sector are not limited to the above process; the sector has multiple ways to procure PPE.
2. SSOs usually operate locally, while GPOs are larger national organizations that procure products by larger volumes to achieve even greater savings. SSOs usually have memberships with GPOs and could procure PPE through GPOs to benefit from even more affordable prices.
3. SSOs and GPOs do not always combine their orders into bulk orders. Procurement can happen through one single order or through several orders made at one time.
4. See **Figure 10** for a list of GPOs and SSOs operating in Ontario.

the available supply), it can request PPE from the emergency provincial stockpile that is supposed to be maintained by the Ministry. The Health Pandemic Plan states that in the event of a pandemic the Ministry would disseminate information to health-care providers on how to request PPE and access the provincial pandemic PPE stockpile (discussed further in **Section 2.6**).

## 2.4 Health-Care Providers

Health-care providers in Ontario are grouped by the type of care they provide:

- **Primary care** providers, such as family physicians and walk-in clinics, support patients through illness prevention, diagnosis and treatment, and are the first point of contact for many patients in Ontario.
- **Home and community care** provides help for patients and seniors who require care in their home, at school or in the community.
- **Long-term-care** providers, including long-term-care homes, support people who need help with most or all daily activities and provide access to 24-hour nursing and personal care.
- **Acute care** providers, such as hospitals, provide active short-term treatment, including for severe injury, episodes of illness and recovery from surgery.
- **Other** health-care providers include, for example, retirement homes and assisted living facilities.

## 2.5 Sources of Ontario's PPE

Overall, at the start of the pandemic, Canada did not manufacture significant amounts of PPE domestically. Ontario imported most key items of PPE, such as masks, surgical gloves and goggles, from other countries. China has been a major global supplier of PPE. According to a May 2020 publication by the Organisation for Economic Co-operation and Development (OECD), in 2019, China produced 4.2 billion masks, about half of the global supply. The Canadian Centre

for Policy Alternatives estimated that in 2018, Canada imported over 40% of its PPE from China, over 15% of its PPE from the United States and the remaining PPE from other countries. See **Section 4.3.3** of this report for a discussion of manufacturing PPE in Ontario.

## 2.6 Emergency Provincial PPE Stockpile

In 2004, the then Ministry of Health and Long-Term Care released its first iteration of the Health Pandemic Plan recommending that health-care providers maintain a four-week supply of PPE for emergency situations. In addition, the then Ministry of Health and Long-Term Care was to obtain and maintain an emergency provincial PPE stockpile that could last health-care providers an additional four weeks over and above their own supply. This provincial PPE stockpile was intended to be available as a last-resort emergency option for health-care providers once they had exhausted their own supply and were unable to secure additional PPE quickly from their suppliers.

The then Ministry of Health and Long-Term Care defined the recommended quantities of PPE to be kept in the emergency stockpile in the Ministry's internal 2006/07 Influenza Pandemic Preparedness document.

In early March 2020, as COVID-19 was spreading through Ontario, the Ministry of Health (Ministry) partnered with Ontario Health and the University Health Network (UHN) to help procure PPE for the emergency provincial stockpile. The Ministry of Health and Ontario Health developed a process to work with Ministry of Government and Consumer Services, Plexxus, Mohawk Medbuy and UHN to streamline procurement decisions and the PPE purchase process. This is explained in more detail in **Section 4.2.2** of this report.

The PPE stockpile maintained by the Ministry of Health is intended to support the health-care sector when needed. Beginning in April 2020, the Ministry of Government and Consumer Services assumed responsibility for the procurement of some categories of PPE and distribution of PPE to non-health-care

facilities; PPE supplies have been shared between the two ministries during COVID-19 to meet the needs of all sectors.

## 2.7 Ministry of Health Pandemic Response Organizational Structure

The Ministry's response to COVID-19 involved staff from all divisions. The division most relevant to our audit of PPE was Pandemic Response and Public Health Modernization (one of nine divisions reporting directly to the Deputy Minister of Health). This division was created in August 2020, several months into the pandemic. **Figures 4 and 9** in our **Chapter 2, *Outbreak Planning and Decision-Making***, illustrate the Ministry of Health's divisions and branches up until August 31, 2020.

The Ministry of Health Emergency Operations Centre was activated to co-ordinate the Ministry's response to COVID-19 on January 27, 2020, the day the first case of COVID-19 was confirmed in Ontario. Along with the Health System Emergency Management branch, the Ministry of Health Emergency Operations Centre was meant to provide the primary source of information on, support for and provincial co-ordination of health system emergency response activities. The Ministry of Health Emergency Operations Centre was also responsible for managing the emergency provincial PPE stockpile.

Upon the creation of the Pandemic Response and Public Health Modernization division in August 2020, this division took on the responsibilities of these two prior groups. At the start of the pandemic and up until the creation of the Pandemic Response division, the Office of the Chief Medical Officer of Health was responsible for Health System Emergency Management and the Ministry of Health Emergency Operations Centre.

Although the responsibility for the Health System Emergency Management branch and the Ministry of Health Emergency Operations Centre was removed from the responsibilities of the Chief Medical Officer of Health in August 2020, the Chief Medical Officer of Health still played a role in the PPE

pandemic response. Specifically, the Chief Medical Officer of Health issued directives, including Directive #5, which is the provincial baseline standard for provision of PPE for hospitals, long-term-care homes and retirement homes. See **Figures 4a and 4b**, respectively, for the organizational structure of the Ministry before and after August 31, 2020, with these two divisions highlighted. **Figure 5** shows the roles and responsibilities of the main participants in PPE procurement and allocation that were put in place on March 12, 2020 to respond to the COVID-19 crisis.

While the Ministry of Health is responsible for its own Ministry of Health Emergency Response Plan (Health Response Plan) and for activating its own Ministry of Health Emergency Operations Centre in response to health emergencies, the province has a provincial co-ordinating entity with overall responsibilities for emergency management. The Provincial Emergency Management Office (EMO), located within the Ministry of the Solicitor General, is responsible for the overall co-ordination of emergency management in the province, and for maintaining the provincial emergency response plans used to co-ordinate the overall provincial emergency response. **Section 2.4.2 of Chapter 1, *Emergency Management Ontario—Pandemic Response*** of our **COVID-19 Preparedness and Management Special Report**, issued in November 2020, provides details of the unexpectedly limited role the EMO played during the initial COVID-19 pandemic response.

## 2.8 Control Table and Distribution of PPE

In April 2020, the Ministry established the Control Table as one of the sub-tables under the Health Command Table (renamed the Health Co-ordination Table in November 2020). (See **Chapter 2, *Outbreak Planning and Decision-Making***, for details on the province's crisis response structure for COVID-19.) The Control Table was and is responsible for co-ordinating oversight of, access to and distribution of PPE to health and non-health organizations, including

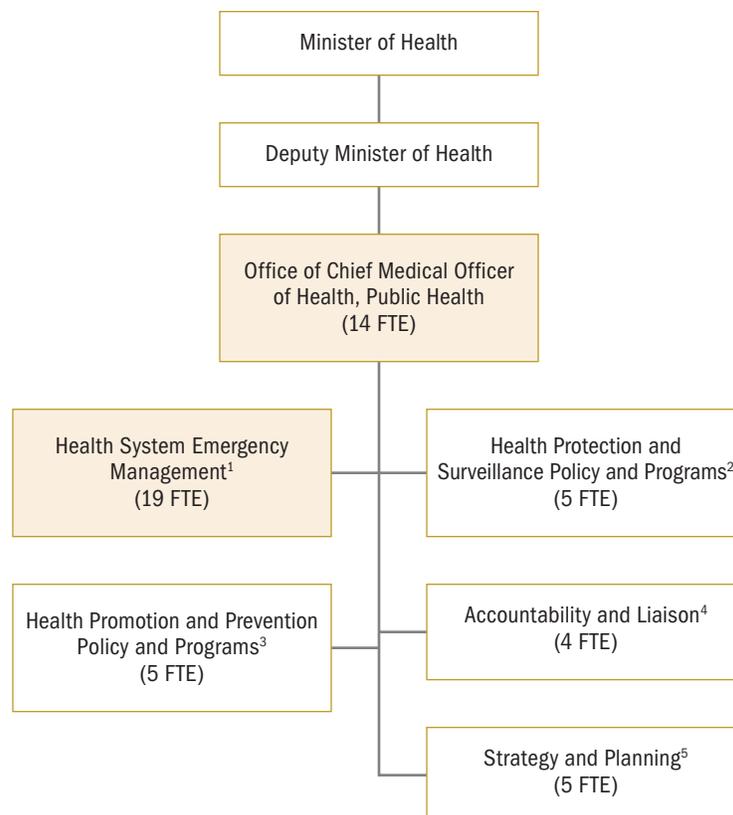
monitoring the availability of PPE, and ensuring PPE is effectively distributed to health service providers and the broader public sector such as school boards, colleges and universities. Members of the Control Table and their affiliate organizations are shown in **Appendix 3**.

The Control Table used an Ethical Allocation Framework (**Appendix 4**) to inform its decisions on allocating PPE. The Ethical Allocation Framework

identifies criteria to help determine priority for available PPE supply, if supply becomes scarce. A key criterion is urgency of need, which is to be determined by considering factors such as the current supply of PPE in each institution or setting in the health-care and non-health-care sectors, the number of confirmed COVID-positive cases in the institution or setting, the institution or setting's consumption or "burn" rate of PPE and projected need. **Section 4.4.1** provides our

**Figure 4a: Ministry of Health's Division, Branches and Full-Time-Equivalent Employees (FTE) Responsible for Health-Sector Emergencies, up until August 31, 2020**

Source of data: Ministry of Health

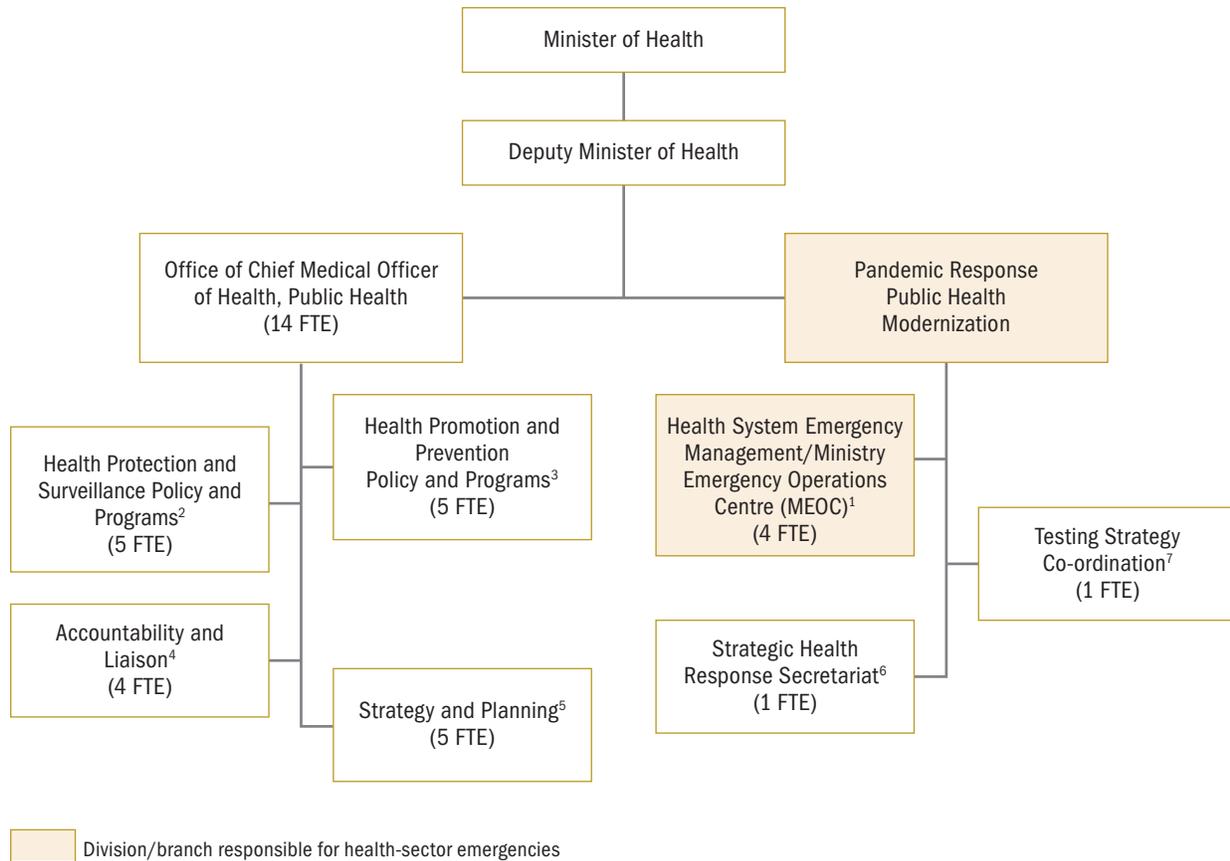


Note: The Ministry of Health reorganized the divisions and branches responsible for health-sector emergencies on August 31, 2020. See **Figure 4b** for the updated organization structure.

1. The Health System Emergency Management Branch is responsible for responding to urgent and/or emergency health situations. The Branch also develops Ministry emergency readiness plans, informs health-sector planning and directs, as necessary, health sector emergency response and recovery.
2. The Health Protection and Surveillance Policy and Programs Branch develops, implements and evaluates Ontario's public health protection and prevention policies and legislation involving immunization, environmental health and infectious diseases. The Branch also provides oversight of public health programs, identified in the Ontario Public Health Standards, and supports public awareness and educational campaigns for public health.
3. The Health Promotion and Prevention and Policy and Program Branch leads the design/development, funding, implementation and evaluation of strategic population-based policies and programs in the areas of health promotion and prevention.
4. The Accountability and Liaison Branch develops policy and plans to support the implementation of divisional programs and priorities for public health. The Branch also informs program and divisional priorities.
5. The Strategy and Planning Branch is responsible for leading enhanced and integrated divisional and public-health-sector strategic planning and priority setting; research, evidence synthesis, knowledge dissemination and evaluation; and the development, implementation and co-ordination of integrated policies and strategies.

**Figure 4b: Ministry of Health's Divisions, Branches and Full-Time-Equivalent Employees (FTE) Responsible for Health-Sector Emergencies, Effective August 31, 2020**

Source of data: Ministry of Health



Note: The Ministry of Health reorganized the divisions and branches responsible for health-sector emergencies on August 31, 2020. See **Figure 4a** for the prior organization structure.

1. The Health System Emergency Management Branch, which manages the MEOC, was realigned in August 31, 2020 from the Chief Medical Officer of Health/ Public Health to report into the Pandemic Response Division. Its function is to provide emergency management support to the pandemic response and non-COVID emergencies.
2. The Health Protection and Surveillance Policy and Programs Branch develops, implements and evaluates Ontario's public health protection and prevention policies and legislation regarding immunization, environmental health and infectious diseases. The branch also provides oversight of public health programs, identified in the Ontario Public Health Standards, and supports public awareness and educational campaigns for public health.
3. The Health Promotion and Prevention Policy and Programs Branch leads the design, development, funding, implementation and evaluation of strategic population-based policies and programs in the areas of health promotion and prevention.
4. The Accountability and Liaison Branch develops policy and plans to support the implementation of divisional programs and priorities for public health. The branch also informs program and divisional priorities.
5. The Strategy and Planning Branch is responsible for leading enhanced and integrated divisional and public-health-sector strategic planning and priority setting; research, evidence synthesis, knowledge dissemination and evaluation; and the development, implementation and co-ordination of integrated policies and strategies.
6. The single staff member is the Director, Strategic Health Response Secretariat, who will be responsible for the Secretariat co-ordinating our interactions with the various command tables within the Ministry, sector, federal government, municipalities and the OPS.
7. The single staff member is the Director, Testing Strategy Co-ordination, who will be responsible for leading a centralized, dedicated area to work within the Ministry and the sector on the testing strategy.

**Figure 5: Roles and Responsibilities of Main Participants in PPE Procurement and Allocation**

Prepared by the Office of the Auditor General of Ontario

Participant	Roles and Responsibilities
<b>Ministry of Health (Ministry)</b>	<ul style="list-style-type: none"> <li>• Approve or co-ordinate necessary approvals for purchases as required under the Ontario Public Service (OPS) Procurement Directive.</li> <li>• Provide approvals to the Pandemic Supply Chain Task Force for the purchase of products.</li> <li>• Provide funding to UHN and Provincial Task Force partners to cover costs of products and supplies, transportation as directed by the Ministry, and other costs reasonably incurred by UHN.</li> <li>• Receive and distribute supplies to covered health entities through provincial pandemic warehouse.</li> </ul>
<b>Ontario Health</b>	<ul style="list-style-type: none"> <li>• Initially provided purchasing recommendations for the COVID-19 PPE response, but this work transitioned to Provincial Task Force partners by late March 2020 (of which Ontario Health is a member). Ontario Health continues to support ICU supplies/equipment, beds and testing.</li> <li>• Manages the health system ordering platform (Remedy) and coordinates the regional distribution network.</li> </ul>
<b>University Health Network</b>	<ul style="list-style-type: none"> <li>• Issue purchase orders for PPE and critical supplies as approved by the Ministry.</li> <li>• Make payment to the applicable vendor based on information received from the Pandemic Supply Chain Task Force and warehouse that the supplies have been appropriately received.</li> <li>• Manage financial and purchasing records and make information available to the Ministry for audit, inspection and examination.</li> </ul>
<b>Ministry of Government and Consumer Services (procurement and supply chain for non-health sectors)</b>	<ul style="list-style-type: none"> <li>• Procure products and supplies and co-ordinate necessary approvals for purchases as required under the Ontario Public Service (OPS) Procurement Directive and delegation of financial management authority.</li> <li>• Issue purchase orders for products and supplies to be delivered.</li> <li>• Receive and distribute supplies to covered non-health entities through provincial pandemic warehouse.</li> <li>• Monitor availability of PPE, demand and supply to ensure ongoing ability to meet requirements.</li> </ul>
<b>Control Table</b>	<ul style="list-style-type: none"> <li>• Provide oversight of governance for the distribution of scarce PPE to health and non-health organizations, to optimize the distribution of these supplies.</li> </ul>
<b>Provincial Task Force</b>	<ul style="list-style-type: none"> <li>• A collaboration between Ministry of Health, Ontario Health and Ontario's health sector Shared Services Organizations (Plexus and Mohawk Medbuy) to consolidate planning, sourcing, and monitoring of PPE. <ul style="list-style-type: none"> <li>• Perform assessment of sourcing opportunities from new and existing supply chain networks and the Ontario Together portal.</li> <li>• Bring forward recommendations for the purchase of products and supplies.</li> <li>• Apply knowledge and expertise in the procurement of products and supplies when and as directed by the Ministry of Health.</li> <li>• Co-ordinate the purchase of and payment for PPE and other sourcing activities at the direction of the Ministry of Health.</li> <li>• Communicate Ministry of Health approvals to UHN.</li> <li>• Oversee receipt, validation and warehousing of products and supplies.</li> </ul> </li> </ul>

detailed findings about PPE allocation through the Framework, which began on April 10, 2020.

### 3.0 Audit Objective and Scope

The objective of our audit was to assess whether the Ministry of Health had efficient and cost-effective processes with clear responsibilities in place in order to:

- be prepared for a pandemic emergency by maintaining a sufficient stockpile of personal protective equipment in accordance with the Ontario Health Plan for an Influenza Pandemic; and
- respond quickly to a pandemic emergency by procuring and distributing sufficient additional personal protective equipment, with due regard for public safety.

In planning for our work, we identified the audit criteria (see **Appendix 5**) we would use to address our audit objective. These criteria were established based on a review of applicable legislation, policies and procedures, internal and external studies, and best practices. Senior management at the Ministry of Health reviewed and agreed with the suitability of our objectives and associated criteria. This report contains recommendations to help the province better respond to future outbreaks of COVID-19 and other infectious diseases.

#### Other Chapters on COVID-19 Preparedness and Management

This chapter is the last in a series of six chapters on COVID-19 preparedness and management issued by our Office. Our audit work on immunization will be conducted and released next year. The objective of our work in our six finalized chapters was to inform Ontarians about lessons learned and to recommend actions to help the province better respond to and recover from this pandemic event, as well as to better prepare Ontario should we face another such event in the future. Our first five chapters in this series are:

- **Chapter 1: Special Report on Emergency Management in Ontario—Pandemic Response**

- **Chapter 2: Special Report on Outbreak Planning and Decision-Making**
- **Chapter 3: Special Report on Laboratory Testing, Case Management and Contact Tracing**
- **Chapter 4: Special Report on Management of Health-Related COVID-19 Expenditures**
- **Chapter 5: Special Report on Pandemic Readiness and Response in Long-Term Care.**

We conducted our audit of Personal Protective Equipment Supply from mid-June 2020 to June 2021, and the period covered by the audit was from January 2020 to March 2021. We obtained written representation from the Ministry of Health and the Ministry of Government and Consumer Services that, effective November 22, 2021, they had provided us with all the information they were aware of that could significantly affect the findings or the conclusions of this report.

To better understand the province's COVID-19 preparedness and response with respect to personal protective equipment (PPE) between the onset of the COVID-19 pandemic in Ontario and the end of our audit period, as well as to understand the province's approach going forward from then, we conducted the following work:

- obtained PPE procurement information from the Ministry of Health (Ministry) and the Ministry of Government and Consumer Services, and interviewed their staff;
- visited three provincial warehouses and four regional distribution centres that store PPE from the Ministry's pandemic stockpile and distribute it;
- reviewed inventory, shipping and receiving documentation from the above warehouses and distribution centres;
- engaged in multiple video conferences with staff from the Ministry of Health and Ontario Health to understand the evolution of the province's procurement of PPE;
- interviewed, and obtained information from, representatives of Public Health Ontario and local public health units;
- interviewed representatives from the:
  - Ontario Hospital Association;

- Ontario Medical Association;
- Ontario Nurses' Association;
- Ontario Paramedic Association;
- Medical Laboratory Professionals' Association of Ontario;
- Ontario Personal Support Workers Association;
- Ontario Long Term Care Association;
- Ontario Association of Medical Laboratories; and
- Canadian Alliance to Protect and Equip Seniors Living;
- interviewed key PPE distributors (including suppliers) in Ontario, including Medline/Medical Mart, Stevens and Cardinal Health; staff at group purchasing, shared service and related organizations, including Mohawk Medbuy, Healthcare Materials Management Services and HealthPro; front-line staff, including acute care physicians; and members of the Ministry's Collaboration Table;
- obtained and reviewed documentation from health-care organizations to the Ministry for PPE, key Ministry staff, provincial COVID-19 tables and sub-tables, including the Health Co-ordination Table, the Collaboration Table and the Control Table; and
- reviewed third-party assessments of Ontario's health-care sector supply chain strategy and emergency preparation.

We also researched COVID-19 information and the response by other Canadian provinces to understand the impact of the pandemic and the measures that were implemented to manage PPE in those jurisdictions.

We conducted our work and reported on the results of our examination in accordance with the applicable Canadian Standards on Assurance Engagements—Direct Engagements issued by the Auditing and Assurance Standards Board of the Chartered Professional Accountants of Canada. This included obtaining a reasonable level of assurance.

The Office of the Auditor General of Ontario applies the Canadian Standard on Quality Control

and, as a result, maintains a comprehensive quality-control system that includes documented policies and procedures with respect to compliance with rules of professional conduct, professional standards and applicable legal and regulatory requirements.

We have complied with the independence and other ethical requirements of the Code of Professional Conduct of the Chartered Professional Accountants of Ontario, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

## 4.0 Detailed Audit Observations

### 4.1 Co-ordinated PPE Procurement Systems Not in Place in Ontario Prior to the COVID-19 Pandemic

The first Ontario Health Plan for an Influenza Pandemic (Health Pandemic Plan) was created in 2004. The Health Pandemic Plan communicated that health-care providers were to procure their own PPE and maintain a supply to last them for a four-week period. In addition, the then Ministry of Health and Long-Term Care was to obtain and maintain an emergency provincial PPE stockpile that could last health-care providers an additional four weeks over and above their own supply. This provincial PPE stockpile was intended to be available to provide a last-resort emergency option for health-care providers to use once they had exhausted their own supply and were unable to secure additional PPE quickly when needed from their suppliers.

We found, however, that the provincial PPE requirements under the Health Pandemic Plan were not in place. By early 2020 most of the province's emergency stock of PPE had been allowed to expire (**Section 4.1.2**). As well, the Ministry of Health was not monitoring whether health-care providers were maintaining the PPE supplies required under the Health Pandemic Plan (**Section 4.1.1**). When

the COVID-19 pandemic hit and demand for PPE soared, Ontario's PPE procurement systems were decentralized and lacking the data management capacity to optimize procurement decisions, given the lack of information on inventory and usage of PPE (**Section 4.1.3**).

In the first three years after the first Health Pandemic Plan was created, the province had begun to build up the emergency provincial PPE stockpile. Our 2007 audit on Outbreak Preparedness and Management noted that as of March 31, 2007, the then Ministry of Health had obtained more than 60% of the required quantities of PPE supplies for the emergency provincial PPE stockpile. However, the audit also noted that storage and distribution plans had not yet been fully worked out and that many health-care providers had still not secured their own local four-week supplies. Our 2009 follow-up on this report noted some progress: the emergency provincial PPE stockpile was very near completion, and storage and distribution plans were in the process of being finalized. To encourage health-care providers to obtain their local four-week supplies, the Ministry of Health communicated to them that they could eventually take advantage of the preferred pricing the Ministry of Health had negotiated with suppliers once the Ministry of Health had finished buying all the PPE it needed for the emergency stockpile.

#### **4.1.1 No Requirement for Monitoring Whether Individual Health-Care Providers Maintained Sufficient Local Supplies of PPE**

Although the Health Pandemic Plan recommends that health providers maintain their own four-week emergency stockpile of PPE, there was no requirement in place to have the Ministry or anyone else oversee this and monitor whether these stockpiles were in fact being put in place and maintained. We noted that the Ministry of Health never confirmed that health-care providers were actually stocking up on their own PPE supplies and keeping on hand the supply recommended under the Health Pandemic Plan. When the COVID-19 pandemic began in early 2020,

many health-care providers in Ontario were not adequately prepared with PPE. **Section 4.2.1** in this report describes how between February 5 and March 18, 2020, when Ontario declared a state of emergency, hundreds of health-care providers and others made 1,674 requests for PPE items from the provincial emergency stockpile, sending 1,162 separate emailed requests.

We noted as well that the Ministry did not have complete and consolidated information on PPE availability in the health-care sector at the start of the pandemic to assist it in making informed PPE demand and supply decisions, notably to efficiently fulfill the requests it was receiving for PPE from its emergency stockpile and allocating PPE where it was most needed. **Section 4.2.1** discusses how the Ministry created new reporting channels for information in late March 2020, after the pandemic had struck.

We obtained from the Ministry a timeline that included conversations its Health System Emergency Management Branch and Supply Chain Modernization Branch had with potential suppliers of PPE. Based on our review of this information, we noted that the Ministry was contacting suppliers as early as January 23, 2020 to ascertain the amounts of PPE available from these suppliers. The Ministry was making these inquiries to inform its decisions on allocation of the emergency stockpile once inventory was procured and received. We found that these were just initial inquiries—as noted in **Section 4.2.1**, it was not until March 27, 2020 that the Ministry issued an order that required health-care providers to report daily on their PPE stock and their supply and consumption (or “burn”) rates, starting April 1, 2020.

The latest update of the Health Pandemic Plan in 2013, which is available on the Ministry of Health's website, recommended that outpatient and home-care settings should plan to keep on hand volumes of PPE that are two times what they would normally use in four weeks of an influenza season (that is, eight weeks), while inpatient settings should plan to keep on hand volumes that are eight times as high (32 weeks), including stockpiles of N95 respirators and surgical masks for use by health-care workers.

## RECOMMENDATION 1

So that the personal protective equipment (PPE) emergency supply recommendations in the Ontario Health Plan for an Influenza Pandemic (Health Pandemic Plan) are followed and the risk of a future potential PPE shortage is minimized, we recommend that the Ministry of Health include a requirement in the Health Pandemic Plan that health-care employers must maintain a four-week, eight-week or 32-week supply of PPE as appropriate to their health-care setting requirements, and report regularly to the Ministry of Health on their supply levels.

## MINISTRY RESPONSE

The Ministry of Health agrees with this recommendation and recognizes the importance of health care providers/employers maintaining an adequate supply of PPE as appropriate to their health care setting requirements, for everyday usage and to manage any surge in use during a pandemic when the regular supply chain may be subject to disruption. The Ministry will incorporate the requirement for health-care employers to maintain an appropriate supply of PPE inventory into Ontario's Health Pandemic Plan or whichever Ministry plan/agreement is most appropriate to ensure their long-term adoption and adherence.

In terms of regular monitoring and reporting of PPE supply levels held across the health care system, MOH will consider the best mechanism to incorporate regular reporting in order to sustain reporting over the long term.

### 4.1.2 Most PPE in Provincial Emergency Stockpile Expired by 2017

As previously mentioned, the provincial PPE emergency stockpile for the health-care sector was and is intended to serve as a last resort emergency option for health-care providers to request supplies from once they exhaust their own stockpile and cannot secure PPE from their suppliers. However, health-care

providers had to try to procure PPE through their regular suppliers throughout the pandemic. The Ministry Emergency Operations Centre within the Ministry of Health is responsible for maintaining the emergency stockpile, as well as for co-ordinating the response to threats and hazards to the health of Ontarians and the health-care system, including events such as the COVID-19 pandemic.

Our 2017 audit of Emergency Management in Ontario found that more than 80% of 26,000 pallets of emergency stockpile supplies had expired, and the Ministry had begun destroying the supplies. We noted that in 2016 the Ministry began a review of the stockpile program with the aim of modernizing it and was planning how to put the stock to use before it expired and then replenish it. That plan to modernize the stockpile program was not completed.

**Appendix 6** details the types of deterioration associated with expired PPE for the different types of PPE and describes the treatment and destruction of expired PPE.

The Ministry of Health has indicated to us that had the PPE in the emergency stockpile been properly managed and rotated out for use in the health-care sector before it expired and then replenished, the Ministry could have been in a better position when the pandemic hit. For example, at the beginning of the pandemic, the stockpile had over 3 million expired N95 respirators. If these had not been allowed to expire but had instead been distributed for use and replaced, the 3 million usable N95 respirators could have helped support the Ministry's initial response to the pandemic and addressed some of the most urgent needs for PPE.

The Ministry informed us in our 2017 audit that its budget for these supplies covered only the cost for storing the PPE and not for actively managing it. Storage of the expired supplies was costing more than \$3 million a year, and no one was monitoring PPE expiration dates and planning for distribution of the PPE prior to its expiration.

The amount of PPE that needed to be procured for the province during the COVID-19 pandemic highlights the need for a well-stocked, usable emergency

**Figure 6: Number of PPE Units Ordered and Received by Ministry of Health and Ministry of Government and Consumer Services, and Provided by Government of Canada to Ontario, by December 31, 2020**

Source of data: Ministry of Health and Ministry of Government and Consumer Services

PPE Type	Ministry of Health	Ministry of Government and Consumer Services	Government of Canada Stockpile Transfer to Ontario*	Ministry of Health Procurement through Government of Canada	Total
Face shields/goggles	12,899,835	4,312,238	7,356,051	0	24,568,124
Gloves	250,653,820	89,114,202	250,559,180	0	590,327,202
Gowns/coveralls	39,134,808	419,100	5,741,007	0	45,294,915
Hand sanitizer	896,028	11,214,647	948,648	0	13,059,323
Masks	169,016,435	104,676,218	52,343,700	0	326,036,353
N95 respirators	7,819,064	2,271,399	14,377,363	5,000,000	29,467,826
Other	2,018,292	6,318,629	8,659,780	0	16,996,701
<b>Total</b>	<b>482,438,282</b>	<b>218,326,433</b>	<b>339,985,729</b>	<b>5,000,000</b>	<b>1,045,750,444</b>

\* The Ontario government did not have to pay for the federally transferred emergency stockpile of PPE.

stockpile. From the start of the pandemic through December 31, 2020, more than 1 billion units of PPE were ordered and received by the Ministry of Health and Ministry of Government and Consumer Services, and provided to Ontario by the government of Canada (Figure 6).

## RECOMMENDATION 2

To obtain benefit from the procurement and use of personal protective equipment (PPE) from the emergency provincial stockpile before inventory expires, we recommend that the Ministry of Health:

- develop and implement inventory management and control guidelines that include the requirement to monitor expiration dates and plan for the rotation of PPE with instructions on when to ship out PPE to health-care providers for use before it expires; and
- update the Ontario Health Plan for an Influenza Pandemic with the inventory management and control guidelines.

## MINISTRY RESPONSE

The Ministry of Health agrees with this recommendation and is committed to modern inventory management and control practices.

As part of its contractual agreement with its warehouse, MOH began monitoring PPE expiry dates and fills orders with products that were closest to their expiry. Expiry dates are now monitored through a weekly report provided by the warehouse. MOH will develop inventory management capabilities for the provincial stockpile.

MOH supports incorporating inventory management and control guidelines for health partners into the Ontario Health Plan for Influenza Pandemic or whichever Ministry plan/agreement is most appropriate to ensure their long-term adoption and adherence.

### 4.1.3 A Centralized and Co-ordinated Procurement System That Includes PPE Was Not in Place in Ontario When the Pandemic Hit

When COVID-19 spread into Ontario in January 2020 and escalated into a pandemic in March 2020, Ontario's initiative to centralize procurement was still

in development and not yet ready to respond to the crisis in PPE supply. In February 2021, the Ontario's Long-Term Care COVID-19 Commission set up to examine the pandemic's effects on long-term-care homes in the province heard testimony from the Minister of Health that the ongoing centralization process had delayed restocking the province's depleted PPE stocks by the time COVID-19 struck and the need for PPE became acute (see **Section 4.1.2** on stockage and supply).

Our 2017 audit of Emergency Management in Ontario noted that the Provincial Emergency Management Office had created a supply chain group in 2008. It was to involve members from all levels of government and the private sector, working together to plan the provision of strategic resources when and where they would be needed during large-scale emergencies. However, the group never progressed to the point of meeting or initiating any actions.

In 2016, the government of Ontario established the Healthcare Sector Supply Chain Strategy Expert Panel to review and recommend improvements to Ontario's health-care supply chain. In 2017, the expert panel published its findings in its report titled *Advancing Healthcare in Ontario: Optimizing the Healthcare Supply Chain—A New Model*. The report noted that the degree of participation in collaborative buying groups was high among larger health-care providers, such as hospitals and some long-term-care homes, but was low among smaller health-care providers, such as retirement and residential homes, special-care facilities, clinics and other smaller community care organizations. The expert panel noted that Ontario had no centralized data management or analytics to optimize its procurement or supply chain system. The panel recommended that Ontario should create a robust data collection system to analyze data from the health-care sector and use this information to make better procurement decisions. See **Appendix 7** for a summary of the 2017 expert panel recommendations.

In March 2019, the government of Ontario announced its plan to deliver a Supply Chain Centralization Initiative for the Ontario Public Service

and broader public service. Purchasing PPE for the provincial stockpile was to be incorporated into this initiative.

At the June 5, 2019 meeting of Ontario's Standing Committee on Estimates, it was noted that the Ministry was working to create an integrated supply chain for health-care products and that British Columbia and Alberta had realized significant savings after transitioning to a data-driven supply chain model.

#### 4.1.4 Supply Ontario Agency Created to Centralize Supply Chain

*Bill 138: Plan to Build Ontario Together Act, 2019* introduced the *Supply Chain Management Act (Government, Broader Public Sector and Health Sector Entities), 2019*. The Act's Ontario Regulation 612/20 Centralized Supply Chain Ontario established the new agency Supply Ontario on November 5, 2020. The intent of Supply Ontario, which falls under the oversight of the Ministry of Government and Consumer Services, is to centralize the government's supply chain and streamline complex procurement processes. Supply Ontario will also be responsible for collecting and analyzing inventory, procurement and other data relevant to the centralized chain. In January 2021, the Ontario government appointed the first members of Supply Ontario's Board of Directors. The Memorandum of Understanding (which is a document describing the terms and conditions of an agreement) between the Ministry of Government and Consumer Services and the Chair of Supply Ontario was finalized July 2021. Supply Ontario is being implemented through a multi-year effort with the goal of becoming fully operational by November 2023.

#### RECOMMENDATION 3

To complete the modernization of Ontario's supply chain process for the procurement of personal protective equipment (PPE), collect the data needed to make informed procurement decisions and obtain value for money in PPE procurement, we

recommend that the Ministry of Government and Consumer Services (MGCS) work with Supply Ontario to put in place the systems that will enable Supply Ontario to collect the information it needs about Ontario's PPE supply and regularly report this information to MGCS.

## MINISTRY RESPONSE

The Ministry of Government and Consumer Services agrees with this recommendation and has finalized the Memorandum of Understanding with Supply Ontario in July 2021. The pandemic demonstrated the need for a centralized supply chain for Ontario. As Supply Ontario builds capacity and capability, it will put in place systems that will enable the collection of information needed to direct the management and delivery of PPE on behalf of the province. Regular reporting to MGCS on the status of the PPE supply will be part of regular oversight activities.

## 4.2 PPE Data Collection and Analysis, Procurement, Storage and Distribution Systems Were Not Ready for a Pandemic

### 4.2.1 Ministry of Health Had No Comprehensive Data on Health-Care Provider PPE Inventory, Procurement and Needs

We found that, given the Ontario health-care sector's existing decentralized procurement approach, for the first three months of 2020, the Ministry of Health did not know:

- how much PPE health-care providers had on hand (see **Section 2.4** for the different categories of health-care providers);
- how much they were procuring or receiving; and
- how much PPE was being used each day (burn rates).

We also noted that early in the pandemic (April 2020), only about half of the hard-hit long-term-care home sector were reporting the PPE information requested; more than 3,000 health-care providers

were submitting their Ministry of Health-requested reports on individual Excel spreadsheets.

In early April 2020 the Ministry of Health did not know the extent to which PPE use and demand had increased due to COVID-19. These data shortcomings limited its ability to plan and strategize procurement and distribution of PPE at a time when it was receiving urgent requests for supplies and information.

In January 2020, the Ministry of Health was contacting suppliers to understand the supply available, as the provincial stockpile, as previously mentioned, had mostly expired and needed replenishing. **Figure 7a** presents the recommended quantities of PPE that the provincial stockpile should have had on hand, according to the Ministry's 2006/07 recommendation (see **Section 2.6**), and compares this to the inventory of emergency provincial PPE on hand as of January 22, 2020, five days before Ontario's first confirmed case of COVID-19.

From January 25, 2020, the Ministry of Health Emergency Operations Centre under the direction of Ontario's Chief Medical Officer began issuing its first COVID-19 Daily Situation Reports. The Ministry Emergency Operations Centre emailed these reports to over 1,500 health-care provider subscribers. The reports included a snapshot of the COVID-19 situation in Ontario and in Canada, and in some cases around the world. They also included recommendations from the Ministry of Health regarding the use of PPE. The effectiveness of these guidance communications depended on the availability of PPE. Some communications were as follows:

- On January 28, in its Daily Situation Report on Primary Care Guidance, the Ministry of Health issued guidance on who should wear an N95 respirator and under what circumstances. It instructed that only those primary care providers who have access to N95 respirators should conduct detailed clinical examinations on patients under investigation for COVID-19.
- On January 31, in its Daily Situation Report on Home and Community Care Guidance, the Ministry of Health issued similar guidance for home and community care, long-term care and acute

care, instructing that when providing care to any person under investigation for COVID-19, staff should use appropriate PPE, including fit-tested N95 respirators.

- The February 4 Daily Situation Report informed health-care providers with a severe shortage of PPE (defined as immediate challenges with supply levels) that they could contact the Ministry of Health to notify it of issues with their PPE supply chains. Health-care providers then proceeded to send Ministry of Health requests for PPE to make up for shortages they were experiencing due to supply chain issues.

Between February 5 and March 18, 2020, when Ontario declared a state of emergency, hundreds of health-care providers and others made 1,674 requests for PPE items from the provincial emergency stockpile, sending 1,162 separate emails to the Ministry of Health.

Given the number of email requests sent, it was evident that many health-care providers had not maintained a local supply and were in a situation where they required emergency supplies from a

provincial stockpile that had mostly expired (see **Figures 7a** and **7b**).

**Figure 8** breaks down the requests for PPE by sector for the 1,162 emails received between February 5 and March 18, representing 1,674 total requests. It shows that in the first six weeks or so after Ontario recorded its first confirmed case, primary care (this includes, for example, family physicians and walk-in clinics) made the most requests, and some other types of entities for the most part had enough supply on hand and made fewer requests. Because hospitals (in the acute care sector) had maintained a local supply and had pre-established relationships with suppliers for PPE they regularly procured, hospitals' requests did not make up a significant proportion of the total requests for PPE from the provincial stockpile (2.6% as of March 18). Our analysis of requests shows that all entities significantly increased their requests following those first six weeks; however, retirement homes, long-term-care homes, and primary care (physicians) experienced the greatest need, with the greatest increase in requests from March to the end of December 2020. We reviewed a sample of

**Figure 7a: Ontario's PPE Emergency Stockpile Inventory – Percentage Usable, as of January 22, 2020**

Source of data: Ministry of Health

Type of PPE	Provincial Pandemic Stockpile				Usable PPE Quantity as % of Recommended Quantity
	Recommended Quantity in 2006/07 (Units) <sup>1</sup>	Usable Quantity on January 22, 2020 (Units)	Expired Quantity on January 22, 2020 (Units) <sup>2</sup>	Shortfall in Units	
Aprons/coveralls/gowns	25,000,000	39,603	2,159,453	24,960,397	0.2
Face shields/goggles	13,000,000	0	320,738	13,000,000	0
Gloves	42,000,000	500	4,653,000	41,999,500	0
Procedural masks <sup>3</sup>	94,000,000	0	6,471,322	94,000,000	0
N95 respirators	55,000,000	0	3,509,794	55,000,000	0
Hair covers	n/a	0	252,000	n/a	0
Boot covers	n/a	9,210	0	n/a	0

Note: January 22, 2020 was five days before Ontario's first confirmed case of COVID-19.

1. Recommended quantity 2006/07 was defined by the then Ministry of Health and Long-Term Care's internal 2006/07 Influenza Pandemic Preparedness document.
2. Expired Quantity includes aged product. For any product that did not have a manufacturer-designated expiry date, the Ministry identified the product as aged if it was more than five years old. Aged products were offered to organizations if no other product was available. The receiving organization was required to sign a waiver acknowledging that it understood the risks associated with using aged product.
3. The Ontario government stored barrier and procedural medical masks in the emergency stockpile.

**Figure 7b: Ontario's PPE Emergency Stockpile Inventory – Expired Quantities Destroyed and Given Out Subsequent to January 22, 2020 (Units)**

Source of data: Ministry of Health

Type of PPE <sup>1</sup>	Expired Quantity <sup>2</sup>	Destroyed	Given Out		
			Total Given Out	To Whom Given	Quantity Given Out
<b>Aprons, coveralls, gowns</b>	2,159,453	310,550	918,939	Correctional services	7,649
				Dentists	45
				Home and community care	18,725
				Hospitals	286,780
				LTC/Retirement	416,810
				Paramedics	7,250
				Primary care	510
				Regional transfers	175,000
				Other	6,170
<b>Face shields, goggles</b>	320,738	13,688	23,869	Correctional services	10,148
				Dentists	40
				Home and community care	1,312
				Hospitals	1,172
				LTC/Retirement	6,458
				Paramedics	200
				Primary care	459
				Other	4,080
<b>Gloves</b>	4,653,000	330,000	147,550	Correctional services	63,050
				LTC/Retirement	66,000
				Paramedics	5,000
				Primary care	1,900
				Other	11,600
<b>Procedure masks</b>	6,471,322	303,600	40,300	Correctional services	33,200
				Hospitals	200
				LTC/Retirement	3,900
				Paramedics	2,000
				Primary care	1,000
<b>N95 respirators<sup>3</sup></b>	3,509,794	1,557,220	164,309	Dentists	440
				Home and community care	3,940
				Hospitals	96,540
				LTC/Retirement	34,025
				Paramedics	2,680
				Primary care	964
				Other	25,720
<b>Hair covers</b>	252,000	0	400	LTC/Retirement	400

Note: PPE from the Ministry of Health stockpile was distributed starting in April from Metro Logistics Inc. (see Section 4.2.5).

1. See Appendix 1 for descriptions of each PPE type and Appendix 6 for details on the destruction of expired PPE.
2. Expired Quantity includes aged product. For any product that did not have a manufacturer-designated expiry date, the Ministry of Health identified the product as aged if it was more than five years old. Aged products were offered to organizations if no other product was available. The receiving organization was required to sign a waiver acknowledging that it understood the risks associated with using aged product.
3. N95 respirators that were given out were for fit testing purposes only. Fit testing is required for N95 respirators to ensure that a seal is achieved to allow for the respirator to function properly.

**Figure 8: Number of Requests for PPE from Health-Care Providers and Others, February 5–March 18, 2020**

Source of data: Ministry of Health

Sector	# of Emails	# of Requests						Total
		Gloves	Masks	Gowns	N95	Shields	Other	
Primary care	674	51	377	121	260	79	165	1,053
Long-term care	74	8	37	20	28	13	12	118
Other*	75	3	33	11	19	9	17	92
Specialist	58	4	36	6	22	2	22	92
Dental	64	1	51	7	9	7	3	78
Home and community care	44	7	23	8	12	6	10	66
Midwives	36	1	12	4	19	1	14	51
Hospital	92	1	15	2	23	1	2	44
Paramedics and first responders	25	0	9	4	18	4	1	36
Residential and retirement homes	10	5	7	5	4	2	5	28
Retail and pharmacy	10	1	7	0	1	0	7	16
<b>Total</b>	<b>1,162</b>	<b>82</b>	<b>607</b>	<b>188</b>	<b>415</b>	<b>124</b>	<b>258</b>	<b>1,674</b>

Note: Entities could have made more than one request for one PPE item.

\* Other includes colleges, religious organizations, community and municipal organizations, and other stakeholder entities requesting PPE that did not fall into one of the other 10 categories shown in this figure.

requests from long-term-care homes and noted many significant delays at the beginning of the pandemic in supplying PPE to them. For example:

- On March 27 a long-term-care home requested an urgent shipment of PPE from the provincial stockpile, and reported a case of COVID-19. The Ministry of Health followed up with the home on April 1 to understand the details of the request but did not receive a response until April 5. The Ministry of Health shipped PPE to this home on April 7, 10 days after the outbreak had been declared.
- A long-term care home declared an outbreak on March 16 and requested PPE from the provincial stockpile on March 30. An auto-reply was sent indicating there were shortages in the supply chain. The home reached out again on April 13th and the Ministry of Health followed up to clarify the request on that same day and received a final response from the home on April 20 and provided PPE on April 21.
- A long-term-care home sent a request for PPE from the provincial stockpile on March 5, noting that it had not received any PPE from its supplier for two

months. As the home did not provide details of what PPE it needed, the Ministry of Health had to follow up. A response was received on April 5 and PPE was sent to this home on April 5.

We noted that two main factors contributed significantly to the delays in long-term-care homes receiving PPE from the provincial stockpile at the beginning of the pandemic:

1. the Ministry of Health did not have sufficient inventory on hand to support the initial requests for PPE; and
2. further information and clarifications were needed from entities making the requests. The initial requests had insufficient information on matters such as quantities and types of PPE being requested because at the time, the Ministry of Health did not have a tool in place to intake detailed requests for PPE such as quantities and types of PPE needed, and when the requestor would run out of PPE they already had on hand.

As the situation evolved, the process was improved in order to address delays. Interim measures such as an auto-reply detailing the information required to be

**Figure 9: Number of Requests for PPE from Health-Care Providers and Others, February 2020 to March 2021**

Source of data: Ministry of Health

Sector	# of Requests						Total
	Gloves	Masks	Gowns	N95	Shields	Other	
Primary care	4,653	4,714	2,739	1,035	1,974	8,560	23,675
Long-term care	1,566	1,374	1,894	2,754	1,106	2,357	11,051
Other*	1,881	1,553	936	571	651	2,050	7,642
Residential and retirement homes	871	1,053	1,092	564	465	1,436	5,481
Home and community care	917	866	542	230	397	1,402	4,354
Specialist	728	500	255	207	153	878	2,721
Hospital	243	165	153	344	45	338	1,288
Retail and pharmacy	267	330	127	79	106	436	1,345
Paramedics and first responders	16	46	64	81	15	29	251
Dental	3	61	26	44	14	10	158
Midwives	5	14	7	24	3	17	70
<b>Total</b>	<b>11,150</b>	<b>10,676</b>	<b>7,835</b>	<b>5,933</b>	<b>4,929</b>	<b>17,513</b>	<b>58,036</b>

Note: Entities could have made more than one request for one PPE item. Period covered from February 5, 2020 to March 24, 2021

\* Other includes colleges, religious organizations, community and municipal organizations, and other stakeholder entities requesting PPE that did not fall into one of the other 10 categories shown in this figure.

sent to the Ministry of Health when making requests were put in place and an online intake form was created. In mid-April 2020 Ontario Health created a web portal for health-care providers to request PPE. This web portal subsequently replaced the email request process. This new system collected information that was lacking from the email requests. Prior to the pandemic, regular channels of communication had not been developed between the Ministry of Health and the long-term-care homes and retirement homes to instruct them on how to send the Ministry clear and detailed requests for the PPE they needed.

**Figure 9** breaks down the 58,036 total requests received by sector from February to the end of March 2021. Of the 58,036 requests, 54,470 came from the web portal. The figure shows that the most requested items were gloves, surgical and procedure masks, and gowns. As in the first six weeks of the pandemic, over this 13-month period the primary care sector again made the most requests for PPE, at 23,675 requests. Long-term-care and retirement homes together made the second largest number of requests at 18,693, with hospitals' requests making up only a small proportion of total requests, at 2.2%.

On March 27, 2020, the Minister of Health issued an order requiring health-care providers to provide information to the province on PPE. By issuing an order, the Minister of Health was giving direction under the *Health Promotion and Protection Act* to the specific health-care providers named. Specifically, starting April 1, all health-care providers (for example, public and private hospitals, psychiatric facilities, independent health facilities, long-term-care homes and others) had to report the quantity of PPE they had on hand, their PPE consumption rates, and their forecasts of future PPE supply levels. Initially, this information was collected by Ontario Health. On June 5, 2020, the Ministry of Government and Consumer Services (MGCS) took over this responsibility.

Hospitals reported this information to Ontario Health using an existing data collection tool called Bed Census. Ontario Health engaged an accounting firm to help consolidate hospital information on its behalf. Primary care providers, such as family physicians and medical clinics, and more than 3,000 other health-care providers, such as long-term-care homes, mental health and addictions facilities, and

home care providers reported their information via individual Excel spreadsheets, which Ministry staff were to then consolidate. In comparison, we noted that British Columbia, Alberta and Saskatchewan each already had a centralized procurement system in place, which helps facilitate such data collection at the provincial level.

We found that initially, almost all hospitals (94%) reported all the required PPE information. However, only about half (55%) of long-term-care homes provided the required information. We noted that other providers had even lower reporting rates, with retirement homes, for example, at 43%. This left a significant gap in the overall PPE information the province had available to inform its PPE procurement decisions.

Specifically, our review of April 2020 meeting minutes of the Ministry's Control Table noted that the Ministry did not know:

- whether health-care providers were able to purchase and were receiving PPE directly;
- whether certain health-care providers—such as long-term-care homes, family physicians and medical clinics—were more vulnerable than others to disruptions in the supply chain caused by the pandemic; and
- the extent to which PPE demand and usage had increased due to COVID 19.

To streamline both the consolidation and reporting of the information reported, the Ministry, with the help of the hired accounting firm, opened a web portal in early May 2020 where all health-care providers could report their PPE inventory instead of submitting Excel spreadsheets. As mentioned previously, on June 5, 2020, the Ministry of Government (MGCS) and Consumer Services took over the responsibility for collecting and consolidating the health-care-sector data on the quantity of PPE it had on hand, its PPE consumption rates and its forecasts of future PPE supply levels. MGCS was then to provide this information to the Provincial Task Force (as explained in **Section 4.2.2**) to help inform it in its PPE procurement decisions.

## RECOMMENDATION 4

In order for the province to make informed procurement decisions on personal protective equipment (PPE) and to be in a position to quickly provide PPE to health-care providers as needed, the Ministry of Health and Ministry of Government and Consumer Services should:

- continue to collect information on inventory and consumption (or “burn”) rates of PPE for both the health-care sector and non-health-care sector during the COVID-19 pandemic and after it has ended;
- obtain pre-pandemic burn rates for both sectors to help inform Supply Ontario on its post-pandemic procurement needs;
- reassess the 2006/07 recommended quantities of PPE that should be kept in the provincial emergency stockpile; and
- develop clear guidelines on how health-care and non-health-care providers can request needed PPE and distribute these guidelines to all health-care and non-health-care providers who may request PPE from the provincial emergency stockpile in the future.

## MINISTRY RESPONSE

The Ministry of Government and Consumer Services and the Ministry of Health agree with this recommendation and the need to continue collecting information to inform decisions to support procurement, stockpiling and distribution of PPE.

Information on inventory and consumption rates of PPE will continue to be collected for both the health-care and non-health-care sectors throughout the pandemic and post-pandemic. We will establish post-pandemic consumption forecasts based on post-pandemic demand, new requirements and evolving guidance on the use of PPE to inform Supply Ontario on its post-pandemic procurement needs.

As a part of sustaining and informing the transition of the PPE supply chain from pandemic to

steady state, appropriate stockpiling quantities and protocols will be developed and continually reassessed to ensure the ability to respond to future emergencies.

As Supply Ontario directs the management and delivery of PPE on behalf of the province, it will develop the appropriate guidelines on how to request needed PPE from the provincial emergency stockpile and communicate these to all health-care and non-health care providers.

#### 4.2.2 Ministry of Health Had to Develop a New PPE Procurement Process During the Pandemic

The Ministry of Health, recognizing that its emergency stockpile had expired, that Ontario's health sector had significant PPE procurement needs, and that it did not have sufficient PPE procurement experience or the ability to respond quickly in a globally competitive environment, jointly with Ontario Health partnered informally with the University Health Network (UHN) to help facilitate the procurement of PPE for the provincial emergency stockpile. A Memorandum of Understanding was subsequently signed in August 2020 between the Ministry of Health, Ontario Health and UHN.

##### Health-Care Sector

One day after UHN issued its first PPE purchase order on behalf of the province on March 18, on March 19, 2020, the government created the Provincial Task Force for the acquisition and management of PPE. It consisted of the Ministry of Health, Ontario Health, UHN and procurement organizations Mohawk Medbuy and Plexxus, which are two of the 10 group purchasing organizations and shared service organizations that operate in Ontario (Figure 10). Figure 11 illustrates the newly developed process effective April 1, 2020 for procuring PPE for the provincial emergency stockpile for use by the health-care sector.

As mentioned in Section 4.2.1, the task of collecting information from health-care providers on their existing PPE supply, their PPE consumption rates and their forecasts of future PPE supply levels

#### Figure 10: Group Purchasing Organizations (GPOs) and Shared Service Organizations (SSOs)

Source of data: Ministry of Health

Name	Type of Organization
HealthPRO	GPO
St. Joseph's Health System Group Purchasing Organization <sup>1</sup>	GPO
Mohawk Medbuy Corporation <sup>1,2</sup>	GPO/SSO
Champlain Health Supply Services (CHSS)	SSO
Healthcare Materials Management Services (HMMS)	SSO
Plexxus	SSO
Shared Services West (SSW)	SSO
Shared Support Services Southeastern Ontario (3SO)	SSO
TransForm Shared Service Organization (TransForm)	SSO
Northern Supply Chain (NSC)	SSO

Note: GPOs and SSOs both engage in group purchasing. GPOs are larger organizations that serve health-care providers across Canada, while SSOs serve mostly hospitals and some long-term-care homes in Ontario. This is not an exhaustive list of GPOs. We have noted that there are GPOs that predominantly cater to long-term-care homes, such as Complete Purchasing Services and Silver Group Purchasing Partner Network.

1. On April 1, 2021, Mohawk Medbuy Corporation acquired St. Joseph's Health System Group Purchasing Organization.
2. On June 1, 2017, Mohawk Shared Services (SSO) merged with Medbuy Corporation (GPO) to form Mohawk Medbuy Corporation, a hybrid GPO/SSO.

and need (step 1 in the process) was transferred from Ontario Health to the Ministry of Government and Consumer Services on June 5, 2020. That change is reflected in the first box of Figure 11.

##### Non-Health-Care Sector

Employers outside of the health sector are responsible under the *Occupational Health and Safety Act* for the safety of their employees, including ensuring that employees use PPE appropriate to the hazard. Prior to the pandemic, PPE was directly procured by the non-health-care sector with no provincial involvement.

As the pandemic worsened at a rapid pace in March 2020, non-health-care entities such as fire fighters, social service agencies and educational institutions began to request through their respective ministries PPE from the provincial emergency

## Figure 11: New Process, Effective April 2020, for Procuring PPE for Ministry of Health and MGCS Emergency Provincial Stockpile

Prepared by the Office of the Auditor General of Ontario

### 1. Supply and Demand Analysis<sup>1</sup>

Ministry of Government and Consumer Services (MGCS) collects PPE supply and demand data on the health-care and non-health-care sectors and develops forecasts for the PPE Category Leads (MGCS and Provincial Task Force<sup>2</sup>).

### 2. Assessment of Sourcing Needs and Opportunities

PPE Category Leads review forecasts to identify procurement needs. PPE Category Leads identify and assess sourcing opportunities, engaging the Quality Assurance (QA) Team for validation of product requirements where appropriate. QA Team reviews product documentation (including review of vendor-supplied specifications and testing data) to ensure product complies with requirements.

For non-traditional suppliers or products, the QA team may obtain a sample of PPE from the supplier and send it to a third party for testing and inspection against the applicable product standards, for example, NIOSH, in order to verify authenticity of the product and for quality testing at an accredited third-party clinical laboratory.

### 3. Procurement Authorization and Execution

PPE Category Leads submit procurement recommendations to Ministry of Health or MGCS procurement authority. Ministries review procurement recommendations, approve at the appropriate delegation of authority, and authorize issuance of purchase orders.

- i. For Ministry of Health-authorized procurements, PPE Category Leads communicate instructions to the UHN on the issuance of purchase orders.
- ii. For MGCS-authorized procurements, the ministry issues purchase orders.

### 4. Warehouse Receipt and Inspection

Suppliers deliver PPE to provincial warehouses (Metro Logistics for the Ministry of Health and DSV for MGCS). Warehouses verify each shipment for quantity, accuracy and packaging quality.

For non-traditional suppliers or products, additional inspections by SGS may be required from the vendor or performed on-site at provincial warehouses.

### 5. Review Prior to Funds Being Released

For non-traditional suppliers or products, the QA team reviews the product specifications and samples. For products with elevated quality risks, further testing of samples may be requested from third party inspection services providers or accredited clinical testing laboratories.

Payment is issued to vendors (by UHN for the Ministry of Health or by MGCS) following review and acceptance of products.

### 6. Proactive Allocation<sup>3</sup>

The Provincial Control table<sup>4</sup> receives PPE supply and demand data from MGCS and makes decisions on sector allocations based on an ethical allocation framework.<sup>5</sup> Allocation instructions are issued to Ontario Health regions guiding distribution to health-sector clients.

For non-health sectors supported by MGCS, MGCS staff then review requests for PPE requirements and allocate PPE to end-users based on directions from Provincial Control Table.

#### Reactive Allocation<sup>3</sup>

Health entities may secure PPE by submitting a request to their Ontario Health region. Emergency or escalated requests are directed to the Ministry of Health.

For non-health sectors, if regular supply and proactive allocation of PPE are not enough to meet demand of a particular end-user, it can contact the ministry overseeing its sector, which would assess the need and urgency and then submit requests to MGCS to send additional PPE to the end-user.

Note: Steps 1 to 3 are the same for the Ministry of Health (health sector) and MGCS (non-health sector).

1. As of April 1, 2020, Ontario Health was in charge of supply and demand data. MGCS took over this responsibility in June 2020.
2. The Provincial Task Force consists of the Ministry of Health, Ontario Health, the University Health Network (UHN), Mohawk Medbuy and Plexus, with support from other health-sector shared-service organization partners.
3. Reflects a period ending March 2021. Please note that access parameters may change according to targeted sector strategies, programs or public health requirements.
4. The Provincial Control Table was launched in April 2020 to co-ordinate the allocation of scarce PPE to health and non-health organizations.
5. See Sections 2.8 and 4.4.1 for details on the Ethical Allocation Framework. While PPE is owned by two different ministries (Ministry of Health and MGCS) and held in multiple provincial warehouses (Metro Logistics for Ministry of Health and DSV for MGCS), the Provincial Control Table views the two inventories as a single provincial PPE stockpile for inventory assessment and allocation purposes.

stockpile. During the pandemic, the government acknowledged their need for access to PPE, as well as the need of other sectors such as food processing and farms.

Beginning in April 2020, the Ministry of Government and Consumer Services took responsibility for procuring some categories of PPE and distributing PPE to these non-health-care facilities.

Similarly to the Ministry of Health's procurement process, the procurement process for MGCS involves multiple reviews and authorizations. However, MGCS's procurement process was handled internally by its staff, without the involvement of third parties such as UHN or an external accounting firm. **Figure 11** illustrates the procurement process for the emergency provincial PPE stockpile serving the non-health-care sector, which came into effect on April 1, 2020.

To further support businesses seeking PPE, the government of Ontario COVID-19 website has a link to a Workplace PPE Supplier Directory, launched on May 14, 2020. It enables businesses to review a list of companies that are ready to sell PPE so they can contact them directly. Suppliers of PPE can apply through the link to be added to the directory. The Ministry of Economic Development, Job Creation and Trade manages the application process. In addition, companies that have received funding through the Ontario Together Fund (**Section 4.3.4**) and are ready to supply PPE are invited to submit an application to be added to the directory.

### 4.2.3 Only One-Sixth of PPE Ordered for the Health-Care Sector in the Early Months of the Pandemic Was Received by the End of June 2020

Under the new partnership, UHN issued its first purchase order for PPE in response to COVID-19 requirements on March 18, 2020. In total, the Ministry of Health ordered about \$63.9 million of PPE in March 2020 (**Appendix 8a**). Between March and December 2020, UHN issued purchase orders for over \$750 million of PPE. **Figures 12a** and **12b** summarize

the dollar amounts of the purchase orders issued by UHN and the dollar amounts received, first by June 30, and then by December 31, 2020. The PPE received lagged six weeks behind the amounts ordered in the first months of the pandemic, and only limited amounts were being received in the first few months after PPE orders were placed.

Specifically, between March 18 and June 30, 2020, just 15%, or about \$102 million, of the \$689 million value of PPE that the Ministry of Health ordered in the months of March, April, May and June had been received.

By the end of 2020, another \$517 million of PPE was received. Overall, about \$619 million worth, or 82%, of the approximately \$751 million of PPE ordered in 2020 had been received by December 31, 2020. **Appendix 8a** has a breakdown of the cost of PPE ordered by the Ministry of Health from March to December 2020, and **Appendix 8b** shows the cost of PPE received by the Ministry of Health from March to December 2020 with cumulative totals month by month.

**Appendix 8c** has a breakdown of the quantities of PPE ordered, and **Appendix 8d** shows the quantities of PPE received by the Ministry of Health, with cumulative totals month by month.

The nearly \$751 million of PPE ordered by December 31, 2020 was ordered from the suppliers shown in **Figure 13**. The PPE was shipped from the locations noted in **Figure 14**.

We noted that in addition to these orders, the Ministry of Health also procured an additional 5 million N95 respirators for \$26.5 million on May 31, 2020 through a federal government initiative outside the regular UHN procurement process. None of these respirators were received by June 30, 2020, although the Ministry did receive all 5 million between July 28, 2020 and September 22, 2020, with the majority received by August 31, 2020. We further noted that the federal government donated significant amounts of PPE to Ontario throughout the pandemic, with nearly 340 million units received by December 31, 2020 (see **Appendix 9** and **Figure 6**).

**Figure 12a: Purchase Orders (POs) Issued by UHN for Emergency Provincial Stockpile PPE and Received by Ministry of Health, March 1–June 30, 2020**

Source of data: Ministry of Health

PPE Type	\$ Amount of Issued PO	\$ Amount Received	% of Issued POs Received
Coveralls and gowns	422,546,891	30,570,161	7
Masks	117,739,673	46,991,758	40
Gloves	87,826,042	3,119,534	4
N95 respirators	12,120,722	1,110,046	9
Face shields	38,224,500	12,216,968	32
Hand sanitizer	7,161,933	7,105,013	99
Other	3,375,524	568,239	17
<b>Total (\$)</b>	<b>688,995,285</b>	<b>101,681,718</b>	
<b>Overall (%)</b>			<b>15</b>

Note: The Ministry of Health also procured 5 million N95 respirators for \$26.5 million on May 31, 2020, through a federal government initiative outside the regular UHN procurement process. None of these respirators were received by June 30, 2020, although the Ministry did receive all 5 million by December 31. Not counting this May 31, 2020 procurement, for the POs listed in **Figure 13a** an additional \$476.7 million worth of PPR was received between July 1 and December 31, 2020.

**Figure 12b: Purchase Orders (POs) Issued by UHN for Emergency Provincial Stockpile PPE and Received by Ministry of Health, July 1–December 31, 2020**

Source of data: Ministry of Health

PPE Type	\$ Amount of Issued PO	\$ Amount Received	% of Issued POs Received
Coveralls and gowns	422,546,891	370,285,721	88
Masks	123,683,971	115,338,117	93
Gloves	87,826,042	25,713,769	29
N95 respirators	67,793,788	59,912,585	88
Face shields	38,224,500	37,931,360	99
Hand sanitizer	7,161,933	7,105,013	99
Other	3,375,524	2,987,569	89
<b>Total (\$)</b>	<b>750,612,650</b>	<b>619,274,133</b>	
<b>Overall (%)</b>			<b>83</b>

Note: The Ministry of Health also procured 5 million N95 respirators for \$26.5 million on May 31, 2020, through a federal government initiative outside the regular UHN procurement process. None of these respirators were received by June 30, 2020, although the Ministry did receive all 5 million by December 31.

#### 4.2.4 Only About Half of PPE Ordered for the Non-Health-Care Sector by the Ministry of Government and Consumer Services in the Early Months of the Pandemic Was Received by June 2020

In March 2020, the Ministry of Government and

Consumer Services (MGCS) helped the Ministry of Health in its efforts to secure PPE for the province. It placed a limited number of orders for PPE, amounting to about one-seventh the number of units the Ministry of Health ordered. In total, MGCS committed to purchase about \$49.8 million of PPE for the month of March with its own funding approved through

**Figure 13: Top 20 Suppliers of PPE to Emergency Provincial Stockpile as of December 31, 2020**

Prepared by the Office of the Auditor General of Ontario

#	Supplier	Cost of Ordered PPE (\$) <sup>1</sup>	Cost of Received PPE (\$)	% of Issued Purchase Orders
1	PRIMED medical	214,117,826	174,421,673	81
2	Frontier Dental Supply	76,403,376	73,493,547	96
3	Medline Canada Corp.	65,341,711	32,592,967	50
4	CC Global Solutions Inc.	51,794,663	48,387,456	93
5	Cardiomed Supplies Inc.	34,450,000	31,550,480	92
6	Medquest Medical Inc.	32,400,000	21,288,040	66
7	Sterling Industries	32,150,000	31,841,625	99
8	Canada Emergency Medical Manufacturers (CEMM)	30,162,600	31,145,400	103 <sup>2</sup>
9	Smartsilk Corporation	29,260,000	29,260,000	100
10	George Courey Inc.	28,750,000	26,963,735	94
11	MIP Inc.	25,600,000	16,268,666	64
12	OT Marketing Group Ltd	19,957,958	19,339,671	97
13	Citadel AB	17,146,080	5,076,288	30
14	Fellfab Limited	13,244,550	10,835,799	82
15	Voreia Industries Inc.	11,767,471	8,886,360	76
16	Leading System Consultants	10,001,836	7,745,354	77
17	International Custom Products	7,250,000	3,298,125	45
18	Safe Direct Medical Supplies	5,889,517	5,908,148	100 <sup>3</sup>
19	Pacer Air Freight	4,920,000	4,920,000	100
20	Acklands-Grainger Ltd	4,862,708	3,072,303	63
	Other	35,142,354	32,978,496	94
	<b>Total</b>	<b>750,612,650</b>	<b>619,274,133</b>	<b>83</b>

1. Includes shipping costs.

2. Vendor mistakenly over-shipped additional PPE.

3. Rounding in calculation is due to average cost being used.

Treasury Board. We also noted in **Chapter 4, Management of Health-Related COVID-19 Expenditures of our COVID-19 Preparedness and Management Special Report**, issued in May 2021, that MGCS received Treasury Board approval for \$250 million on April 28, 2020. All purchase orders made by MGCS were funded and paid for by MGCS. In April 2020, MGCS was given responsibility for securing PPE for the non-health-care sector (for example, firefighters and correctional services) and began placing large orders of PPE on its own.

Deliveries to MGCS began arriving late in March and in April. In the early months of the pandemic, MGCS received only limited amounts

of the PPE it had ordered. We noted that up until June 30, 2020, MGCS received only 49%, or about \$108 million, of the \$222 million value of PPE that it had ordered since March 18.

The total PPE purchase orders MGCS issued for 2020 (March through December) came to over \$364 million. **Figures 15a** and **15b** summarize the dollar amounts ordered and received by MGCS as of December 31, 2020. Overall, by the end of December, MGCS received about \$290 million worth, or 80%, of the about \$364 million of PPE it ordered in 2020. By this time supply chains had begun to stabilize across most categories with gloves remaining as

**Figure 14: Jurisdictions from Which PPE Procured for Emergency Provincial Stockpile, March 18–December 31, 2020, Was Shipped**

Source of data: Ministry of Health

Jurisdiction <sup>1</sup>	Total Cost (\$)²	% of Total
China	455,189,998	60
Canada	156,425,131	21
Turkey	51,794,663	7
US	44,381,086	6
Vietnam	19,957,958	3
India	16,844,210	2
Canada/US³	5,830,610	1
Other countries	188,994	<1
<b>Total</b>	<b>750,612,650</b>	<b>100</b>

1. The information provided indicates a source location for shipping purposes. The shipping source may not always be where the product is manufactured.
2. Includes shipping costs.
3. The distributors in this jurisdiction category shipped PPE to Ontario from multiple locations in Canada and the US.

the most challenging category and making up the majority of the noted gap. **Appendix 10a** has a breakdown of the cost of PPE ordered, and **Appendix 10b** shows the cost of the PPE received by MGCS, with cumulative totals month by month. **Appendix 10c** has a breakdown of the quantities of PPE ordered, and **Appendix 10d** shows the quantities of PPE received by MGCS, with cumulative totals month by month.

MGCS ordered this \$364 million of PPE from the suppliers shown in **Figure 16**, which also shows deliveries by value by supplier as of December 31, 2020. The PPE was shipped from the locations noted in **Figure 17**.

#### 4.2.5 New Warehouses and Distribution Centres Had to Be Leased During the Pandemic

The warehouse space that the province had available prior to COVID-19 needed to be significantly expanded to store the much larger orders of PPE being received and distributed from the increasing emergency provincial stockpile. The Ministry of Health, Ontario Health and the Ministry of Government and

Consumer Services entered into new contracts to set up warehouses and regional distribution centres. The terms of the contracts incorporate fixed and variable components to accommodate the varying inventory levels throughout the year, and the contracts have a renewal option.

Prior to COVID-19, a company called Metro Logistics Inc. operated two provincial warehouses for the Ministry of Health. These are located in the Greater Toronto Area (GTA). As the province began procuring unprecedented quantities of PPE, it needed more warehouse space for it. The Ministry of Health amended its existing contract with Metro Logistics Inc. to use six more of Metro's existing warehouse locations. Metro Logistics Inc.'s eight provincial warehouse locations shipped PPE mainly to regional warehouses but also directly to PPE recipients where necessary.

In addition, Emergency Medical Assistance Team (EMAT), which is a transfer payment agency of the Ministry of Health, provided warehousing support occasionally as when needed. The Ministry of Government and Consumer Services also sought out more storage space. On April 7, 2020, it contracted with a company called DSV to operate a tenth warehouse to be used for non-health-sector recipients of PPE.

The Ministry of Health and Ontario Health also contracted with four additional companies for regional warehouse space and shipping services:

- Healthcare Materials Management Services (HMMS) operates one warehouse that ships PPE primarily to western and southern Ontario.
- The Stevens Company Limited operates one warehouse that ships PPE primarily to central and eastern Ontario.
- Northern Supply Chain operates two warehouses that ship PPE primarily to northern Ontario centres, such as Sudbury and Thunder Bay. Northern Supply Chain also temporarily operated one storage facility to store PPE for the Ministry of Health, but this was later phased out.
- Champlain Health Supply Services, which is owned and operated by hospitals in the Ottawa area, operates three warehouses. The Ministry

**Figure 15a: Purchase Orders (POs) Issued by MGCS for Emergency Provincial Stockpile PPE and Received by MGCS, March 21–June 30, 2020**

Source of data: Ministry of Government and Consumer Services

PPE Type	\$ Amount of Issued PO	\$ Amount Received	% of Issued POs Received
Coveralls	6,789,204	222,301	3
Face shields and goggles	14,573,449	12,696,780	87
Gloves	4,970,481	947,316	19
Hand sanitizer	48,261,185	14,143,362	29
Masks	129,287,016	70,354,436	54
N95 respirators	4,362,975	1,170,186	27
Other*	14,015,952	8,373,127	60
<b>Total</b>	<b>222,260,262</b>	<b>107,907,508</b>	
<b>Overall (%)</b>			<b>49</b>

\* Other includes frames, headbands, visors, disinfectant wipes and cleaning supplies.

**Figure 15b : Purchase Orders (POs) Issued by Ministry of Government and Consumer Services (MGCS) for Emergency Provincial Stockpile of PPE and Received by MGCS as of December 31, 2020**

Source of data: Ministry of Government and Consumer Services

PPE Type	\$ Amount of Issued PO	\$ Amount Received	% of Issued POs Received
Masks	154,936,986	134,403,399	87
Hand sanitizer	91,461,544	88,394,264	97
Gloves	59,128,817	14,944,476	25
Face shields and goggles	17,363,089	16,412,916	95
Coveralls	8,468,204	6,589,205	78
N95 respirators	4,362,975	2,956,491	68
Other*	28,551,568	26,678,919	93
<b>Total</b>	<b>364,273,183</b>	<b>290,379,670</b>	
<b>Overall (%)</b>			<b>80</b>

\* Other includes frames, headbands, visors, disinfectant wipes and cleaning supplies.

was able to use two of the three warehouses temporarily for PPE storage until July 25, 2020, when Stevens Company Limited took over the shipping of PPE to eastern Ontario.

**Figure 18** shows the warehousing and distribution arrangements for PPE to be shipped to recipients.

## RECOMMENDATION 5

To help inform the newly established Supply Ontario agency on best practices for procurement of personal protective equipment (PPE) for both

the health-care and non-health-care sectors, and to improve the province's response to any future event such as a pandemic, we recommend that the Ministry of Health and Ministry of Government and Consumer Services:

- collaborate to develop lessons learned in the creation of new procurement processes and warehouse and distribution centres;
- help transfer this knowledge and incorporate lessons learned and best practices into Supply Ontario's operations; and

**Figure 16: Top 20 Suppliers of PPE Ordered by Ministry of Government and Consumer Services, as of December 31, 2020**

Source of data: Ministry of Government and Consumer Services

#	Supplier	Cost of Ordered PPE (\$)*	Cost of Received PPE (\$)	% of Issued Purchase Orders Received
1	Apollo Health & Beauty	62,117,432	62,117,432	100
2	Woodbridge Foam Corporation	31,250,000	31,250,000	100
3	BYD Canada	24,648,000	24,648,000	100
4	PRIMED	21,545,000	9,531,098	44
5	Leading System	18,920,000	16,940,000	90
6	Dental Brands	16,460,000	16,460,000	100
7	G K Chemical	13,932,784	13,425,437	96
8	ClearMask	12,000,000	4,500,360	38
9	Virox Technologies	11,885,980	10,355,417	87
10	Foreman Manufacturing	8,908,700	83,700	1
11	Smartsilk	8,540,000	0	0
12	Fisher Scientific	7,480,580	6,074,095	81
13	Pacer Air Freight	7,396,610	5,247,370	71
14	WPB Holding	7,305,070	0	0
15	Pro Form Products	6,646,600	6,646,600	100
16	Dynamic Tire	6,385,000	6,385,000	100
17	Applied Lubrication Technology	6,318,507	6,126,007	97
18	Akran Marketing	6,253,360	0	0
19	Canada Goose	5,240,000	5,040,000	96
20	C6 Medical	4,441,656	4,441,656	100
	Other	76,597,904	61,107,498	80
	<b>Total</b>	<b>364,273,183</b>	<b>290,379,670</b>	<b>80</b>

\* Includes shipping costs.

- revise the Ontario Health Plan for an influenza pandemic to incorporate lessons learned.

## MINISTRY RESPONSE

The Ministry of Government and Consumer Services and Ministry of Health agrees with this recommendation. Both ministries will review lessons learned about PPE procurement and will incorporate new best practices into the creation of new procurement processes and warehouse and distribution centres. A collaborative and robust plan will be put in place to incorporate these lessons learned into Supply Ontario's future planning and operations. The lessons learned will also

be incorporated into the updated Ontario Health Plan for Influenza or whichever Ministry plan/agreement is most appropriate to ensure their long-term adoption and adherence.

**Figure 17: PPE Ordered by Ministry of Government and Consumer Services, March–December 31, 2020**

Source of data: Ministry of Government and Consumer Services

Source Jurisdiction <sup>1</sup>	Total Cost (\$) <sup>2</sup>	% of Total
Canada	186,482,243	51
China	105,045,973	29
Malaysia	18,558,952	5
US	7,802,592	2
China/Malaysia	3,300,000	1
Mexico	949,000	<1
Thailand	798,000	<1
Singapore	740,000	<1
Other	40,596,423	11
<b>Total</b>	<b>364,273,183</b>	<b>100</b>

1. The information provided indicates a source location for shipping purposes. The shipping source may not always be where the product is manufactured.

2. Includes shipping costs.

## 4.3 Pandemic Revealed Ontario's Vulnerability to Disruption of PPE Supply

### 4.3.1 Global PPE Availability Was Significantly Reduced as Demand Surged

COVID-19 spread very rapidly worldwide from China; within only a few weeks, countries around the world began to try to procure large quantities of PPE. On February 7, 2020, the World Health Organization reported that the global demand for PPE had increased a hundredfold. Prices had risen up to 20 times higher than normal, and orders for PPE were backlogged for four to six months. See **Appendix 11** for a timeline of key events in the global spread of COVID-19, including events relating to the disruption of the supply of PPE.

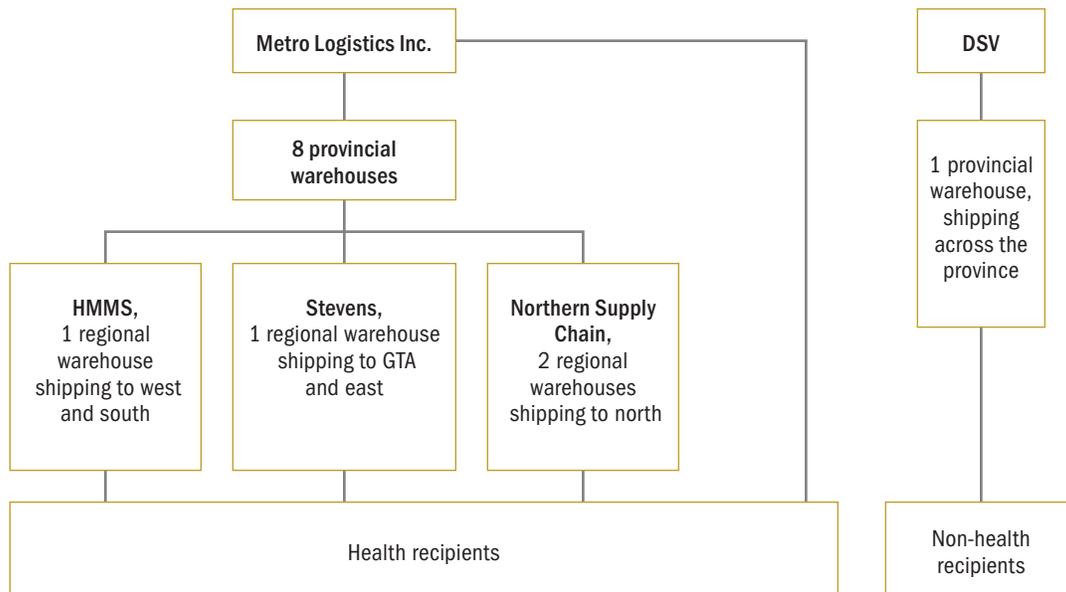
In Ontario, many health-care providers anticipated shortages (see **Section 4.2.1**), as suppliers placed limits on the amounts they could order and the province at first was not able to provide clarity on procurement and distribution from its emergency PPE stockpile. Reacting to Ontario's vulnerability to disruption of its PPE supply, some of the province's health-care providers made procurement decisions that required additional effort and costs.

As global demand surged, the availability of PPE worldwide was significantly reduced because of the following:

- China's domestic demand for PPE spiked, such that in January and February 2020, China increased its imports of PPE and reduced its exports to the rest of the world. (As mentioned in **Section 2.5**, much of the world's PPE is manufactured in China, accounting for about half the world's supply of respirators, for example.) This shrank the supply of critical medical gear available on global markets.
- On January 24, 2020, most of China's PPE manufacturers either scaled down production significantly or shut it down altogether for the annual seven-day Lunar New Year holidays.
- Between February 4 and February 9, 2020, Canada's federal government shipped 16 tonnes of PPE from its national emergency stockpile to help China meet its domestic demand. This reduced the amount of PPE available in Canada when COVID-19 cases began to increase.
- On March 14, 2020, the European Union and the United Kingdom implemented stringent export controls on their manufactured PPE, effectively preventing export altogether. One of the models of N95 respirators in high demand in Ontario, as in

**Figure 18: Storage and Distribution System for PPE from the Emergency Provincial Stockpile**

Prepared by the Office of the Auditor General of Ontario



many countries around the world, was the Model 1870+, which is manufactured in the United Kingdom and so was no longer available from that country from that date. (This mask achieves a very close facial fit while helping the wearer breathe and while providing a high degree of filtration of harmful particles and viruses; “N95” is the respirator’s rating class that indicates that the mask is safe to use if the wearer’s environment is “non-oil”—with no oil-based particulate in the air. When fitted properly, these respirators are expected to filter out at least 95% of potentially harmful particles.)

With the surge in global demand for PPE, many unlicensed Chinese companies began to manufacture lower-quality PPE to take advantage of the rising prices. After European buyers began complaining about the substandard PPE, the Chinese government banned the export of PPE manufactured by unlicensed firms on April 2, 2020.

Of the 102 Chinese companies that were exporting PPE up to that point, just 21 were licensed. The other 81 manufacturers had to apply for a government licence to continue to export their PPE. This

effectively removed many of these manufacturers from the market, because the process of applying for and obtaining a licence was usually complicated and time-consuming.

#### 4.3.2 Suppliers Placed Strict Limits on How Much PPE Ontario’s Health-Care Providers Could Order

The worldwide shortage of PPE caused suppliers in January 2020 to place strict limits on the quantity of PPE that Ontario’s health-care providers could order. Suppliers allocated available PPE mostly to pre-existing customers and in some instances to new customers who were in urgent need of PPE. The allocations of available inventory were based on the proportion of amounts of PPE that these health-care providers had procured prior to COVID-19. For example, in late January 2020, the manufacturer 3M notified suppliers and health-care providers in Ontario that it would begin to distribute available manufactured N95 respirators based on historical supply percentages and would be unlikely to accommodate any orders beyond those percentages.

During our audit, we confirmed with Ontario's three of the main distributors (two of which are also suppliers) of PPE—Cardinal Health, Medline/Medical Mart and Stevens, all of which receive their products from manufacturers such as 3M—that they allocated PPE on the basis of historical purchasing percentages. For example, if a hospital or a long-term-care home had a history of purchasing 20% of a supplier's stock pre-pandemic, then that same hospital or long-term-care home would be allocated no more than 20% of the available PPE inventory from the supplier during the pandemic, when inventory was limited. These suppliers explained that this approach was implemented very early in the pandemic to prevent hoarding and ensure customers would continue to receive supplies. In a letter to its customers on product inventory, a supplier indicated that measures were being implemented to protect inventory and support service continuity, as demand for PPE had increased significantly—10 times and 28 times respectively for all face masks and N95 respirators compared to demand pre-COVID-19.

Ontario produced little to none of its own PPE, pre-pandemic. We noted in our 2007 Outbreak Preparedness and Management report that “medical supplies such as masks, gloves, gowns, and hand sanitizers were mostly made outside Canada, in places where the influenza pandemic may originate and where border closure is a possibility during a global epidemic.” **Section 4.3.3** discusses how the manufacture of N95 respirators in Ontario is being planned.

### 4.3.3 Manufacturing PPE in Ontario

#### 3M to Manufacture N95 Respirators in Ontario

N95 respirators are among the most critical PPE front-line workers use to help safeguard themselves from COVID-19.

The Ontario government and the federal government entered into separate agreements in August 2020 with 3M Canada to expand its Brockville, Ontario, manufacturing facility to produce made-in-Ontario N95 respirators in order to reduce the risk of supply chain interruptions, which have

been prevalent during the pandemic. The two levels of government each committed to match 3M's investment of \$23.3 million to support 3M's total capital costs of \$70 million. The expanded facility is expected to produce 156 million respirators annually to support private sector, Ontario and federal Government demand, for five years, beginning in early 2021. Ontario will be receiving 25 million respirators annually plus an additional 8 million annually from the federal government; this is projected to be sufficient to meet Ontario's ongoing needs for N95 respirators. The respirators in this stockpile will be rotated into the provincial supply chain. On April 7, 2021, the first shipments of N95 respirators from the Brockville plant began, with about 700,000 being shipped to health-care, educational and other public-sector institutions. As of June 14, 2021, the Ontario government had shipped over 1.5 million made-in-Ontario N95 respirators across various sectors.

Before these agreements were made, Quebec-based Medicom signed a 10-year agreement with the federal government to manufacture and supply N95 respirators and surgical masks beginning in April 2020. Medicom's combined contracts are worth more than \$113 million, and include providing 24 million surgical masks and 20 million N95 respirators to the federal government each year. These masks will be stored in the national emergency stockpile and distributed to provinces as needed.

#### PRIMED to Manufacture Surgical and Procedure Masks for Ontario

Treasury Board/Management Board of Cabinet approved an accelerated competitive procurement of surgical/procedure masks for five years valued up to \$190 million and to be awarded via multiple contracts. The contract was tendered July 6, 2020, and the first contract proponent, PRIMED Medical Products, was announced on November 16, 2020. Under the contract it is to manufacture 50 million levels 1 and 2 surgical/procedure masks annually in Cambridge, Ontario, for the five years. There have been two subsequent contracts awarded (Canada Masq

Corporation and Viva Distribution Canada) during the period of this audit with a 4th and final contract undergoing final due diligence.

### Ontario Together Fund Supports Ontario Businesses to Produce PPE and Critical Supplies and Equipment

On April 1, 2020, the province launched the \$50 million Ontario Together Fund, and in March 2021 extended it with an additional \$50 million, to support Ontario businesses in retooling their operations and increasing their capacity to manufacture PPE. Its purpose was both to help with the ongoing response to the COVID-19 pandemic and to prepare Ontario for future public health emergencies. The recipients of the grant committed to making PPE in Ontario and not export the PPE abroad without the approval of the Province. However, in many cases, the province itself does not have any contractual procurement commitments with these businesses. As of May 31, 2021 the province had awarded \$55 million in grants to 54 companies ranging from \$51,000 to \$2.5 million per grant. The following are three examples of grants made to support PPE production:

- Southmedic received \$1.8 million to help retool its production system. This has allowed it to double its output of oxygen masks, triple its output of ETCO<sub>2</sub> masks, which are used to monitor breathing prior to ventilator use, and quadruple its output of eye and face shields. The funding also helped the company reorganize its production facility to allow for physical distancing.
- Sterling Industries received \$1,023,325, which allowed it to increase its output of face shields from 200,000 per week to more than a million per week. The company plans to accelerate delivery of 10 million face shields to the Ministry of Health.
- SRB Technologies received \$59,889 to help convert a portion of its production system used for manufacturing emergency lighting for the nuclear, aerospace, construction and defence sectors to manufacturing medical-grade face shields. These will be supplied to regional hospitals and long-term-care facilities.

## RECOMMENDATION 6

For the Ontario Government, health sector and non-health-care sector to have sufficient supply of personal protective equipment (PPE) available during and after the COVID-19 pandemic and to make Ontario less vulnerable to sudden market movements in price and supply, we recommend that the Ministry of Health, the Ministry of Government and Consumer Services and Supply Ontario collaborate and use the information on PPE supply and burn rates they collect in modernizing Ontario's supply chain process (Recommendation 3) and improving procurement decisions (Recommendation 4) to:

- analyze both qualitatively and quantitatively what the optimal balance is between manufacturing PPE domestically and procuring PPE internationally, and use this information in future decision-making; and
- put in place long-term formal agreements with domestic companies that can be triggered when emergencies arise, where these companies can scale up the production of PPE to meet peak demands brought on by health events such as pandemics.

## MINISTRY RESPONSE

The Ministry of Government and Consumer Services and the Ministry of Health agree with the recommendation that a secure and resilient supply chain for PPE will ensure sectors in Ontario have sufficient supplies to meet their needs and be less vulnerable to global supply disruptions and fluctuations in the market conditions. Supply Ontario will analyze both qualitatively and quantitatively what the optimal balance is between manufacturing PPE domestically and procuring PPE internationally and will use this information in its decision making to ensure the security of supply and value for money for PPE.

MGCS has begun to put in place long-term agreements for critical PPE, including domestic arrangements for surgical masks and

N95 respirators and will place agreements with domestic companies that have the ability to scale up the production of PPE to meet demands brought on by an emergency in future health events such as pandemics.

#### 4.4 SARS Recommendation on Transparent Communication about PPE Allocation Not Followed

The SARS Commission found that during the SARS outbreak, Ontario government directives on N95 respirators and other worker safety issues “failed to provide the detailed advice that health workers, their supervisors and their employers needed.” It recommended that, in any future infectious disease crisis, the provincial government develop and implement an effective communication system in order to ensure front-line health-care workers and employers receive needed information in a timely manner.

However, we found that in its response to COVID-19, the province did not publicly communicate matters relating to PPE allocation.

##### 4.4.1 Neither the Ministry of Health nor the Ministry of Government and Consumer Services Publicly Communicated Their Ethical Allocation Framework on How Scarce PPE Would Be Allocated

On April 5, 2020, the government established a sub-table under the then Health Command Table called the “Control Table”; its first meeting took place on April 7, 2020. Its task was to decide how health-care providers should access PPE in response to COVID-19 and how that PPE should be distributed. Members of the Control Table and their affiliations are shown in **Appendix 3**. The Ministry of Health and the Ministry of Government and Consumer Services co-lead the table.

A provincial Bioethics Table comprising independent bioethics experts from health institutions, universities and non-governmental organizations developed an Ethical Allocation

Framework (Framework) on April 10, 2020 that the Control Table then was to use to guide its decisions on the allocation of PPE for times when the province was facing a high system-level risk of scarcity in PPE. **Appendix 4** summarizes the principles underlying the Framework.

One of the key principles in the development of the Framework was to foster trust, which should be achieved by communicating the Framework, including the rationale for the criteria informing the decisions, in a clear, transparent and timely manner. As part of our audit, we reviewed documentation from weekly meetings of the Control Table from its inception and found that on April 23, 2020 the Control Table presented a draft communications strategy for the public release of the Framework that was intended “to support ethical, consistent and quick allocation to get these critical supplies from the provincial supply to where they are most needed.”

According to the communications strategy, the Framework was to be “posted transparently to the Ministry of Health website and distributed for reference across the province.” On May 14, 2020, the public release of the Framework was only included in a decision note of the Control Table as one of the “next steps”; however, the Framework was not publicly posted on a website or broadly distributed. As of May 31, 2021, the Framework had not been publicly highlighted and disclosed.

We were informed by the Ministry of Health that it intended to present the Framework to stakeholders via personal presentations instead of posting it publicly. We noted that the Ministry of Health and the Ministry of Government and Consumer Services had presented the Framework on June 2, 2020 to Community Health Ontario (which represents the majority of the non-profit home care, community support, mental health, addictions and community governed primary health care organizations in Ontario), explaining the process that would be followed for allocation of PPE and the allocation criteria that would be used. Although other stakeholders requested similar presentations to gain an

understanding of the Framework, these stakeholders informed us that they did not receive any information or presentations regarding the Framework.

Unlike Ontario, British Columbia publicly posted its COVID-19 Emergency Prioritization for PPE in its Pandemic Personal Protective Equipment (PPE) Allocation Framework in March 2020.

We noted that even though Ontario did not publicly release the Ethical Allocation Framework for PPE, it did publicly release its Ethical Framework for COVID-19 Vaccine Distribution on December 30, 2020.

#### 4.4.2 Some Stakeholders Frustrated by Gaps in Ministry Communication and Lack of Transparency on PPE Allocation

In March 2020, the government established the Collaboration Table as one of the sub-tables under the then Health Command Table. The Collaboration Table includes representatives from more than 30 health-sector stakeholder organizations and from several ministries. Its function is to provide updates, raise issues and make suggestions to the Ministry of Health and Ontario Health on all health matters, including PPE. Collaboration Table members and their respective organizations are shown in **Appendix 12**.

We reviewed the minutes of the weekly meetings conducted by the Table from April 2 to June 18, 2020. We also interviewed some members of the Collaboration Table representing health-sector organizations in Ontario including primary care, nursing, midwives and paramedics to learn their various perspectives.

We found that throughout the month of April 2020, representatives attending weekly meetings had recurring concerns and were frustrated by the gaps in public communication surrounding PPE. These included concerns over the allocation of supplies from the emergency provincial PPE stockpile and specifically, the processes used to allocate PPE, the province's distribution priorities and how to access PPE.

At the June 18, 2020 Collaboration Table meeting, the Ministry of Health

gathered input regarding the pandemic response to date. Table members shared key issues with respect to PPE, including their conclusion that they and the public still needed more transparency on the supply and allocation of PPE. However, the PPE Ethical Allocation Framework was not made public.

### RECOMMENDATION 7

To provide the public with transparent information on the supply and distribution of personal protective equipment (PPE), we recommend that the Ministry of Health and the Ministry of Government and Consumer Services:

- publicly communicate the Ethical Allocation Framework for PPE and post it on their websites; and
- incorporate the Ethical Allocation Framework for PPE into the updated Ontario Health Plan for an influenza pandemic.

### MINISTRY RESPONSE

The Ministry of Government and Consumer Services and Ministry of Health agree with this recommendation and agree with the need for transparency in allocation and distribution decisions, where supplies are scarce. The ethical allocation framework was developed and tailored to support the specific risks, vulnerabilities and context associated with this pandemic. This framework will be communicated and posted on our websites and will be incorporated into the updated Ontario Health Plan for an Influenza Pandemic or into other relevant Ministry outputs understanding that each pandemic/response presents different challenges and may require different responses with regard to PPE allocation (e.g., a pandemic with community spread versus a pandemic contained to hospitals).

### 4.4.3 The Control Table Followed the PPE Ethical Allocation Framework to Allocate PPE in Ontario

To determine if the Control Table did in fact use the Framework in making its weekly allocations, we reviewed meeting minutes, including allocation decisions made at the Control Table, for a sample of five weeks within the peak period of the first wave (April, May and June of 2020), and found that the Control Table did appropriately use the Framework in all the decisions we sampled. We also reviewed a sample of requests and shipments from the Ministry of Health to the health-care sector, and a sample of shipments from MGCS to the non-health-care sector, and found that regional staff distributed PPE in a manner consistent with the allocation decisions and directions provided by the Control Table.

## 4.5 Health-Care Workers Were Not Always Properly Protected with PPE

In January 2017, the Ministry of Labour, Training and Skills Development (Ministry) developed the Occupational Disease Action Plan, with the goal of preventing hazardous exposures in the workplace and reducing illnesses and fatalities associated with occupational diseases. The 28 activities to be undertaken under the plan include training initiatives and standards, health-hazard identification and management, and enforcement strategies.

According to the *Occupational Health and Safety Act* and Ontario Regulation 67/93 Health Care and Residential Facilities, employers are responsible for the safety of their employees, including ensuring that employees use PPE appropriate to the hazard.

Employers are also responsible for providing training to their employees on the appropriate use of PPE to prevent exposure to infection. Pursuant to the *Health Protection and Promotion Act*, health-care employers must also adhere to directives issued by Ontario's Chief Medical Officer of Health. These directives state, for example, that hospitals, long-term-care homes and retirement homes are responsible for providing PPE appropriate to the hazard to their staff. In

addition to the Act and directives, Public Health Ontario provides infection prevention and control recommendations and best practices for use of PPE.

### 4.5.1 Orders Issued by the Ministry of Labour, Training and Skills Development for Workplace PPE Violations in 2020 Increased Tenfold from 2019

The Ministry of Labour, Training and Skills Development (MLTSD) receives complaints about possible violations of occupational health and safety requirements, and conducts investigations into them. If a complaint is substantiated, MLTSD can issue an order to the employer, or other workplace party, to comply with the *Occupational Health and Safety Act* and its regulations. MLTSD also conducts inspections of workplaces based on risk factors such as their past occupational health and safety performance and compliance history.

We obtained all 3,729 field visit reports that MLTSD issued to health-care providers in 2020 and the 1,384 issued in 2019. Our review of these found a tenfold increase in orders issued for PPE violations compared to the prior year: out of the 599 orders issued for violations, MLTSD issued 229 orders for PPE violations to 148 health-care providers (including to 64 long-term-care homes and 20 hospitals) in 2020, compared to only 22 orders for PPE violations (out of a total of 713 orders) to 17 health-care providers in 2019 (with one hospital, one long-term-care home and one retirement home receiving an order in both years). About half of the 229 orders resulted from inspections due to complaints or notifications of COVID-19 illness, while the other half were issued as a result of risk-based inspections. **Figure 19** summarizes this information. Frequent PPE violations resulted from lack of sufficient training of employees by employers on the proper use and storage of PPE during work breaks; employees' lack of access to appropriate PPE (including N95 respirators) when required; and employers

failing to ensure that employees were trained on how to properly wear and use PPE.

In January 2017 the Ministry of Labour, Training and Skills Development (Ministry) developed the Occupational Disease Action Plan, whose goal is to prevent hazardous exposures in the workplace and to reduce illnesses and fatalities associated with occupational diseases. The 28 activities to be undertaken under the plan include training initiatives and standards, health-hazard identification and management, and enforcement strategies. Our Office's 2019 report on Health and Safety in the Workplace noted details of this plan and found that the Ministry had implemented only one-half of the 28 activities to be undertaken under the plan by November 2019.

## RECOMMENDATION 8

To reduce the risk of exposure of health-care providers and their patients to infection and illness by safer and more effective use and handling of personal protective equipment (PPE) by staff, we recommend that the Ministry of Labour, Training and Skills Development complete the activities outlined in the Occupational Disease Action Plan (as listed in **Appendix 7** of our 2019 audit report on Health and Safety in the Workplace), assess the plan's effectiveness periodically, and make adjustments if necessary.

## MINISTRY RESPONSE

The Ministry agrees with the recommendation and will review the activities outlined in the Occupational Disease Action Plan (ODAP) to identify the safer and more effective uses and handling of personal protective equipment (PPE) by workers and will use this to inform and update the Ministry's Prevention Division's new five-year strategy which will take the place of ODAP.

**Figure 19: Orders Issued by the Ministry of Labour, Training and Skills Development for PPE Violations, January 1–December 31, 2020**

Source of data: Ministry of Labour, Training and Skills Development

Health-Care Provider	PPE Violations	
	# of Providers	# of Orders
Long-term-care homes	64	99
Retirement homes	41	73
Hospitals	20	28
Group homes	9	12
Nursing services	7	9
Professional offices and agencies	4	5
Treatment clinics and specialized services	2	2
Other	1	1
<b>Total</b>	<b>148</b>	<b>229</b>

### 4.5.2 Public Health Ontario Found Infection Control and PPE Non-compliance in Long-Term-Care and Retirement Homes During the Pandemic

Public Health Ontario provides technical advice on public health to Ontario's health sector in areas such as infection prevention and control (IPAC). It has staff in seven locations who work with health-care providers that can call on IPAC specialists to form a site visit team if required. The team tours the facility that has requested help to observe IPAC practices and makes recommendations on how these can be improved.

We reviewed all Public Health Ontario's reports issued to 113 health-care providers between March 18 and December 31, 2020. Each had been prepared for either a long-term-care home or a retirement home seeking Public Health Ontario's IPAC expertise. In these reports, we noted that Public Health Ontario identified a total of 322 instances of PPE and other IPAC non-compliance, including lack of training on proper PPE use and inadequate supplies of PPE. For example, at one long-term-care home, some staff did not know how to correctly put on and take

off PPE. In 79 long-term-care homes Public Health Ontario found 239 instances of infection control and PPE non-compliance, and in 34 retirement homes it found 83 instances. **Figure 20** summarizes the deficiencies in PPE practices observed by Public Health Ontario during its visits.

**Section 4.1** of our **Chapter 5, *Pandemic Readiness and Response in Long-Term Care*** report, issued in April 2021, highlights that there were deficiencies in infection prevention and control, and staff education, in long-term-care homes. It cites an Ontario Nurses Association survey of nurses employed in long-term-care homes in which only 21% of respondents reported having received in-person training in putting on and removing PPE.

Because **Chapter 5's** Recommendations 5, 7 and 8 address the deficiencies in programs and practices for infection prevention and control, health inspections and outbreak response plans in long-term-care homes, no recommendations regarding PPE are provided in this report.

**Figure 20: Deficiencies in PPE Practices Observed by Public Health Ontario in 79 Long-Term-Care and 34 Retirement Homes, March 18–December 31, 2020**

Prepared by the Office of the Auditor General of Ontario

Supplier	Long-Term Care (79 Homes)	Retirement (34 Homes)	Total
Improper use or lack of use of PPE	124	39	<b>163</b>
Poor infection prevention practices*	55	19	<b>74</b>
Lack of access to PPE	21	15	<b>36</b>
Lack of proper PPE training	25	1	<b>26</b>
Missing or ineffective signage on use of PPE	10	9	<b>19</b>
Improper use or lack of use of PPE / Lack of proper PPE training	4	0	<b>4</b>
<b>Total</b>	<b>239</b>	<b>83</b>	<b>322</b>

Note: This table was created by the Office of the Auditor General of Ontario based on a review of observed deficiencies in PPE and infection prevention and control practices noted in field visit reports issued by Public Health Ontario to health-care providers.

\* Poor infection prevention practices included issues not directly related to PPE use, such as lack of cleaning products, lack of housekeeping staff, failure to follow hand hygiene best practices, and failure to screen visitors and staff before they are allowed to enter the home.

## Appendix 1: Different Types of PPE

Prepared by the Office of the Auditor General of Ontario with permission of the owners of the images



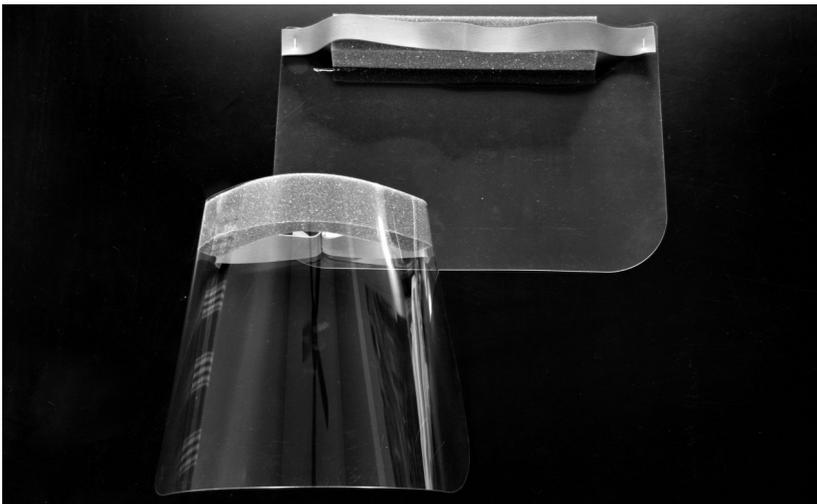
### GOWNS

Protect the wearer from the spread of infection and help prevent the wearer from transferring micro-organisms that could harm patients in hospitals and residents in long-term-care homes.



### GLOVES

Provide a barrier of protection to hands and help prevent the spread of germs from the wearer's hands.



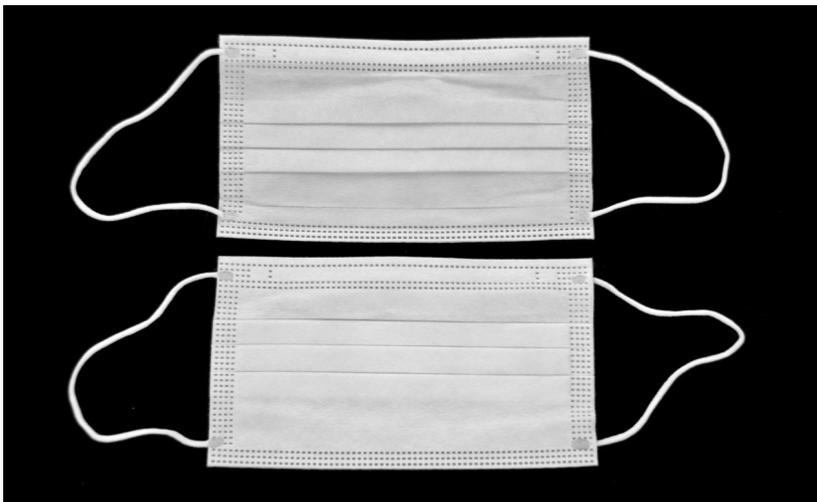
### FACE SHIELDS

Provide a barrier of protection to the facial area, but do not perform as well as non-medical face coverings, masks and respirators to prevent the wearer from transmitting potentially infectious droplets that could harm others in close proximity.



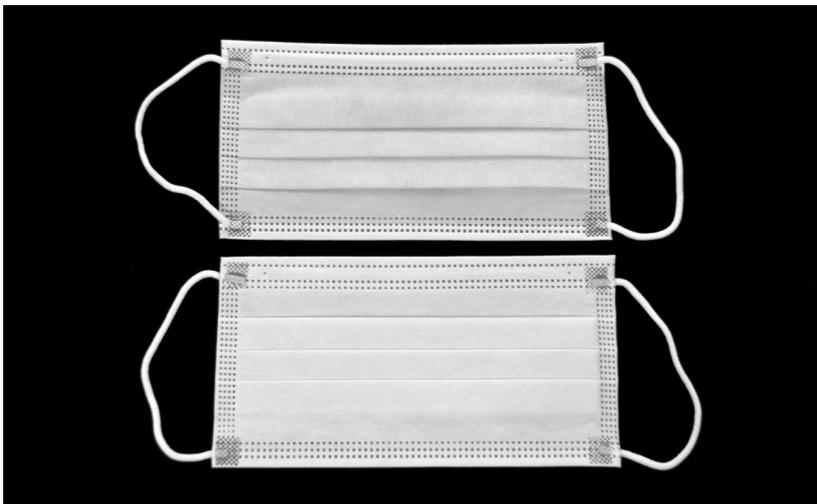
### NON-MEDICAL FACE COVERINGS OR MASKS

Provide a barrier to the facial area and help prevent the wearer from transmitting potentially infectious droplets that could harm others in close proximity. Appropriate for community, retail and other settings when it is not possible for the wearer to keep at least two metres away from others.



### PROCEDURE MASKS

Used by health-care professionals to perform patient procedures. Are attached to the wearer by ear loops instead of straps and provide protection in homes, medical offices and areas of hospitals other than operating rooms.



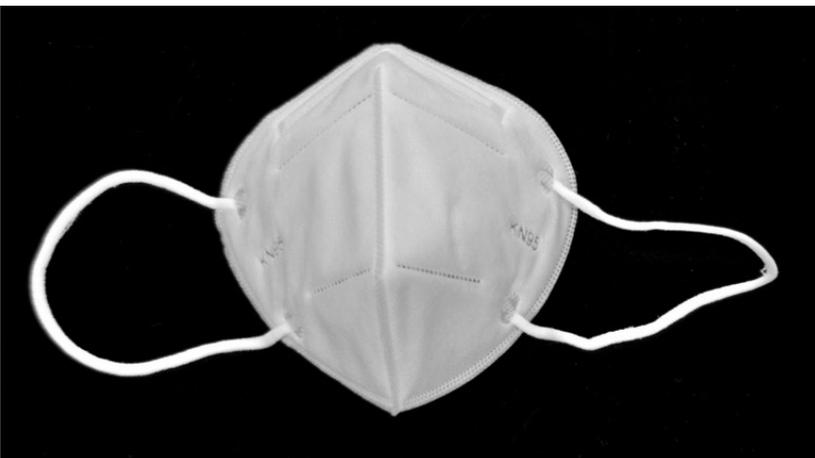
### SURGICAL MASKS

Used by health-care professionals during surgeries: provide more protection than procedure masks. Are attached to the wearer by straps securing the mask to the face that are tied over top of a surgical cap. Provide protection against the higher risk of fluid exposure in operating rooms.



### N95 RESPIRATORS

Achieve a very close facial fit while helping the wearer breathe and while providing a high degree of filtration of harmful particles and viruses (95% or higher). “N95” is the respirator’s rating class that indicates that it is safe to use if the wearer’s environment is “non-oil”—with no oil-based particulates in the air. Are the standard for respirator masks in Canada and the United States.



### KN95 RESPIRATORS

Similar to N95 respirators in that they achieve a very close facial fit while helping the wearer breathe and while providing a high degree of filtration of harmful particles and viruses (95% or higher). They differ from N95 respirators in three respects:

- (1) They are the standard for masks in China.
- (2) Manufacturers are required by the Chinese government to run fit tests on human subjects to ensure minimal leakage. (N95 manufacturers are not required to run fit tests, although many health-care organizations that purchase N95 respirators require their workers to be fit-tested.)
- (3) They must meet slightly lower breathability standards than N95 respirators.



## Appendix 2: Ministry of Health Directive #5 for Hospitals and Long-Term-Care Homes (Applicable also to Retirement Homes), April 7, 2021

Source of data: Ministry of Health

### Required Precautions and Procedures

All public hospitals and long-term care homes must immediately implement the following precautions and procedures, as applicable to regulated health professionals as defined under the *Regulated Health Professions Act, 1991* employed by or in public hospitals and long-term care homes and, where specified, any other individual employed by or in public hospitals and long-term care homes (“health care workers”) when dealing with suspected, probable or confirmed COVID-19 patients or residents:

- Public hospitals and long-term care homes, regulated health professionals and health care workers must engage on the conservation and stewardship of personal protective equipment (PPE). Public hospitals and long-term care homes must provide all regulated health professionals and other health care workers with information on the safe utilization of all PPE and all regulated health professionals and other health care workers must be appropriately trained to safely don and doff all PPE.
- Public hospitals and long-term care homes must assess the available supply of PPE on an ongoing basis. Public hospitals and long-term care homes must explore all available avenues to obtain and maintain a sufficient supply of PPE.
- In the event that the supply of PPE reaches a point where utilization rates indicate that a shortage will occur, the government and employers, as appropriate, will be responsible for communicating PPE supply levels and developing contingency plans, in consultation with affected labour unions, to ensure the safety of regulated health professionals and other health care workers.
- The public hospital’s or long-term care home’s Organizational Risk Assessment must be continuously updated to ensure that it assesses the appropriate health and safety control measures to mitigate the transmission of infections, including engineering, administrative and PPE measures. This must be communicated to the Joint Health and Safety Committee, including the review of the hospital or long-term care environment when a material change occurs.
- A point-of-care risk assessment (PCRA) must be performed by every regulated health professional before every patient or resident interaction in a public hospital or long-term care home.
- If a regulated health professional determines, based on the PCRA, and based on their professional and clinical judgement and proximity to the patient or resident, that an N95 respirator may be required in the delivery of care or services (including interactions), then the public hospital or long-term care home must provide that regulated health professional and other health care workers present for that patient or resident interaction with a fit-tested N95 respirator or approved equivalent or better protection. The public hospital or long-term care home will not deny access to a fit-tested N95 respirator or approved equivalent or better protection if determined by the PCRA.
- For public hospitals in COVID-19 outbreak, as declared by the local Medical Officer of Health, and for long-term care homes with one laboratory-confirmed case of COVID-19 in a staff member or a resident, if a health care worker comes in contact with a suspected, probable or confirmed case of COVID-19 in a patient or resident where 2 metre distance cannot be assured, the health care worker can determine if a fit-tested N95 respirator or approved equivalent or better protection is needed and must receive this additional precaution.
- At a minimum, for regulated health professionals and other health care workers in a hospital or a long-term care home, Droplet and Contact Precautions must be used by regulated health professionals and other health care workers for all interactions with suspected, probable or confirmed COVID-19 patients or residents. Droplet and Contact Precautions include gloves, face shields or goggles, gowns, and surgical/procedure masks.
- For long-term care homes only, all staff must wear surgical/procedure masks at all times for source control for the duration of full shifts. This is required regardless of whether the home is in an outbreak or not. When staff are not in contact with residents or in resident areas during their breaks, staff may remove their surgical/procedure mask but must remain two metres away from other staff to prevent staff to staff transmission of COVID-19. Visitors should use a face covering if the visit is outdoors. If the visit is indoors, a surgical/procedure mask must be worn at all times.
- All regulated health professionals and health care workers interacting with suspected, probable or confirmed COVID-19 patients or residents where two metre distance cannot be assured shall have access to appropriate PPE. This will include access to: surgical/procedure masks, fit tested NIOSH-approved N95 respirators or approved equivalent or better protection, gloves, face shields with side protection (or goggles) and appropriate isolation gowns.

- The PCRA by the regulated health professional should include the frequency and probability of routine or emergent Aerosol Generating Medical Procedures (AGMPs) being required. N95 respirators, or approved equivalent or better protection, must be used by all regulated health professionals and health care workers in the room where AGMPs are being performed, are frequent or probable.

AGMPs include but are not limited to: Intubation and related procedures (e.g. manual ventilation, open endotracheal suctioning), cardio pulmonary resuscitation, bronchoscopy, sputum induction, non-invasive ventilation (i.e. BiPAP), open respiratory/airway suctioning, high frequency oscillatory ventilation, tracheostomy care, nebulized therapy/aerosolized medication administration, high flow heated oxygen therapy devices (e.g. ARVO, optiflow) and post-mortem care. Any change to this list is to be based on the Technical Brief “Updated IPAC Recommendations for Use of Personal Protective Equipment for Care of Individuals with Suspect or Confirmed COVID-19” dated January 29th, 2021 as amended from time to time which has been prepared by Public Health Ontario.

In accordance with O. Reg 68/20 made under the *Retirement Homes Act*, retirement homes must take all reasonable steps to follow the required precautions and procedures outlined in this Directive.

[...]

**Hospitals, long-term care homes and HCWs [health care workers] are also required to comply with applicable provisions of the *Occupational Health and Safety Act* and its Regulations.**

Note: Directive #5 was issued by the Chief Medical Officer of Health of Ontario. The initial Directive #5 was dated March 30, 2020 and subsequently revised on October 8, 2020. This version replaces the Directive #5 dated October 8, 2020.

## Appendix 3: Members of the Control Table

Source of data: Ministry of Health

Member Name	Member Affiliation	Date Joined	Status as of March 31, 2021
<b>Heidi Francis</b> , Chair (was co-chair until October 2020)	Associate Deputy Minister, Ontario Shared Services, Ministry of Government and Consumer Services	Apr 2020	Still a member
<b>Fredrika Scarth</b> (co-chair)	Ministry of Health	Apr 2020	No longer a member
<b>Catherine Brown</b>	Ontario Health	Apr 2020	Still a member
<b>Karen Hughes</b>	Deputy Minister, Ministry of Government and Consumer Services	Apr 2020	Still a member
<b>Doug Kent</b>	ADM/Chair of Supply Chain Management Table, Ministry of Government and Consumer Services	Apr 2020	Still a member
<b>Dr. Tom Stewart</b>	President and CEO St. Joseph's Health System	Apr 2020	No longer a member
<b>Dr. Jennifer Gibson</b>	University of Toronto Bioethics	Apr 2020	Still a member
<b>Dr. Chris Simpson</b>	Ontario Health Clinical Lead	Apr 2020	Still a member
<b>Dr. Gary Garber</b>	Public Health Ontario, Scientific Lead at Provincial Infectious Diseases Advisory Committee	Apr 2020	No longer a member
<b>Shelley Unterlander</b>	ADM, Ministry of the Solicitor General	Apr 2020	No longer a member
<b>Mena Zaffino</b>	ADM, Ministry of the Solicitor General	Aug 2020	No longer a member
<b>Keith Palmer</b>	ADM, Ministry of the Solicitor General	Jan 2021	Still a member
<b>Michael Robertson</b>	Director, Ministry of Long-Term Care	Apr 2020	Still a member
<b>Jacqueline Cureton</b>	ADM, Ministry of Seniors and Accessibility	Apr 2020	Still a member
<b>David Remington</b>	ADM, Ministry of Children, Community, and Social Services	Apr 2020	Still a member
<b>Sophie Dennis</b>	Special Advisor, Labour Relations	Apr 2020	Still a member
<b>Ron Kelusky</b>	Chief Prevention Officer, Ministry of Labour	Apr 2020	Still a member
<b>Robert Maisey</b>	Counsel—Legal Services Branch, Ministry of Health	Apr 2020	Still a member
<b>Sean Court</b>	ADM, Health Transformation, Ministry of Health	Apr 2020	No longer a member
<b>Didem Proulx</b>	ADM, Ministry of Education	Aug 2020	Still a member
<b>Sean Keelor</b>	Director, Ministry of Children, Community and Social Services	Apr 2020	Still a member
<b>Kelly Shields</b>	ADM, Ministry of Colleges and Universities	Apr 2020	Still a member
<b>Amy Gartner</b>	Manager, Pandemic Response and Public Health Modernization	Oct 2020*	Still a member
<b>Kyle MacIntyre</b>	ADM, Health Transformation, Ministry of Health	Jan 2021	Still a member
<b>Clint Shingler</b>	Director, Pandemic Response and Public Health Modernization	Apr 2020*	No longer a member
<b>Sarah Levitt</b>	Manager, Pandemic Response and Public Health Modernization	Oct 2020*	Still a member
<b>Justine Hartley</b>	Director, Pandemic Response and Public Health Modernization	Oct 2020*	Still a member

Note:

Support role only—Mirella Orofino, Ministry of Health (April 2020–October 2020).

Support role only—Lilly Whitham, Ministry of Health (April 2020–October 2020).

\* Previously on the Secretariat Support and moved to a member role. Starting in January 2021, the Ministry of Government and Consumer Services (former Ministry of Health role) began to provide secretariat support to the Control Table. This includes, but is not limited to, setting up meetings, developing or co-ordinating meeting materials, tracking meeting notes, decision points and next steps. The Secretariat also helps support issues management relating to the mandate of the Control Table and other duties as assigned. The Working Team provides advice as needed.

## Appendix 4: Ethical Allocation Framework, Effective April 10, 2020

Source of data: Ministry of Health

<b>STAGE 1: Confirm Supply and Risk</b>	
The Control Table confirms joint understanding/assessment of system-level risk and available supply in stockpiles and within institutions.	
<b>STAGE 2: Allocation Tiers<sup>1</sup>: Primary Allocation Principles<sup>2</sup></b>	
Prioritization occurs by balancing <b>Critical Societal Function</b> , <b>Essential Work-Function</b> , the <b>Risk of Exposure</b> , <b>Vulnerability of a Population</b> and <b>Urgent Need</b> . <sup>3</sup>	
<b>Tier 1</b>	
<ul style="list-style-type: none"> <li>Hospitals, first with the highest number of COVID-19 hospitalizations and/or vented cases and least available supply</li> <li>Long-term-care homes and retirement homes, first those in outbreak</li> <li>Health-care services providing essential care to vulnerable patients or in settings where transmission is high risk (e.g., home and community care, hospice, health-care services for First Nations or Indigenous populations, primary care for the most vulnerable)</li> <li>Congregate living settings in outbreak or at risk of outbreak (e.g., correctional facilities, shelters, group homes, community and supportive housing)</li> <li>Ambulance, Emergency Medical Services, first responders asked to transport a confirmed case, then first responders otherwise</li> <li>Vulnerable populations at a greater risk of exposure, non-health settings with first suspected cases and higher risk of exposure</li> <li>First Nations communities that have confirmed or presumptive cases or are remote/rural, and Indigenous organizations providing Tier 1 services</li> </ul>	
<b>Tier 2</b>	<b>Tier 3</b>
<ul style="list-style-type: none"> <li>Pathology Services</li> <li>Coroner Services</li> <li>Food Processing Facilities</li> <li>Live Animal Processing Facilities</li> <li>Waste, Water and Waste Water Services</li> <li>Essential Transportation Services</li> <li>Mortuary Services</li> <li>Pharmacy Services</li> </ul>	<ul style="list-style-type: none"> <li>Public Transit</li> <li>Inspections, Investigations and Enforcement</li> <li>Probation and Parole Officers</li> <li>Children's Aid Society (i.e., administrative services, not congregate living and/or care)</li> <li>Court Services</li> <li>Victim Services</li> <li>Animal Welfare Services</li> <li>Residential Facilities open due to presence of international students (e.g., universities, colleges)</li> <li>Logistics and Distribution</li> </ul>
<b>STAGE 3: Apply Secondary Allocation Principles</b>	
Escalate to Stage 3 only if needed (i.e., in a situation of extreme scarcity).	
The Ministry Emergency Operations Centre will develop contingency plans for allocation in the event of extreme scarcity.	

1. These tiers are not static; if an outbreak occurs, prioritization shifts.

2. These principles were to be followed for all allocation of PPE, but the processes for allocating PPE could vary across regions of the province.

3. Urgent Need is to be assessed as **Low**, **Moderate** or **Highest**. Factors to consider in making these assessments are: the current supply of PPE in each institution and region; the burn rate (the rate of consumption of PPE); the projected use (three or seven days); the confirmed Cases of COVID-19 in a region or institution; the number of patients on ventilators; whether there is an assessment centre in the region or attached to an institution; and the region's population.

## Appendix 5: Audit Criteria

Prepared by the Office of the Auditor General of Ontario

- 
1. Effective and efficient processes are in place to ensure that the Ministry of Health's pandemic stockpile of personal protective equipment is effectively monitored, maintained and ready for use in emergency situations.
- 
2. Effective and periodic reporting processes are in place to monitor health-care providers' inventory of personal protective equipment, including usage and procurement, for the purpose of making informed procurement and distributions of the Ministry's pandemic stockpile.
- 
3. Ontario's health-care sector's supply chain structure is effective in meeting increased demands for personal protective equipment in emergency situations.
- 
4. Effective policies exist to ensure the Ministry collaborates transparently with the health-care sector when responding to the personal protective equipment needs of health-care providers during COVID-19 and other emergency situations.
- 
5. Effective processes exist to ensure that health-care providers maintain a sufficient inventory of personal protective equipment at all times, so as to be prepared in the event of emergency situations, and provide adequate training and access to the personal protective equipment.
-

## Appendix 6: Deterioration Associated with Expired PPE, by Type

Source of data: Ministry of Health

Type of PPE	Potential Deterioration of Expired PPE
<b>Gloves</b>	Materials break down over time, including synthetic and natural rubber (latex) in gloves. Gloves kept beyond their expiration date can become brittle and tear or crack when stretched.
<b>Face shields</b>	It is generally not the shield but the head strap that deteriorates over time. An expired head strap may become brittle and prone to break, which might break the intended seal.
<b>N95 respirators/KN95 respirators</b>	Straps on the masks may become brittle and prone to break, which might break the intended seal.
<b>Goggles</b>	Straps on the goggles may become brittle and prone to break, which might break the intended seal.
<b>Gowns</b>	Materials become brittle over time and could break and/or crack.
<b>Surgical/procedure masks</b>	Straps on the masks may become brittle and prone to break, which might break the intended seal.

Note: Expired PPE is destroyed by a company specializing in destruction services. Non-flammable PPE is destroyed by incineration. Hand sanitizers, which are flammable, cannot be incinerated; they are picked up by the destruction company and either blended into other flammable sludges (such as industrial paints/adhesives) and then solidified and sent to a hazardous waste landfill, or bled into large volumes of flammable liquids (such as alcohols) and sent for use as alternative fuel in cement kilns.

## Appendix 7: Summary of 2017 Healthcare Sector Supply Chain Strategy Expert Panel Recommendations

Source of data: Ministry of Health

### Recommendations

- 1 A Single Integrated Structure: Organization Consolidation
- 2 The Entity's Mandate, Scope and Scale
- 3 Toward Fuller Healthcare Participation
- 4 A Robust Financial and Business Model
- 5 Strengthening Clinical Engagement
- 6 Building Capability to Undertake Value-Based Procurement
- 7 Procuring Innovative Products and Solutions
- 8 Addressing the Regulatory Environment
- 9 Data Integration and Analysis, Performance and Reporting Framework
- 10 Mechanisms for Feedback, Engagement and Inclusion
- 11 A Framework for Full Product Traceability
- 12 Transition to the New Model

### Appendix 8a: Cost of PPE Ordered by Ministry of Health, March–December 2020 (\$)

Source of data: Ministry of Health

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls and gowns	1,656,416	100,060,107	322,420,811	422,546,891	422,546,891	422,546,891	422,546,891	422,546,891	422,546,891	422,546,891
Face shields and goggles	3,571,000	38,224,500	38,224,500	38,224,500	38,224,500	38,224,500	38,224,500	38,224,500	38,224,500	38,224,500
Gloves	3,612,352	20,870,842	87,826,042	87,826,042	87,826,042	87,826,042	87,826,042	87,826,042	87,826,042	87,826,042
Hand sanitizer	0	1,846,650	7,161,933	7,161,933	7,161,933	7,161,933	7,161,933	7,161,933	7,161,933	7,161,933
Masks	53,546,000	101,189,500	117,739,673	117,739,673	120,839,971	120,839,971	120,839,971	120,839,971	120,839,971	123,683,971
N95 respirators*	1,405,756	1,725,756	1,752,428	12,120,722	12,845,507	12,845,507	12,845,507	61,402,172	62,581,588	67,793,788
Other	80,000	3,235,524	3,375,524	3,375,524	3,375,524	3,375,524	3,375,524	3,375,524	3,375,524	3,375,524
<b>Total</b>	<b>63,871,524</b>	<b>267,152,879</b>	<b>578,500,912</b>	<b>688,995,285</b>	<b>692,820,369</b>	<b>692,820,369</b>	<b>692,820,369</b>	<b>741,377,034</b>	<b>742,556,450</b>	<b>750,612,650</b>

\* The Ministry of Health also procured an additional 5 million N95 respirators for \$26.5 million on May 31, 2020, through a federal government initiative outside the regular UHN procurement process. The Ministry received all 5 million by December 31, 2020.

### Appendix 8b: Cost of PPE Received by Ministry of Health, March–December 2020 (\$)

Source of data: Ministry of Health

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls and gowns	0	1,757,099	13,177,403	30,570,161	74,814,861	121,867,218	177,510,215	251,011,031	346,100,273	370,285,721
Face shields and goggles	0	1,890,625	6,316,496	12,216,968	19,609,280	28,244,096	32,019,776	32,085,440	32,085,440	37,931,360
Gloves	1,375,619	2,537,454	2,537,454	3,119,534	3,701,614	4,574,734	5,354,734	11,418,551	17,813,173	25,713,769
Hand sanitizer	0	0	1,559,723	7,105,013	7,105,013	7,105,013	7,105,013	7,105,013	7,105,013	7,105,013
Masks	0	9,855,260	26,980,083	46,991,758	61,458,048	77,120,976	84,860,136	100,956,407	107,454,967	115,338,117
N95 respirators*	0	168,992	427,889	1,110,046	4,156,131	4,713,095	18,958,691	20,405,248	44,726,439	59,912,585
Other	0	139,274	289,859	568,239	618,079	2,853,343	2,853,343	2,887,391	2,887,391	2,987,569
<b>Total</b>	<b>1,375,619</b>	<b>16,348,704</b>	<b>51,288,906</b>	<b>101,681,718</b>	<b>171,463,025</b>	<b>246,478,474</b>	<b>328,661,908</b>	<b>425,869,081</b>	<b>558,172,695</b>	<b>619,274,133</b>

\* The Ministry of Health also procured an additional 5 million N95 respirators for \$26.5 million on May 31, 2020, through a federal government initiative outside the regular UHN procurement process. The Ministry received all 5 million by December 31, 2020.

## Appendix 8c: Number of PPE Units Ordered by Ministry of Health, March–December 2020

Source of data: Ministry of Health

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls and gowns	514,980	9,525,165	29,167,165	42,208,365	42,208,365	42,208,365	42,208,365	42,208,365	42,208,365	42,208,365
Face shields	1,398,000	12,898,000	12,898,000	12,898,000	12,898,000	12,898,000	12,898,000	12,898,000	12,898,000	12,898,000
Gloves	47,371,460	240,897,460	766,974,260	766,974,260	766,974,260	766,974,260	766,974,260	766,974,260	766,974,260	766,974,260
Hand sanitizer	0	158,120	908,512	908,512	908,512	908,512	908,512	908,512	908,512	908,512
Masks	84,400,000	144,246,000	166,046,000	166,046,000	166,492,000	166,492,000	166,492,000	166,492,000	166,492,000	176,492,000
N95 respirators*	721,020	741,020	743,760	1,734,680	1,812,340	1,812,341	1,812,342	7,988,380	10,769,940	11,399,940
Other	4,000	25,791	2,025,791	2,025,791	2,025,791	2,025,791	2,025,791	2,025,791	2,025,791	2,025,791
<b>Total</b>	<b>134,409,460</b>	<b>408,491,556</b>	<b>978,763,488</b>	<b>992,795,608</b>	<b>993,319,268</b>	<b>993,319,269</b>	<b>993,319,270</b>	<b>999,495,308</b>	<b>1,002,276,868</b>	<b>1,012,906,868</b>

\* The Ministry of Health also procured an additional 5 million N95 respirators for \$26.5 million on May 31, 2020, through a federal government initiative outside the regular UHN procurement process. The Ministry received all 5 million by December 31, 2020.

## Appendix 8d: Number of PPE Units Received by Ministry of Health, March–December 2020

Source of data: Ministry of Health

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls and gowns	0	189,575	1,390,323	3,229,259	7,279,113	11,707,142	17,483,029	25,772,155	37,172,190	39,134,808
Face shields	0	428,375	1,785,555	3,946,715	6,471,035	9,500,795	10,825,595	10,848,635	10,848,635	12,899,835
Gloves	9,393,320	22,392,820	22,392,820	30,952,820	39,512,820	52,352,820	58,602,820	120,339,820	182,939,320	250,653,820
Hand sanitizer	0	0	190,800	896,028	896,028	896,028	896,028	896,028	896,028	896,028
Masks	0	15,430,000	36,340,550	66,741,050	86,978,450	110,321,945	119,759,945	143,827,435	154,899,435	169,016,435
N95 respirators*	0	52,450	74,940	106,854	478,742	540,546	2,210,666	2,807,366	5,981,833	7,819,064
Other	0	6,113	178,241	1,304,241	2,016,241	2,017,882	2,017,882	2,017,986	2,017,986	2,018,292
<b>Total</b>	<b>9,393,320</b>	<b>38,499,333</b>	<b>62,353,229</b>	<b>107,176,967</b>	<b>143,632,429</b>	<b>187,337,158</b>	<b>211,795,965</b>	<b>306,509,425</b>	<b>394,755,427</b>	<b>482,438,282</b>

\* The Ministry of Health also procured an additional 5 million N95 respirators for \$26.5 million on May 31, 2020, through a federal government initiative outside the regular UHN procurement process. The Ministry received all 5 million by December 31, 2020.

## Appendix 9: Number of PPE Units Provided by Government of Canada to Ontario, Cumulative, March–December 2020

Source of data: Ministry of Health and Ministry of Government and Consumer Services

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Face shields/goggles	0	0	809,472	2,681,074	3,454,610	4,453,642	7,326,026	7,332,826	7,356,051	7,356,051
Gloves	0	4,114,830	6,215,830	18,996,980	43,729,980	69,498,180	98,077,180	140,111,580	208,198,180	250,559,180
Gowns/coveralls	0	0	119,050	551,826	1,922,119	2,916,223	3,294,453	3,791,263	5,318,507	5,741,007
Hand sanitizer	0	1,581	9,602	403,274	732,014	948,648	948,648	948,648	948,648	948,648
Masks	0	7,632,600	10,066,600	15,616,800	27,798,800	38,840,300	41,306,300	41,323,200	50,494,700	52,343,700
N95 respirators	0	160,300	236,843	241,943	1,571,703	4,987,723	7,418,123	7,635,963	14,043,563	14,377,363
Other	0	426,960	2,585,480	2,962,040	2,968,600	6,860,740	6,860,740	6,860,740	8,659,780	8,659,780
<b>Total</b>	<b>0</b>	<b>12,336,271</b>	<b>20,042,877</b>	<b>41,453,937</b>	<b>82,177,826</b>	<b>128,505,456</b>	<b>165,231,470</b>	<b>208,004,220</b>	<b>295,019,429</b>	<b>339,985,729</b>

Note: The Ontario government did not have to pay for the federally transferred emergency stockpile of PPE.

## Appendix 10a: Cost of PPE Ordered by Ministry of Government and Consumer Services, March–December 2020 (\$)

Source of data: Ministry of Government and Consumer Services

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls	0	947,285	5,790,204	6,789,204	6,789,204	6,789,204	6,789,204	8,468,204	8,468,204	8,468,204
Face shields and goggles	64,512	14,025,201	14,573,449	14,573,449	14,573,449	14,573,449	14,573,449	16,083,949	16,231,261	17,363,089
Gloves	7,700	821,685	4,920,916	4,970,481	5,245,481	41,011,477	49,805,977	49,931,417	59,128,817	59,128,817
Hand sanitizer	11,566,624	46,990,640	47,701,978	48,261,185	48,788,001	48,792,241	62,036,186	75,317,544	76,861,544	91,461,544
Masks	33,340,000	100,789,516	125,327,016	129,287,016	129,287,016	141,202,016	141,383,626	141,383,626	141,383,626	154,936,986
N95 respirators	0	4,362,975	4,362,975	4,362,975	4,362,975	4,362,975	4,362,975	4,362,975	4,362,975	4,362,975
Other*	4,800,000	13,412,114	14,015,952	14,015,952	14,015,952	16,847,874	23,877,157	27,780,018	27,780,018	28,551,568
<b>Total</b>	<b>49,778,836</b>	<b>181,349,416</b>	<b>216,692,490</b>	<b>222,260,262</b>	<b>223,062,078</b>	<b>273,579,236</b>	<b>302,828,574</b>	<b>323,327,733</b>	<b>334,216,445</b>	<b>364,273,183</b>

\* Other includes frames, headbands, visors, disinfectant wipes and cleaning supplies.

## Appendix 10b: Cost of PPE Received by Ministry of Government and Consumer Services, March–December 2020 (\$)

Source of data: Ministry of Government and Consumer Services

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls	0	107,285	115,664	222,301	1,394,585	5,095,885	5,869,206	6,589,205	6,589,205	6,589,205
Face shields and goggles	0	2,416,969	8,067,660	12,696,780	13,909,848	14,573,448	14,573,448	14,976,948	16,030,496	16,412,916
Gloves	20,938	675,255	901,178	947,316	1,262,276	1,458,607	4,140,895	4,827,494	9,888,059	14,944,476
Hand sanitizer	8,565	2,911,677	12,601,492	14,143,362	14,423,270	23,318,366	39,810,077	46,073,560	62,517,789	88,394,264
Masks	2,789	4,601,041	33,401,261	70,354,436	92,326,410	112,357,214	129,811,905	133,178,212	134,403,399	134,403,399
N95 respirators	0	404,043	792,481	1,170,186	2,073,111	2,778,611	2,780,116	2,780,116	2,780,116	2,956,491
Other*	1,476	2,438,237	4,874,845	8,373,127	9,583,676	11,317,508	17,683,980	20,602,517	24,732,863	26,678,919
<b>Total</b>	<b>33,768</b>	<b>13,554,507</b>	<b>60,754,581</b>	<b>107,907,508</b>	<b>134,973,176</b>	<b>170,899,639</b>	<b>214,669,627</b>	<b>229,028,052</b>	<b>256,941,927</b>	<b>290,379,670</b>

\* Other includes frames, headbands, visors, disinfectant wipes and cleaning supplies.

### Appendix 10c: Number of PPE Units Ordered by Ministry of Government and Consumer Services, March–December 2020

Source of data: Ministry of Government and Consumer Services

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls	0	106,500	319,100	419,100	419,100	419,100	419,100	649,100	649,100	649,100
Face shields and goggles	20,160	3,708,720	3,927,420	3,927,420	3,927,420	3,927,420	3,927,420	4,227,420	4,276,524	4,596,300
Gloves	25,000	6,967,300	49,747,700	50,347,700	53,097,700	259,271,700	315,121,700	315,905,700	367,865,700	367,865,700
Hand sanitizer	1,060,000	7,456,196	7,506,236	7,516,419	7,528,245	7,528,302	9,219,902	10,212,642	10,372,642	11,372,642
Masks	17,500,000	73,139,660	98,639,660	102,639,660	102,639,660	109,189,660	109,329,360	109,329,360	109,329,360	114,728,520
N95 respirators	0	4,265,000	4,265,000	4,265,000	4,265,000	4,265,000	4,265,000	4,265,000	4,265,000	4,265,000
Other*	120,000	2,483,103	7,295,671	7,295,671	7,295,671	7,785,899	8,236,279	8,487,783	8,487,783	8,602,887
<b>Total</b>	<b>18,725,160</b>	<b>98,126,479</b>	<b>171,700,787</b>	<b>176,410,970</b>	<b>179,172,796</b>	<b>392,387,081</b>	<b>450,518,761</b>	<b>453,077,005</b>	<b>505,246,109</b>	<b>512,080,149</b>

\* Other includes frames, headbands, visors, disinfectant wipes and cleaning supplies.

### Appendix 10d: Number of PPE Units Received by Ministry of Government and Consumer Services, March–December 2020

Source of data: Ministry of Government and Consumer Services

PPE Type	Wave 1					Wave 2				
	Mar 31	Apr 30	May 31	Jun 30	Jul 31	Aug 31	Sep 30	Oct 31	Nov 30	Dec 31
Coveralls	0	46,500	47,100	50,045	154,830	343,342	381,957	419,100	419,100	419,100
Face shields and goggles	0	487,220	1,875,735	3,447,964	3,816,821	3,927,421	3,927,421	3,994,088	4,230,771	4,312,238
Gloves	106,007	5,788,221	8,185,121	8,744,902	11,827,902	13,618,832	29,830,732	35,847,504	62,370,058	89,114,202
Hand sanitizer	1,459	429,069	2,375,809	2,428,381	2,513,387	4,333,409	5,736,688	6,365,304	8,108,225	11,214,647
Masks	396	3,026,854	26,436,765	58,212,456	77,067,304	91,279,799	102,413,031	104,107,422	104,676,218	104,676,218
N95 respirators	0	87,133	167,133	219,426	1,019,266	2,019,266	2,021,399	2,021,399	2,021,399	2,271,399
Other*	322	52,907	136,248	285,335	334,644	3,369,604	4,800,252	6,051,256	6,186,812	6,318,629
<b>Total</b>	<b>108,184</b>	<b>9,917,904</b>	<b>39,223,911</b>	<b>73,388,509</b>	<b>96,734,154</b>	<b>118,891,673</b>	<b>149,111,480</b>	<b>158,806,073</b>	<b>188,012,583</b>	<b>218,326,433</b>

\* Other includes frames, headbands, visors, disinfectant wipes and cleaning supplies.

## Appendix 11: Timeline of Key Events in Global Spread of COVID-19, December 2019–December 2020

Prepared by the Office of the Auditor General of Ontario

Date	Event
Dec 8, 2019	A patient in Wuhan, China seeks medical help for pneumonia-like symptoms, later confirmed to be caused by COVID-19.
Dec 31, 2019	Chinese authorities inform the World Health Organization (WHO) of a cluster of pneumonia cases of unknown cause in Wuhan province, subsequently identified as COVID-19.
Jan 12, 2020	China shares the genetic sequence of COVID-19 with other countries.
Jan 13, 2020	The WHO reports the first case of COVID-19 outside of China (in Thailand).
Mid-January	China begins to stop exporting the personal protective equipment (PPE) produced in its factories in order to meet growing domestic demand.
Jan 24, 2020	Most of China's PPE manufacturers scale down production or shut down for the annual one-week Lunar New Year holiday.
Jan 27, 2020	Ontario confirms its first case of COVID-19. The virus is also confirmed in 13 countries around the world, mostly in Asia.
Jan 30, 2020	The WHO declares COVID-19 to be a global emergency. The virus is confirmed in 20 countries.
Feb 7, 2020	The WHO announces that the worldwide demand for PPE has increased by 100 times, with prices up to 20 times higher than normal. Orders for PPE are backlogged for four to six months.
Feb 9, 2020	The government of Canada ships 16 tonnes of PPE to China, including clothing, face shields, masks, goggles and gloves.
Feb 10, 2020	The Chinese government begins importing PPE from Europe, Japan and the United States to help make up for a shortfall in its domestic supply.
Feb 28, 2020	Ontario's Ministry of Health establishes a Health Command Table as a source of advice to the Minister of Health, cabinet and the Premier.* The Health Command Table holds its first meeting.
Mar 1, 2020	COVID-19 is confirmed in 64 countries around the world.
Mar 2, 2020	The provincial government made its first request to the federal government for PPE. Ontario received continuous PPE shipments from the federal government from March 2020 onwards.
Mar 3, 2020	The WHO warns that severe and mounting disruption to the global supply of PPE—caused by rising demand, panic-buying, hoarding and misuse—is putting lives at risk from COVID-19 and other infectious diseases. The WHO calls on industry and governments to increase PPE manufacturing by 40% to meet rising global demand.
Mar 11, 2020	The WHO declares COVID-19 to be a global pandemic.
Mar 11, 2020	Ontario records its first death attributed to COVID-19.
Mar 12, 2020	Ministry of Health reaches out to the University Health Network for assistance in procuring PPE.
Mar 13, 2020	A public health emergency is declared in Quebec under the <i>Public Health Act</i> . The Quebec Public Health Act emergency measures cover a wide range of areas, such as the ability to close schools and daycares and limit indoor gathering size.
Mar 14, 2020	Members of the European Union and its free-trade partners, including the United Kingdom, implement a regulation controlling the export of PPE, including N95 respirators manufactured in the United Kingdom and used widely by Ontario health-care providers, to other countries.
Mar 16, 2020	Prince Edward Island declares a state of public health emergency.
Mar 17, 2020	British Columbia's Provincial Health Officer declares the COVID-19 pandemic to be an emergency under the <i>Public Health Act</i> , activating her ability to issue emergency orders.

Date	Event
Mar 17, 2020	The Alberta government declares a state of public health emergency.
Mar 17, 2020	The government of Ontario declares an emergency under s. 7.0.1 (1) of the <i>Emergency Management and Civil Protection Act</i> .
Mar 18, 2020	The British Columbia provincial government declares an emergency under the <i>Emergency Program Act</i> , which allows it to issue additional regulations such as enforcement measures for gatherings and events.
Mar 18, 2020	The government of Saskatchewan declares a provincial state of emergency.
Mar 18, 2020	Newfoundland and Labrador declares a state of emergency.
Mar 18, 2020	The Northwest Territories declare a state of emergency.
Mar 19, 2020	New Brunswick declares a state of emergency.
Mar 20, 2020	The Manitoba government declares a state of emergency.
Mar 21, 2020	The Ontario government launches the Ontario Together web portal to connect it with local manufacturers, entrepreneurs and innovators to provide essential supplies and equipment to support front-line health-care workers.
Mar 22, 2020	Nova Scotia declares a state of emergency.
Mar 24, 2020	The Ontario government orders closure of all non-essential businesses across the province.
Mar 24, 2020	COVID-19 is confirmed in 170 countries around the world.
Mar 27, 2020	The Yukon declares a state of emergency.
Mar 27, 2020	The Ontario Minister of Health issues an Order on Critical Supplies and Equipment, which requires the health sector to report daily on its PPE inventory level.
Mar 29, 2020	The Netherlands recalls 600,000 N95 respirators from China due to their poor quality: the masks did not fit well and the filters did not function properly
Apr 1, 2020	The Ontario government announces \$50 million for the Ontario Together Fund. The fund provides grants covering up to 75% of eligible costs, to a maximum of \$2.5 million, to local businesses to invest in equipment and technology to produce medical-grade equipment and critical supplies and services to support the health and safety of Ontarians and front-line health-care workers.
Apr 1, 2020	Because of complaints from European buyers receiving substandard PPE products, China's government bans export of PPE by unlicensed firms. Of the 102 Chinese companies that were previously allowed to export PPE, just 21 are licensed. The other 81 manufacturers are to apply for a licence to continue to export their PPE.
Apr 3, 2020	The United States invokes the <i>Defense Production Act</i> to ban 3M and other manufacturers from exporting PPE to Canada and Latin America.
Apr 6, 2020	3M reaches an agreement with the United States government that will allow the export of N95 respirators to Ontario and the rest of Canada.
Apr 7, 2020	The COVID-19 Control Table has first table meeting, led by the Ministry of Government and Consumer Services and the Ministry of Health. The Control Table is to co-ordinate oversight, access and distribution of PPE in response to COVID-19.
Apr 9, 2020	The Ministry of Health issues the first of six memos to the Treasury Board Secretariat providing a status update on all urgent procurements.
Apr 10, 2020	The COVID-19 Control Table starts making weekly allocations of PPE.
Apr 22, 2020	Ontario requests military support for long-term-care homes.
Apr 24, 2020	An Emergency Order is issued for deployment of resources to long-term-care homes.
Apr 27, 2020	"A Framework for Reopening our Province" is published, establishing the availability of PPE as a criterion for updated public health guidance. The Premier makes a Request for Assistance to the federal government for PPE.
May 8, 2020	Select businesses are allowed to reopen, including garden centres and nurseries.
May 14, 2020	As part of the Ontario Together site, the government launches the Workplace PPE Supplier Directory with 55 pre-selected suppliers to support the reopening of businesses.

Date	Event
May 14, 2020	The public release of the Ethical Allocation Framework is included in a decision note of the Control Table as one of the “next steps”; however, the Framework is not publicly posted on a website or broadly distributed.
May 19, 2020	Ontario enters Stage 1 of reopening.
May 20, 2020	The federal government encourages public face coverings where physical distancing is not possible as part of reopening the economy.
Jun 8, 2020	The Minister of Health issues a second (updated) Order on Critical Supplies and Equipment. This replaces the Minister’s order from March 24 and reduces the requirement for the health sector to report on its PPE inventory level from daily to twice weekly.
Jun 12, 2020	24 public health units begin entering Stage 2 of reopening.
Jun 19, 2020	All remaining public health units (with the exception of Peel Public Health, Toronto Public Health and Windsor-Essex) move to Stage 2 of reopening.
Jun 24 and 25, 2020	Peel Public Health, Toronto Public Health and Windsor-Essex (except for Leamington and Kingsville) enter Stage 2 of reopening.
Jul 7, 2020	Leamington and Kingsville enter Stage 2 of reopening.
Jul 17, 2020	24 public health unit regions begin entering Stage 3 of reopening.
Jul 24, 2020	All remaining public health units (with the exception of Peel Public Health, Toronto Public Health and Windsor-Essex) move to Stage 3 of reopening.
Jul 31, 2020	Peel Public Health and Toronto Public Health enter Stage 3 of reopening.
Aug 5, 2020	Ontario announces transitional PPE support program for community-based health service providers and primary care providers.
Aug 10, 2020	MGCS begins fulfilling PPE orders to support school reopening, involving almost 5,000 schools across the province and almost 2,000 delivery locations.
Aug 12, 2020	Windsor-Essex region enters Stage 3 of reopening; all regions are now in Stage 3.
Aug 21, 2020	Ontario announces its partnership with federal government and 3M Canada on new N95 respirator manufacturing facility. The expanded facility is expected to produce 156 million respirators annually to support private sector, Ontario and Federal Government demand, beginning in early 2021.
Aug 27, 2020	A memorandum of understanding (MOU) is executed to formalize and acknowledge the roles of the Ministry of Health, Ontario Health and the University Health Network in the PPE procurement process.
Sep 17, 2020	The Control Table, which was co-chaired by Ministry of Health and MGCS, transitions to being solely chaired by MGCS.
Oct 1, 2020	Ontario commences one-year agreement with Metro Logistics Inc. for warehousing and distribution services.
Oct 5, 2020	Updated Directive #5 is issued to enhance required health and safety precautions for patients and health-sector workers during the second wave of COVID-19. Applies to regulated health professionals (e.g., nurses) and health-care workers (e.g., PSWs), and mandates greater precautions (such as availability of N95 respirators when needed).
Oct 29, 2020	Provincial support is made available to help long-term-care homes that are not able to secure PPE fit testing services through other means.
Nov 5, 2020	Supply Ontario is established as an integrated supply chain agency to modernize Ontario’s supply chain.
Nov 16, 2020	Ontario announces the first successful vendor from a competitive procurement for Ontario-made surgical masks: PRIMED Canada.
Dec 7, 2020	MGCS launches a pilot of the PPE Supply Portal, to support the ordering of PPE and CSE (critical supplies and equipment). The pilot is limited to four ministries and the system is not implemented across all customers.
Dec 10, 2020	Distribution begins for supplies related to, and PPE for, vaccine administration.
Dec 30, 2020	Province releases the Ethical Framework for COVID-19 vaccine distribution, which was developed in partnership with the COVID-19 Vaccine Distribution Task Force to guide further vaccine prioritization and distribution across the province.

 PPE-related event

\* See the Office of the Auditor General of Ontario’s *2020 Special Report COVID-19 Preparedness and Management*, Chapter 2: Outbreak Planning and Decision-Making, Appendix 9, for a listing of sub-tables formed under the Health Command Table.

## Appendix 12: Members of the Collaboration Table

Source of data: Ministry of Health

Member Name	Member Affiliation	Date Joined	Status as of March 31, 2021
Helen Angus (Chair)	Deputy Minister, Ministry of Health	Mar 2020	Still a member
Alison Blair	Ministry of Health	Mar 2020	Still a member
Melanie Fraser	Ministry of Health	Mar 2020	Still a member
Lisa Levin	AdvantAge	Mar 2020	Still a member
Kavita Mehta	Association of Family Health Teams of Ontario	Apr 2020	Still a member
Adrianna Tetley	Alliance Ontario	Mar 2020	No longer a member
Sarah Hobbs	Alliance Ontario	Oct 2020	Still a member
Adrienne Spafford	Addictions and Mental Health Ontario	Mar 2020	Still a member
Julie Toole	Association of Ontario Midwives	May 2020	Still a member
Kimberly Moran	Children's Mental Health Ontario	Mar 2020	No longer a member
Camille Quenneville	Canadian Mental Health Association—Ontario	Mar 2020	Still a member
Dr. Paul Roumeliotis	Council of Medical Officers of Health	Mar 2020	Still a member
Sue VanderBent	Home Care Ontario	Mar 2020	Still a member
Caroline Lidstone	Indigenous Primary Health Care Council	Apr 2020	Still a member
Dana Cooper	NPAO	Jun 2020	Still a member
Peter Dundas	Ontario Association of Paramedic Chiefs	Oct 2020	Still a member
Leanne Clarke	Ontario College of Family Physicians	Mar 2020	Still a member
Deborah Simon	Ontario Community Support Association	Mar 2020	Still a member
Michael Hurley	Ontario Council of Hospital Unions	Mar 2020	Still a member
Anthony Dale	Ontario Hospital Association	Mar 2020	Still a member
Tamarah Harel	Ontario Hospital Association	Jan 2021	Still a member
Donna Duncan	Ontario Long Term Care Association	Mar 2020	Still a member
Wiesia Kubicka	Ontario Long Term Care Association	Mar 2020	Still a member
Allan O'Dette	Ontario Medical Association	Mar 2020	Still a member
Vicki McKenna	Ontario Nurses Association	Mar 2020	Still a member
Allan Malek	Ontario Pharmacists Association	Mar 2020	No longer a member
Corinne Radake	Ontario Pharmacists Association	Apr 2020	No longer a member
Warren Smokey Thomas	Ontario Public Service Employees Union	Mar 2020	Still a member
Cathy Hecimovich	Ontario Retirement Communities Association	Mar 2020	Still a member
Rhonda Trowell	Professional Association of Residents of Ontario	Jun 2020	Still a member
Dr. Anthea Lafreniere	Professional Association of Residents of Ontario	Apr 2020	No longer a member
Henrietta Van Hulle	Public Services Health and Safety Association	Mar 2020	Still a member
Jay O'Neill	Retirement Homes Regulatory Authority	Mar 2020	No longer a member
Doris Grinspun	Registered Nurses' Association of Ontario	Mar 2020	Still a member
Dianne Martin	Registered Practical Nurses Association of Ontario	Mar 2020	Still a member
Jacinthe Desaulniers	Réseau des services de santé en français de l'Est de l'Ontario	Apr 2020	Still a member
Sue Jones	Respiratory Therapy Society of Ontario	Mar 2020	No longer a member
Sharleen Stewart	SEIU Healthcare	Mar 2020	Still a member
Alisha Tharani	The Centre for Addiction and Mental Health	Mar 2020	Still a member
Wade Hillier	Retirement Homes Regulatory Authority	Mar 2021	Still a member

<b>Member Name</b>	<b>Member Affiliation</b>	<b>Date Joined</b>	<b>Status as of March 31, 2021</b>
Renata Rea	Respiratory Therapy Society of Ontario	Feb 2021	Still a member
Colleen Geiger (OAHPP)	Public Health Ontario	Sep 2020	Still a member
Vanessa Allen	Public Health Ontario	Sep 2020	Still a member
Miranda Ferrier	Ontario Personal Support Workers Association	Apr 2020	No longer a member
Katha Fortier	UNIFOR	Jan 2021	Still a member
Sophie Dennis	UNIFOR	Nov 2020	Still a member
Jim Wright	Ontario Medical Association	Mar 2020	Still a member
Anna Greenberg	Ontario Health	Apr 2020	Still a member
Catherine Brown	Ontario Health	Apr 2020	Still a member
Nancy Cupido	Home Care Ontario	Feb 2021	Still a member
David Hallet	Ministry of Health	Mar 2020	No longer a member
Bernita Drenth	Drenth Consultants Inc.	Apr 2020	Still a member

Note: Support role only – Hanna Ziada, Manager, Strategic Policy Branch, Ministry of Health



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