

COVID-19 Rapid Evidence Profile #7 (13 May 2020)

Questions

What are the international lessons learned from re-opening non-COVID-19 activities in hospitals?

What we found

We identified the 11 salient sections of our taxonomy of decisions related to health-system arrangements that are likely to be relevant to opening non-COVID-19 activities in hospitals:

- service planning for COVID-19 prevention;
- service planning for COVID-19 treatment;
- service planning for the ongoing management of other conditions;
- infrastructure planning and resource allocation;
- workforce planning (including workforce-shortages management) and development;
- service planning for ‘return to normal;’
- funding organizations;
- remunerating providers;
- purchasing products and services;
- professional authority; and
- organizational authority (with the full taxonomy from which it’s drawn available [here](#)).

We also identified the five salient sections of our taxonomy of decisions related to economic and social responses to COVID-19 that are likely to be relevant to opening non-COVID-19 activities in hospitals:

- economic development and growth;
- employment;
- financial protection;
- food safety and security; and
- infrastructure.

We identified 29 evidence documents that provide highly relevant evidence to answer the question. These documents addressed six of the 11 broad decision areas related to health-system arrangements and two (of five) of the broad decision areas related to economic and social responses. These evidence documents include:

- 11 guidelines developed using a robust process (e.g., GRADE);

Box 1: Our approach

We identified research evidence addressing the question by searching the guide to key COVID-19 evidence sources in the 8-12 May 2020 period (www.mcmasterforum.org/find-evidence/guide-to-covid-19-evidence-sources). We identified experiences from other countries and from Canadian provinces and territories by searching jurisdiction-specific websites from government ministries, hospital associations, professional associations, and medical protective associations, with a focus on countries that are further ahead in resuming regular activities within their health systems, as well as searching Canadian provincial and territorial web pages dedicated to COVID-19.

We searched for guidelines that were developed using a robust process (e.g., GRADE), full systematic reviews (or review-derived products such as overviews of systematic reviews), rapid reviews, protocols for systematic reviews, and titles/questions for systematic reviews or rapid reviews that have been identified as either being conducted or prioritized to be conducted. Single studies were only included if no relevant systematic reviews were identified.

We appraised the methodological quality of full systematic reviews and rapid reviews using AMSTAR. Note that quality appraisal scores for rapid reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems.

This rapid evidence response was prepared in three business days to inform next steps in evidence synthesis, guideline development and/or decision-making related to the question that was posed.

- eight full systematic reviews;
- one rapid review;
- two guidelines developed using some type of evidence; and
- seven primary studies of particularly innovative approaches.

In addition, we found seven highly relevant protocols for full systematic reviews and 28 highly relevant titles/questions for reviews that are being planned, which indicate significant interest and forthcoming literature related to the question posed.

We provide below both a narrative summary of lessons learned from the highly relevant evidence documents as well as from two jurisdictional scans (one for other countries and the other for Canadian provinces and territories) and a **table summarizing the main take-home messages about approaches being used and potential pitfalls (Table1)**. Additional details for those who want to know more are provided in Table 2 (for health-system arrangements), Table 3 (for economic and social responses), Table 4 (for experiences from other countries), and Table 5 (for experiences from Canadian provinces and territories). In addition, we provide a detailed summary of our methods in Appendix 1, the full list of included evidence documents (including those deemed of medium and low relevance) in Appendix 2, abstracts for highly relevant documents in Appendix 3, and hyperlinks for documents excluded at the final stage of reviewing in Appendix 4.

Lessons learned from evidence documents about re-opening non-COVID-19 activities in hospitals

Evidence from guidance documents, both those developed using a robust process and those that use some type of evidence synthesis, are dominated by specific conditions that would traditionally be provided within hospitals seeking to continue or resume services in the context of COVID-19. Many of these guidance documents have been developed by relevant professional bodies. These guidelines address the need for ongoing use of personal protective equipment and other prevention strategies, including the diligent disinfection of surfaces and tools, ongoing postponement of low-priority care, using virtual care where possible and available, and prioritizing patients based on clinical risk and procedure type. Guidelines related to cancer-treatment procedures also address the considerations involved in postponing non-urgent appointments given cancer patients' status as a particularly high-risk group. One guidance document includes findings related to economic and social responses that can support the re-opening of non-COVID-19 activities in hospitals. Guidance from the U.S. Center for Disease Control (U.S. CDC) includes recommendations for childcare programs and for the employers of essential workers. Importantly, in both cases the authors emphasize the need for decisions about re-opening non-COVID-19 activities to be informed by the local context and made in tandem with local decision-makers. They further highlight the need to continue to maintain preventive actions, including hand-hygiene practices, good ventilation, proactive cleaning and disinfecting of surfaces, and where possible physical distancing.

The evidence from low- and medium-quality reviews suggests that it is important for hospitals to plan and prepare for a number of changes related to the delivery of surgical procedures, including pre-surgical screening, integrating telehealth for pre-operative consultations and follow-up monitoring when appropriate, enhancing patient- and staff-testing protocols, prioritizing non-aerosolizing anesthesia when possible, minimizing staff and time spent in operating rooms, investing in appropriate equipment and infrastructure to modify clinical environments in order to ensure patient and staff safety in operating rooms and in hospital wards, and adopting clear infection prevention and control measures.

Evidence from medium-quality reviews also suggests that additional efforts are required to ensure that hospital staff and their patients are well prepared and supported in navigating new care environments, and in dealing with the additional stress this may place on them during the care process.

The only highly relevant rapid review focused on the provision of personal protective equipment for front-line health workers as well as the provision of additional supports including mental healthcare, non-performance-based incentives, transportation allowances, and childcare throughout the pandemic. Seven particularly innovative primary studies were also included that focus on scaling up/down emergency room capacity, creating surge-management models, triage protocols, triage protocols for ventilators, infection prevention and control measures, and virtual visits by dedicated ‘internet hospitals’ (which is being done in China).

In addition to the findings included in Table 2, we have previously completed a [rapid evidence profile](#) on what is known about strategies for supporting the use of masks under shortage conditions. Many of the findings from that rapid evidence profile may be relevant to decisions related to when and how to re-open non-COVID-19 activities in hospitals.

Lessons learned from international and Canadian experiences with re-opening non-COVID-19 activities in hospitals

In addition to the brief descriptions of international and Canadian experiences related to health-system arrangements provided in Tables 2 and 3, additional details regarding international experiences can be found in Table 4. In this rapid evidence profile we focus on six countries (Australia, China, New Zealand, South Korea, Sweden and the United Kingdom). We selected the countries because they are all in the process of re-opening non-COVID-19 activities in hospitals, with the exception of Sweden where medical services (and the broader economy) were not shut down to the same extent. Australia and New Zealand have both developed publicly available strategies to move forward with the re-opening of non-COVID-19 activities in their hospitals. The findings from other countries focus particularly on the prioritization of elective procedures once services resume. In addition, select countries, including the U.K., are piloting different approaches to ‘bypass’ hospitals and provide services in other locations.

In Table 5 we highlight the experiences of Canadian provinces and territories with re-opening non-COVID-19 activities in hospitals. In general, most provinces and territories have resumed elective and non-urgent surgeries, as well as other specialized services in hospitals (e.g., oncology and medical imaging activities). A few provinces have made publicly available detailed strategies and frameworks to move forward (notably B.C., Ontario and Quebec). These plans usually detail infection prevention and control measures, as well as other changes to delivery arrangements to ensure optimal and safe care for both patients and staff. These plans to resume non-COVID-19 activities in hospitals have often been flagged in provincial economic and social response plans as the first stage to re-emerge from COVID-19 shutdown.

Table 1: Key take-home messages about approaches being used and potential pitfalls to avoid in re-opening non-COVID-19 activities in hospitals

* Numbering system indicates where information was retrieved: 1= guidelines developed using a robust process; 2= full systematic reviews; 3= rapid reviews; 4= guidelines developed using some type of evidence synthesis; 5= primary studies; 6= government websites and documents as part of the jurisdictional scan

Decisions	Approaches being used	Pitfalls to avoid
Delivery arrangements		
Service planning for COVID-19 prevention	<p>Changing emergency medical-service procedures</p> <ul style="list-style-type: none"> • Changing emergency medical-service procedures in order to bypass admission to emergency rooms, including allowing treatment in ambulances (6) <p>Limiting access to health facilities</p> <ul style="list-style-type: none"> • Symptom screening and stricter hospital admissions criteria to separate out potential COVID-19 patients (6) • Testing for COVID-19 in hospitals for inpatients prior to their discharge (6) 	<ul style="list-style-type: none"> • None identified
Service planning for COVID-19 treatment	<p>Scaling up/down emergency-room capacity</p> <ul style="list-style-type: none"> • Establishing command structures and identifying tiered staffing systems when scaling up emergency-room capacity (5) • Using data to determine hospital staffing and resource needs and disseminating this information across response coordinators (5) <p>Scaling up/down ICU capacity</p> <ul style="list-style-type: none"> • Establishing dedicated, cohort-based intensive care units for COVID-19-positive patients • Putting in place clear point people should staff become ill and establishing a short-notice call system to replace team members (5) • Maintaining high levels of infection prevention and control, including continuous use of PPE, self-monitoring of staff for symptoms, and frequent cleaning and disinfecting of surfaces (6) • Adding capacity by discharging patients to homes when possible, building temporary hospitals to expand available intensive care beds, and recruiting retired clinicians to address staffing shortfalls (6) • Establishing ‘hot hubs’/specialty clinics to diagnose and advise COVID-19 patients (and bypass emergency room admissions) (6) <p>Scaling up/down palliative-care capacity</p> <ul style="list-style-type: none"> • Scaling up/down palliative-care capacity by training non-specialist staff in the management of symptoms and psychological supports, including communication and bereavement counselling, and considering additional guidelines for specific populations including people in care homes and those with intellectual disabilities (2; AMSTAR rating 4/9; search conducted 18 March 2020) 	<ul style="list-style-type: none"> • Avoid overlap in roles and responsibilities among those coordinating changes in the hospital (5) • Determine early on which staff members are ‘deployment ready’ should scaling-up of COVID-19 activities be required (5) • Do not underestimate the importance of orientation and instructions related to infection

		prevention and control measures (5)
Service planning for the ongoing management of other conditions	<p>Changing acute-care surgery and trauma-care procedures</p> <ul style="list-style-type: none"> • Ensuring a stable number of COVID-19 cases, a stable supply of medication and PPE, adequate capacity of inpatient and ICU beds, and sufficient supply of health workers prior to re-opening any delayed surgical procedures (6) • Changing acute-care surgery and trauma-care procedures, modifying the clinical environment to allow for more space, ensuring the availability of equipment and supplies including PPE and oxygen therapy (while ensuring not to deplete stocks needed for the COVID-19 response), and establishing protocols to reduce the risk of virus aerosolization associated with general anesthesia (2; AMSTAR rating 2/9; search conducted 9 April 2020) • Reducing the number of staff and time spent in operating theatres for necessary open surgeries where laparoscopy is not possible (2; AMSTAR rating 2/9; search conducted 29 March 2020) • Extending daily operating-room hours and weekend operating services to address the backlog of elective and non-emergent surgeries (6) <p>Changing cancer-treatment procedures</p> <ul style="list-style-type: none"> • Delaying or postponing non-urgent cancer-related appointments, particularly at the screening level (for example, annual surveillance among cancer survivors, low-suspicion screen recalls, and low-suspicion activities for elderly patients) (4; last updated 8 May 2020) • Triage cancer services by considering the potential for cure, relative benefit of radiation and chemotherapy, life expectancy, and performance status (1; last updated 6 April 2020) • Implementing telephone triage for new cancer referrals and consider establishing separate cancer hubs to provide non-urgent procedures for patients while maintaining their separation from COVID-19-related activities (6) • Using home/offsite review by radiologists for breast-cancer screening, however, 5-mega pixel screens are required for primary interpretation (these screens can be redeployed from organizations to radiologists in quarantine or isolation) (1; last updated 2 April 2020) <p>Changing other treatment procedures</p> <ul style="list-style-type: none"> • Implementing additional testing for patients prior to resuming invasive procedures, including transplant services and gastrointestinal procedures (1; last updated 7 April 2020 and 31 March 2020) • Performing gastrointestinal procedures for patients in negative pressure rooms following standard cleaning endoscopic disinfection and reprocessing protocols while wearing appropriate PPE (1; last updated 31 March 2020) • Providing a separate area for triage and assessment of maternal and neonatal services for women with suspected or confirmed COVID-19 (1; last updated 26 March 2020) • Admitting directly to birthing suites or obstetric theatres where inpatient care is required for maternal and neonate services (1; last updated 26 March 2020) • Adapting waiting rooms and reading rooms to preserve social distancing (1; last updated 25 March 2020) 	<ul style="list-style-type: none"> • Do not compromise the prognosis of cancer patients by deviating from department guideline-recommended radiotherapy practices (1; last updated 6 April 2020) • Reduce patient travel to receive health services (6)

	<p>Delaying return visits, elective procedures, etc.</p> <ul style="list-style-type: none"> • Prioritizing patients for the resumption of elective surgeries by handling the most urgent cases first (1; last updated 5 May 2020) • Ensuring sufficient resources are available to support elective care including PPE, health workers, physical space, testing capacity, and post-acute care prior to beginning elective procedures (1; last updated 5 May 2020) • Designing appropriate procedures for pre-triage, diagnosis and isolation of suspected and confirmed cases (1; last updated 5 May 2020) • Developing clear procedures around ‘patient cohorting’ and infection-control practices including facility cleaning and set up (1; last updated 5 May 2020) • Using ambulatory-care centres or alternate-care sites outside of acute-care facilities as alternative-care settings to address the backlog of procedures (1; last updated 5 May 2020) • Communicating with the public using mass and social media about new ways of receiving medical care (6) 	
Infrastructure planning and resource allocation	<p>Personal protective equipment (under shortage conditions)</p> <ul style="list-style-type: none"> • Establishing strategies to address expected or known PPE shortages, including tiered approaches for conventional, contingency and crisis circumstances (1; last updated 2 April 2020) • Allocating PPE based on risk of exposure, risk of harm from infection, and risk of being a vector for transmission (1; last updated 25 March 2020) • Training both medical and non-medical professionals working in healthcare settings to use standard PPE and donning and doffing of masks to avoid contamination (2; AMSTAR rating 9/10; search conducted 26 March 2020) <p>Medication and other technologies</p> <ul style="list-style-type: none"> • Implementing coordination mechanisms between organizations and intra-provincially to ensure sufficient supplies of medication (6) • Establishing safe protocols for the mobilization of voluntary blood donation to ensure sufficient stock is available when resuming activities (6) <p>Virtual care</p> <ul style="list-style-type: none"> • Using virtual-care services wherever possible to reduce the pressure placed on hospital infrastructure while resuming services (6) 	<ul style="list-style-type: none"> • None identified
Workforce planning (including workforce-shortages management and development)	<p>Recruitment</p> <ul style="list-style-type: none"> • Extending staff re-instatements for qualified health providers who volunteered to return to work during the COVID-19 pandemic for the next 12 months to increase available health workers (6) <p>Role extension</p> <ul style="list-style-type: none"> • Considering the assessment of local needs and existing skills sets when extending roles for surgeons and establish collaboration with more specialized colleagues who are able to oversee and support staff (1; last updated 3 April 2020) 	<ul style="list-style-type: none"> • Avoid any forms of discrimination against front-line health workers and their family members (6)

	<ul style="list-style-type: none"> • Redeploying non-front-line clinician roles (e.g., educators, patient safety officers, project officers) to support clinical work where possible (1; updated 26 March 2020) <p>Training in new procedures</p> <ul style="list-style-type: none"> • Establishing specialty training for surgical-program nurses to support additional staff in operating rooms to contend with surgery backlogs (6) <p>Support for healthcare workers</p> <ul style="list-style-type: none"> • Considering non-performance-based incentives, additional travel allowance, childcare support, and awards and recognition as additional supports for staff (3; AMSTAR rating 3/9; last updated 3 May 2020) • Establishing wellness plans, psychological supports including mental health hotlines and free counselling services for front-line workers (6) • Implementing supports for the dependents of front-line workers (6) 	
Service planning for 'return to normal'	<p>Wait-list management</p> <ul style="list-style-type: none"> • Managing wait lists by prioritizing urgent visits and providing written documentation from the referring physician regarding updated time and date for re-booking (1; last updated 7 April 2020) 	<ul style="list-style-type: none"> • None identified
Financial arrangements		
Funding organizations	<p>Funding subsidies</p> <ul style="list-style-type: none"> • Providing subsidies for public-health tasks undertaken by hospitals throughout the pandemic (6) 	<ul style="list-style-type: none"> • None identified
Broader economic and social responses		
Employment	<p>Worker supports</p> <ul style="list-style-type: none"> • Opening of childcare programs to serve essential workers, however emphasizing continued preventive measures including hand-hygiene practices, cleaning of surfaces, and social distancing (1; last updated date not provided) <p>Workplace changes</p> <ul style="list-style-type: none"> • Reducing the risk for vulnerable workers (including older adults; those with pre-existing conditions; women who are past 28 week gestation) by encouraging telework options, minimizing the duties of vulnerable workers that place them in contact with others, practising safe hygiene practices, providing PPE where necessary, and increasing the space between workers (1; last updated date not provided) 	<ul style="list-style-type: none"> • None identified

Table 2: Lessons learned about health-system arrangements that support re-opening non-COVID-19 activities in hospitals

Broad decisions	Specific decisions	Lessons learned about health-system arrangements that support re-opening non-COVID-19 activities in hospitals
Delivery arrangements		
Service planning for COVID-19 prevention	Changing emergency medical-service procedures (ambulances, paramedics)	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In the U.K., rapid emergency treatment was permitted in ambulances to bypass the use of emergency rooms <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Re-locating hospital-based ambulatory clinics, cancer treatments, etc.	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Limiting access to health facilities	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In Sweden, patients are being triaged prior to entering the emergency room using a tent outside to first determine whether they are symptomatic, in which case they are directed to a different ward for treatment • The U.K. has established stricter hospital-admission criteria, implementing pre-admission testing of patients (when possible), testing at the point of hospital admission, and testing prior to discharge to care homes <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Changing hospital-discharge procedures	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Changing long-term care procedures	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p>

		<ul style="list-style-type: none"> • None identified Lessons learned from Canadian provinces and territories <ul style="list-style-type: none"> • None identified
	Changing home and community-care procedures	Key findings from highly relevant evidence documents <ul style="list-style-type: none"> • None identified Lessons learned from other countries <ul style="list-style-type: none"> • None identified Lessons learned from Canadian provinces and territories <ul style="list-style-type: none"> • None identified
Service planning for COVID-19 treatment	Scaling up/down testing capacity	Key findings from highly relevant evidence documents <ul style="list-style-type: none"> • None identified Lessons learned from other countries <ul style="list-style-type: none"> • None identified Lessons learned from Canadian provinces and territories <ul style="list-style-type: none"> • None identified
	Scaling up/down emergency-room capacity	Key findings from highly relevant evidence documents <ul style="list-style-type: none"> • Primary studies of particularly innovative models <ul style="list-style-type: none"> ○ Framework for physician deployment to scale up emergency-room care can be based on six principles: 1) create an organizational structure; 2) define your need; 3) identify and optimize the pools of healthcare providers; 4) create surge teams; 5) prepare and deliver orientation materials; and 6) optimize working conditions for staff Lessons learned from other countries <ul style="list-style-type: none"> • In the U.K., ‘hot’ specialty clinics were developed to bypass the emergency department Lessons learned from Canadian provinces and territories <ul style="list-style-type: none"> • None identified
	Scaling up/down ICU capacity	Key findings from highly relevant evidence documents <ul style="list-style-type: none"> • None identified Lessons learned from other countries <ul style="list-style-type: none"> • In Sweden, the National Board of Health and Welfare set up a coordination function for ICUs to support regions in the expansion of intensive-care centres in the country • In the U.K., the NHS has retained considerable additional capacity created at the initial stages of the pandemic, in which capacity was freed up and reallocated through negotiating block contracts with private hospitals to treat non-urgent patients, discharging patients to care homes when possible, building temporary hospitals to expand number of available intensive-care beds and recruiting retired clinicians to address staffing shortfalls Lessons learned from Canadian provinces and territories <ul style="list-style-type: none"> • None identified
	Scaling up/down post-ICU	Key findings from highly relevant evidence documents <ul style="list-style-type: none"> • None identified

recovery capacity (e.g., hospital beds)		<p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Scaling up/down palliative-care capacity		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Full systematic reviews <ul style="list-style-type: none"> ○ Hospice and palliative services can contribute through many roles during pandemics including ensuring protocols for symptom management are available and that non-specialists are trained on their use, triage, planning for shifting resources to the community, redeploying volunteers to provide psychosocial and bereavement care, facilitating camaraderie among staff, adopting measures to deal with stress, using technology to communicate with patients and carers, and adopting standardized data-collection systems to inform operational changes and improve care (AMSTAR rating 4/9; searched conducted 18 March 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Scaling up/down COVID-19 sequelae-management capacity		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Scaling up/down capacity to manage the pandemic-related impacts on health more generally (e.g., mental health and addictions, pediatrics)		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Surge-management models		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Primary studies of particularly innovative models <ul style="list-style-type: none"> ○ Locally developed models to simulate surges in clinical demand can inform clinical operations and staffing procedures (Published 7 April 2020) ○ Surge management requires multi-disciplinary collaboration to allow for appropriate space definition, supply provisions, staff recruitment, and ad hoc training of providers (Published 4 April 2020)

		<p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Triage protocols	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Primary studies of particularly innovative models <ul style="list-style-type: none"> ○ Hospital triage using epidemiological characteristics may support the rapid identification of COVID-19 cases, however lack of sharing information between healthcare facilities may slow down this triage model. (pre-pint) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Infection prevention and control measures in health facilities	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Primary studies of particularly innovative models <ul style="list-style-type: none"> ○ Refined management strategies, including prevention and control measures, grid auditing, improved communication between teams and public reporting may be effective for the prevention and control of COVID-19 in non-isolated areas of a general hospital (Published 8 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • The provincial government in Saskatchewan released the Re-Open Saskatchewan Plan, with phase 1 highlighting the need to re-open previously restricted medical services while maintaining infection prevention and control measures
	Death certification	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Handling dead bodies	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Service planning for	Changing acute-care surgery and	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process

<p>the ongoing management of other conditions</p>	<p>trauma-care procedures</p>	<ul style="list-style-type: none"> ○ Continuing or resuming gastrointestinal endoscopy and gastroenterology units must consider team formation and scheduling, stratification of infection risk based on procedure type, PPE use based on exposure risk level, adapt checklists for procedure preparedness and adapt cleaning of procedure rooms (Sociedad Española de Patología Digestiva and Asociación Española de Gastroenterología; last updated April 2020) ● Full systematic reviews <ul style="list-style-type: none"> ○ Cochrane special collection of reviews on regional anesthesia to avoid aerosol generation during surgery (last updated 29 April 2020) ○ Hospitals should consider planning resources and staffing, modifying clinical environments, ensuring availability of equipment and supplies (including PPE and oxygen therapy) and implementing proper assessment and monitoring protocols in support of regional anesthesia during surgery to reduce risk of virus aerosolization associated with general anesthesia (AMSTAR rating 2/9; search conducted 9 April 2020) ○ For surgery deemed necessary, minimizing number of staff and shortening the time spent in operating theatres should be considered to mitigate risk of infection, with open surgery considered if safe laparoscopy isn't possible (particularly among COVID-19 positive patients) (AMSTAR rating 2/9; search conducted 30 March 2020) ○ Significant changes to inpatient and outpatient units and operating rooms are needed to reduce risk of COVID-19 spread during oral and maxillofacial surgery, including postponing all but emergency procedures, proper planning among specialties with overlapping therapies, testing of patients for SARS-CoV-2, investing in and ensuring access to PPE, and ensuring there is negative pressure in all operating rooms (AMSTAR rating 2/9; search conducted 29 March 2020) ● Guidelines developed using some type of evidence <ul style="list-style-type: none"> ○ Recommendations for surgeons and surgical teams on adapting surgical services, extending scope of practice and teamworking, and protecting the workforce (Royal College of Surgeons of England; last updated 3 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> ● The U.K. is piloting models for restarting major surgery (e.g., cardiothoracic surgical networks have created a 'cold' centre for bypass surgery, after patients have had two negative swab tests, are symptom free and have a clear CT chest scan), and other types of specialty care (e.g., stroke clinics using telemedicine, and 'cold' stroke services in day hospitals) <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> ● The Ministry of Health of British Columbia published its five-stepped approach for delivering surgical renewal: 1) increasing surgeries; 2) increasing essential personnel; 3) focusing on patients; 4) adding more resources; and 5) reporting on progress ● Alberta Health Services released a strategy that notes some scheduled, non-urgent surgeries by 4 May 2020, with the most urgent patients and those waiting the longest receiving care first ● The Ontario Surgical and Procedural Feasibility Assessment for Hospitals highlights key criteria that must be met before hospitals can resume scheduled surgeries (e.g., a stable number of COVID-19 cases; a stable supply of personal protective equipment; a stable supply of medications; an adequate capacity of inpatient and intensive-care-
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		unit beds; an adequate capacity of health human resources; and the availability of post-acute care outside the hospital that would be required to support patients after discharge
	Changing cancer-treatment procedures	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Continuing or resuming lung cancer radiotherapy requires treatment modifications for risk mitigation, guidance on treatment postponement, and criteria for patient triaging (ESTRO & ASTRO; last updated 6 April 2020) ○ Continuing or resuming breast imaging during the COVID-19 pandemic requires PPE for patients and staff, clear roles of offsite radiologist review and necessary equipment, postponement of low-priority imaging, and performance of high-priority imaging for patients with and without concern for COVID-19 (Canadian Society of Breast Imaging and Canadian Association of Radiology; last updated 2 April 2020) • Guidelines developed using some type of evidence <ul style="list-style-type: none"> ○ Consider delaying or postponing nonurgent appointments, screening, diagnosis/staging, management procedures for patients with cancer, but carefully weigh the related risks and benefits, using telemedicine for appointments, consultations, and follow-up visits (DynaMed; last updated 8 May 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In New Zealand, Cancer screening services have largely been resumed with the exception of bowel screening, and no screening will be provided to those over the age of 70 or with existing medical conditions • In the U.K., telephone triage was implemented for new cancer referrals to reduce hospital admissions, and cancer hubs were used to provide non-urgent procedures for patients <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • The Ministry of Health and Social Services in Quebec updated its recommendations concerning the impact of COVID-19 and breast cancer screening and investigation activities (including criteria to resume activities based on a prioritization process, along with recommendations about psychosocial support for patients during that period), as well as implementing an adaptation plan for the levels of oncology activities during the COVID-19 pandemic
	Changing other treatment procedures (e.g., dialysis)	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Continuing or resuming liver transplantation during the COVID-19 pandemic requires additional testing for patients with suspected COVID-19, guidance for patients awaiting liver transplantation, protection of healthcare workers, utilization of telemedicine, and modifications to scheduling procedures (American Association for the Study of Liver Diseases; last updated 7 April 2020) ○ For performing different types of gastrointestinal procedures for patients regardless of COVID status, healthcare workers should wear different masks and gloves in negative pressure rooms following standard cleaning endoscopic disinfection and reprocessing protocols; and the triage and telemedicine should be considered (American Gastroenterological Association; last updated 31 March 2020) ○ Principles and operational framework for maternity and neonatal services during the COVID-19 pandemic (Queensland Clinical Guidelines; last updated 26 March 2020) ○ Recommendations on safely conducting imaging and image-guided intervention during the COVID-19 pandemic (Canadian Association of Radiologists, Canadian Society on Thoracic Radiology)

		<p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • Ministry of Health and Social Services in Quebec is implementing recommendations for the resumption of activities in the medical imaging sector
	Delaying return visits, elective procedures, etc.	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Several guidelines for the resumption of elective services after COVID-19 have been published including prioritization methods, resource availability, procedures, screening and testing, communication, and use of ambulatory services (CADTH) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • Australia has established a set of ethical principles to guide the re-opening which are complemented by a set of patient selection principles for use in the first tranche of elective activities • In New Zealand, a National Hospital Response Framework has been established and states that elective surgery and radiology will be provided to patients in order of clinical priority • In Sweden, the National Board of Health and Welfare established principles for prioritizing resources (document only available in Swedish) for routine healthcare <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • The provincial government of British Columbia released BC's Restart Plan that lays out a stepped approach move through the COVID-19 pandemic, including that elective and non-urgent surgeries will resume on 18 May 2020 • In Alberta, dental and other regulated healthcare workers (e.g., physiotherapists, speech language pathologists, respiratory therapists, audiologists, social workers, occupational therapists, and dietitians) can also resume services as long as they follow approved guidelines set by their professional colleges • The provincial government in Manitoba released its plan for Restoring Safe Services Together, with phase 1 indicating that elective surgeries and other non-emergent health services were re-started on 24 April 2020 so long as they continue point-of-care screening, use of appropriate PPE, and limiting the number of staff in the room • The Ministry of Health and Social Services in Quebec is implementing a prioritization system for access to surgery in a pandemic situation, along with psychosocial and moral support needing to be provided to patients during a pandemic
Infrastructure planning and resource allocation	Personal protective equipment (under shortage conditions), including N95 respirators for health workers	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Strategies must be put in place to address expected or known face mask shortages (U.S. - Emergency Care Research Institute) ○ Conventional-, contingency- and crisis-capacity strategies are necessary to optimize the supply of N95 respirators (U.S. CDC; last updated 2 April 2020) ○ Ethics prioritization guidance on the use of personal protective equipment under critical shortages (Ontario Health Bioethics Table)

	<ul style="list-style-type: none"> • Full systematic reviews <ul style="list-style-type: none"> ○ Lack of evidence about use of masks by those not diagnosed with COVID-19 to limit spread (AMSTAR rating 3/6; search conducted 10 April 2020) ○ Adequate PPE (level 4 surgical gowns, face shields and goggles, double gloves, FFP2-3 or N95-99 masks) should be used for orthopedic and trauma surgery particularly those using power tools, pulsatile lavage and electrocautery (which are aerosol-generating procedures), and telemedicine may be considered an electronic form of PPE during the COVID-19 crisis (AMSTAR rating 6/10; search conducted 1 April 2020) ○ Using standard PPE and providing training for donning and doffing masks reduces contamination from highly infectious diseases (AMSTAR rating 9/10; search conducted 26 March 2020) • Rapid reviews <ul style="list-style-type: none"> ○ Front-line health workers should be provided with personal protective equipment (PPE) in adequate quantity, training on proper usage of PPE, psychosocial support, non-performance-based incentives, additional transport allowance, childcare support, awards and recognition (AMSTAR rating 3/9; last updated 23 March 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Ventilators for sick COVID-19 patients	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Primary studies of particularly innovative models <ul style="list-style-type: none"> ○ Few hospitals were found to have ventilator triage policies or triage committees and those that did showed significant heterogeneity in their make-up (Published 24 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Medications and other technologies (under shortage conditions due to disrupted supply chains)	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In China, there has been significant efforts to coordinate the provision of medications as well as to increase the mobilization of voluntary blood donation organizations in efforts to ensure sufficient medical resources are available <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Remote monitoring	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified

		<p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Virtual visits	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Primary studies of particularly innovative models <ul style="list-style-type: none"> ○ Internet hospitals in China have been used to offer essential medical supports to the public during the COVID-19 outbreak and continue to play an important role in supporting hospitals during their transitions back to regular operations (Published 14 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Workforce planning (including workforce-shortages management) and development	Recruitment	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • The Swedish health system has doubled its capacity for intensive care during the pandemic by drawing on private sector and military resources and placing them temporarily under the control of the public-health system <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Role extensions	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using some type of evidence synthesis and/or expert opinion <ul style="list-style-type: none"> ○ Recommendations for surgeons and surgical teams on adapting surgical services, extending scope of practice and team-working, and protecting the workforce (Royal College of Surgeons of England; last updated 25 March 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Training in new procedures	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Rapid reviews <ul style="list-style-type: none"> ○ Front-line health workers should be provided with personal protective equipment (PPE) in adequate quantity, training on proper usage of PPE, psychosocial support, non-performance-based incentives, additional transport allowance, childcare support, awards and recognition (AMSTAR rating 3/9; last updated 23 May 2020) ○ Recommendations for surgeons and surgical teams on adapting surgical services, extending scope of practice and team-working, and protecting the workforce (Royal College of Surgeons of England; last updated 3 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified

		<p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Replacements when sick		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Movement-control strategies		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Recommendations for surgeons and surgical teams on adapting surgical services, extending scope of practice and team-working, and protecting the workforce (Royal College of Surgeons of England; last updated 3 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In China, the development and strengthening of the medical union, which sets up medical groups in cities and provinces as a network of providers to serve remote and developed areas where medical services would not typically be accessible, is helping to ensure that patients seek care close to their homes and reduce travel <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Support for workers in healthcare settings		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Rapid reviews <ul style="list-style-type: none"> ○ Front-line health workers should be provided with personal protective equipment (PPE) in adequate quantity, training on proper usage of PPE, psychosocial support, non-performance-based incentives, additional transport allowance, childcare support, awards and recognition (AMSTAR rating 3/9; last updated 23 May 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In the U.K., new measures to support the well-being of healthcare workers include: tools that prompt reflection and support a culture of openness about emotional health of healthcare workers, such as Wellness Action Plans for teams, and guidance from the Royal College of Psychiatrists about how organizations can maintain well-being of staff, a mental health hotline, and free counselling services • In China, supports are being provided to front-line workers who also act as caregivers for elderly family members, and additional supports include: guarantee of first-line medical personnel; psychological supports; distribution of PPE; transportation supports; arranging volunteers to bring medicine to elderly family members and accompany them to medical appointments; and mobilizing volunteers to provide one-to-one care services including buying and distributing meals, cleaning and other services <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified

	Supports to unpaid caregivers	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Volunteer engagement to support vulnerable populations	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Self-management supports	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Service planning for 'return to normal'	Sequencing of services re-starting, by sector, conditions, treatments (including diagnostics), and populations	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • In Australia all hospitals are required to report on re-opening activities every two weeks, including among others, information about infections as well as stock of PPE <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Wait-lists management	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Management of referral, triage, wait list and reassessment of cardiac patients during the COVID-19 pandemic requires modifications to clinical visits and using telemedicine whenever possible, triaging of urgent and non-urgent diagnostic testing, modifications to scheduling procedures, and planning for resumption of services (Canadian Cardiovascular Society; last updated 7 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Financial arrangements		

Funding organizations	Funding subsidies	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • China is providing subsidies for public hospitals for public health tasks that they have had to undertake throughout the pandemic <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Remunerating providers	New or adjusted fee codes for virtual care	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Income replacement when virtual care is not possible (at the same scale)	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Purchasing products and services	Bulk purchasing	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Governance arrangements (who can make what decisions)		
Professional authority	Licensure changes to accommodate out-of-jurisdiction or retired health workers	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Recommendations for surgeons and surgical teams on adapting surgical services, extending scope of practice and team-working, and protecting the workforce (Royal College of Surgeons of England; last updated 3 April 2020) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified

	Legal protection for medical workers	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • The Canadian Medical Protective Association is providing advice on medical-legal protection for physicians that may apply to the re-opening of non-COVID-19 activities in hospitals • The Canadian Nurses Protective Society is providing advice on legal considerations when nursing in a pandemic (including accountabilities, mandatory reporting and reassignments, professional liability protection) that may apply to the re-opening of non-COVID-19 activities in hospitals
Organizational authority	Limits of number of staff sent in	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified

Table 3: Lessons learned about economic and social responses that support re-opening non-COVID-19 activities in hospitals

Broad decisions	Specific decisions	Options	Lessons learned about economic and social responses that support re-opening non-COVID-19 activities in hospitals
Economic development and growth	Economic resilience	Local supply chains for essential products (e.g., personal protective equipment, nasal swabs for testing), functioning supply chains for other products and services	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Employment	Worker supports	Work-from-home options, masks and other personal protective equipment, hazard pay, paid sick leave, paid family leave, childcare support	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Childcare programs can choose to remain open to serve children of essential workers, however these decisions should be determined based on the local conditions, and if implemented should maintain preventive actions including hand-hygiene practices and intense cleaning (U.S. CDC, date of last update not included in PDF) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Workplace changes	Temporal distancing (staggered schedules/shifts), reducing on-site staff size (e.g., combining remote and in-person work), increasing space between work areas, workplace take-out lunch services, frequent breaks for hand-washing, limitations in meeting sizes and social events	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • Guidelines developed using a robust process <ul style="list-style-type: none"> ○ Employers should take particular care to reduce risks for vulnerable workers, which includes encouraging telework options, minimizing the duties of vulnerable workers that place them in contact with others, practise diligent hand washing, and intense cleaning (U.S. CDC, date of last update not included in PDF) <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
	Building changes	Entrance screening, entrance/exit route changes, hallway division into separate directional flows, common areas divided into zones, deep	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified

Broad decisions	Specific decisions	Options	Lessons learned about economic and social responses that support re-opening non-COVID-19 activities in hospitals
		cleaning and stricter sanitation measures	<ul style="list-style-type: none"> • None identified
Financial protection	Wage subsidies for essential workers	Personal-support workers, grocery-store clerks	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Food safety and security	Food handling practices	Disinfecting food-handling surfaces, washing fruits and vegetables	<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified
Infrastructure	Cyber-security protocols for governments and businesses (see financial protection for protecting citizens from financial scams)		<p>Key findings from highly relevant evidence documents</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from other countries</p> <ul style="list-style-type: none"> • None identified <p>Lessons learned from Canadian provinces and territories</p> <ul style="list-style-type: none"> • None identified

Table 4: International experiences with re-opening non-COVID-19 activities in hospitals

Country	Key features of implemented strategies
Australia	<ul style="list-style-type: none"> • In March, Australia banned all non-emergency surgeries to free up hospital beds, and the Minister of Health recently released a statement noting that these restrictions are now starting to be relaxed with elective surgery resuming once medical equipment shortages (particularly for ventilators) have been restored to their full capacity. • A set of ethical principles has been established to guide the re-opening, which is complemented by a set of patient selection principles for use in the first tranche of elective activities. • Clinical decisions related to re-opening will focus on: <ul style="list-style-type: none"> ○ procedures representing low-risk, high-value care as determined by specialist societies; ○ selecting patients who are at low risk of post-operative deterioration based on physical status scale; ○ children whose procedures have exceeded clinical wait times; ○ assisted reproduction; ○ endoscopy; ○ cancer screening programs (noting that the cessation of these programs as part of COVID-19 precautions was not supported by the National Cabinet); and ○ expansion of dental services to allow a broader range of interventions including all dental treatments that are unlikely to generate aerosols or where aerosols have the presence of minimal saliva/blood due to the use of a rubber dam. • It is also suggested that a number of precautions are used during the first two weeks of resuming services, which include: <ul style="list-style-type: none"> ○ resuming up to 25% of theatre and endoscopy lists, subject to local circumstances; ○ focusing procedures on those normally categorized as category 2 (i.e., a patient with mild systemic disease and no functional limitations) and can include assisted reproduction and non-surgical intervention procedures; ○ not resuming cosmetic or other procedures; ○ using physical distancing in the lead up to and management of surgery, including the use of telehealth for perioperative assessments wherever possible; ○ not using the National Medical Stockpile of PPE for elective activity, with private hospitals continuing to source through their own procurement processes; ○ focusing state-level on specialties with the longest wait times, but with flexibility to manage their work consistent with the national principles that have been set out (above); and ○ reporting on activity volumes fortnightly.
China	<ul style="list-style-type: none"> • A risk-based approach is being used (based on geographic risks in specific areas) to re-opening services <ul style="list-style-type: none"> ○ In high-risk areas hospitals remain open for patients with acute and serious illnesses and specific populations, while low-risk areas are re-opening outpatient care, emergency care, surgery and diagnostic testing ○ Prioritization for services, which includes in some instances determining appropriate telemedicine options, is being given to: patients with chronic diseases requiring long-term medication (including special drugs such as narcotic drugs and psychotropic drugs), patients requiring hemodialysis and other special treatments; patients with cancer and other conditions requiring radiotherapy and chemotherapy; and particular populations including pregnant women, children, older adults, and those with mental health conditions • The Chinese government has encouraged all managers of medical institutions to develop work plans towards restoring normal medical services to guide decisions, and managers should consider both the characteristics of specialty services provided and the number of people the hospital serves to develop department-specific plans for re-opening • Further develop and strengthen the medical union (which sets up medical groups in cities and provinces to build a network that serves developed and remote areas and encourages the sharing of

	<p>healthcare resources) to ensure that patients seek care close to their homes to reduce medical-related travel</p> <ul style="list-style-type: none"> • In addition to re-opening hospitals, organizations are looking to expand the use of telemedicine including: <ul style="list-style-type: none"> ○ appointment registration; ○ pre-testing and triage models for all patients; ○ conducting remote consultations and remote assisted diagnosis for patients who are at a significant distance; and ○ chronic disease follow-up consultations through approved internet hospitals • Hospitals are continuing to carry out active monitoring of infections and of prevention and control procedures especially for emergency patients, those receiving hemodialysis, tumor radiotherapy and chemotherapy patients, as well as those receiving invasive operations including surgery and endoscopy • To enable hospitals to re-open, external supports are being provided including: <ul style="list-style-type: none"> ○ providing subsidies for public-health tasks that are undertaken by public hospitals; ○ increased mobilization of voluntary blood-donation organizations and coordinate the intra- and inter-provincial coordination to ensure sufficient blood supply; ○ strengthen the supply of medicines and consumables to ensure timely procurement and distribution channels; and ○ model the demand for PPE to ensure sufficient supply is available when normal hospital services resume in full
New Zealand	<ul style="list-style-type: none"> • New Zealand has established a series of alert levels which have been collectively determined by the government and specify the public-health and social measures to be taken in the context of COVID-19 as well as the COVID-19 health and disability-system response plan • As of 27 April 2020, the Health Act Order came into effect which outlines functions in relation to isolation or quarantine requirements and essential personnel movements, and it further details the use of Alert Level 3 – Restrict (which means that community transmission might be happening and new clusters may emerge but can be controlled through testing and contact tracing) and what it means for hospital operations • Hospitals will remain open for COVID-19 and non-COVID-19 emergency care, and have been told to adhere to the National Hospital Response Framework (we were unable to find a URL for the framework, but a brief summary is available here) <ul style="list-style-type: none"> ○ The Response Framework notes that it is appropriate for district health boards to deliver as much clinical care and surgery as possible, prioritizing patients where there is an equity or clinical risk associated with further delay or changes to treatment ○ Elective surgery and radiology will be provided to patients in order of clinical priority ○ National Hospital and Clinic Visitors Policy changes include: only allowing one nominated person supporting a terminally ill patient through their end-of-life care; a single parent or guardian who is supporting a child; and the chosen support person of a women giving birth, though no visitors will be allowed during the postnatal stay • Cancer screening services will resume with exceptions of bowel screening which will not resume until Alert Level 2- Reduced (which means that the disease is contained though household transmission could be occurring but in single or isolated cluster outbreaks) is resumed <ul style="list-style-type: none"> ○ Cancer screening will not be provided for those over the age of 70 years or those with existing medical conditions ○ Priority will be given to those who missed screening appointments during Alert Level 4 • Organizations providing inpatient and residential mental health and addictions services will operate as usual, though fewer beds are available to reduce infection
South Korea	<ul style="list-style-type: none"> • No details found during the scan about re-opening of non-COVID-19 activities in hospitals

Sweden	<ul style="list-style-type: none"> • The Swedish health system doubled its capacity for intensive care during the COVID-19 epidemic, including drawing on the private sector and on military resources, organizational adjustments and re-allocation of resources. This included: <ul style="list-style-type: none"> ○ the government assigning the National Board of Health and Welfare to set up a coordination function for ICUs to support regions in the expansion of intensive-care centres in the country; ○ development of national principles for prioritization in case of intensive-care shortages; and ○ triaging of patients conducted outside of a tent built outside the emergency room whereby patients with symptoms are further examined in the tent while those without are allowed to enter the emergency room. • The National Board of Health and Welfare established principles for prioritizing resources (document only available in Swedish) for routine healthcare during the COVID-19 pandemic. These include: <ul style="list-style-type: none"> ○ provide less or completely stop treatments where possible; ○ change the threshold for medical indications such that patients will only be treated if they have more severe health conditions; and ○ postpone treatment.
U.K.	<ul style="list-style-type: none"> • In initiating efforts to scale-up urgent non COVID-19 services, the NHS has retained considerable additional capacity created at the initial stages of the pandemic, in which capacity was freed up and reallocated through negotiating block contracts with private hospitals to treat non-urgent patients, discharging patients to care homes when possible, building temporary hospitals to expand number of available intensive care beds and recruiting retired clinicians to address staffing shortfalls • Additional measures adopted during the transition to re-open the health system for other types of care include: <ul style="list-style-type: none"> ○ enabling rapid emergency treatment via ambulances, and ‘hot’ specialty clinics that bypass the emergency department; ○ utilizing telephone triage for new cancer referrals to reduce hospital admissions, and using cancer hubs to provide non-urgent procedures for patients (e.g., breast reconstruction surgery); ○ piloting models for restarting major surgery (e.g., cardiothoracic surgical networks have created a ‘cold’ centre for bypass surgery, after patients have had two negative swab tests, are symptom free and have a clear CT chest scan), and other types of specialty care (e.g., stroke clinics using telemedicine, and ‘cold’ stroke services in day hospitals); ○ changing governance arrangements to enhance hospitals’ ability to share patient data across settings; ○ developing stricter hospital admission criteria, implementing pre-admission testing of patients (when possible), testing at the point of hospital admission, and testing prior to discharge to care homes; ○ creating protocols to guide hospital admission and discharge for patients with COVID-19; and ○ rapid testing for staff, and a pilot program for testing asymptomatic staff • Attempts to increase supply of PPE and ventilators, and increase access to testing have been met with challenges, and NHS has announced a plan to introduce automated, data-driven PPE distribution service to calculate amount of PPE required in different care settings (including hospitals) and have it automatically delivered • New measures to support the well-being of healthcare workers include: tools that prompt reflection and support a culture of openness about emotional health of healthcare workers, such as Wellness Action Plans for teams, and guidance from the Royal College of Psychiatrists about how organizations can maintain well-being of staff, a mental health hotline, and free counselling services

Table 5: Canadian provinces' and territories' experiences with re-opening non-COVID-19 activities in hospitals

Province/ territory	Key features of implemented strategies
Pan-Canadian	<ul style="list-style-type: none"> • The Canadian Medical Protective Association is providing advice on medical-legal protection for physicians that may apply to the re-opening of non-COVID-19 activities in hospitals • The Canadian Nurses Protective Society is providing advice on legal considerations when nursing in a pandemic (including accountabilities, mandatory reporting and reassignments, professional liability protection) that may apply to the re-opening of non-COVID-19 activities in hospitals
B.C.	<ul style="list-style-type: none"> • On 6 May 2020, the provincial government released BC's Restart Plan that lays out a stepped approach move through the COVID-19 pandemic. The plan indicates that elective and non-urgent surgeries will resume on 18 May 2020. • On 7 May 2020, the BC Ministry of Health Published its five-stepped approach for delivering surgical renewal: 1) increasing surgeries; 2) increasing essential personnel; 3) focusing on patients; 4) adding more resources; and 5) reporting on progress.
Alberta	<ul style="list-style-type: none"> • On 30 April 2020, the provincial government released its relaunch strategy <ul style="list-style-type: none"> ○ The strategy indicated that Alberta Health Services will resume some scheduled, non-urgent surgeries by 4 May 2020, with the most urgent patients and those waiting the longest receiving care first ○ Dental and other regulated healthcare workers (e.g., physiotherapists, speech language pathologists, respiratory therapists, audiologists, social workers, occupational therapists, and dietitians) can also resume services as long as they follow approved guidelines set by their professional colleges • In May 2020, the College of Physicians and Surgeons of Alberta published advice for the resumption of services
Saskatchewan	<ul style="list-style-type: none"> • On 8 May 2020, the provincial government released its Re-Open Saskatchewan Plan, with phase 1 highlighting the need to re-open previously restricted medical services. <ul style="list-style-type: none"> ○ The plan emphasized that key infection prevention and control measures should remain in place throughout each phase of re-opening.
Manitoba	<ul style="list-style-type: none"> • On 30 April 2020, the provincial government released its plan for Restoring Safe Services Together, with phase 1 indicating that elective surgeries and other non-emergent health services were re-started on 24 April 2020. The plan emphasized that all necessary precautions will be taken to protect staff and patients from the risk of COVID-19 including: <ul style="list-style-type: none"> ○ point-of-care screening; ○ the use of appropriate PPE; and ○ limiting the number of staff in the room. • The College of Physicians and Surgeons of Manitoba published advice on the resumption of services, including : <ul style="list-style-type: none"> ○ what they need to know about COVID-19; ○ infection prevention and control measures in place (e.g., PPE); or ○ what physicians living in another province but practising in Manitoba should know (and vice-versa). • The College of Registered Nurses of Manitoba released advice on the resumption of services, with an emphasis on infection prevention and control measures that are required.
Ontario	<ul style="list-style-type: none"> • On 7 May 2020, the provincial government released its comprehensive framework to help hospitals assess their readiness and begin planning for the gradual resumption of scheduled surgeries and procedures, while maintaining capacity to respond to COVID-19. This framework is part of stage 1 of the provincial strategy to re-open the province. The framework provides:

	<ul style="list-style-type: none"> ○ the COVID-19 Surgical and Procedural Feasibility Assessment for Hospitals, which highlights key clear criteria that must be met before hospitals can resume scheduled surgeries (e.g., a stable number of COVID-19 cases; a stable supply of personal protective equipment; a stable supply of medications; an adequate capacity of inpatient and intensive-care-unit beds; an adequate capacity of health human resources; and the availability of post-acute care outside the hospital that would be required to support patients after discharge; ○ recommended roles and responsibilities of Ontario Health, regions, and hospitals in surgical and procedural planning during the COVID-19 pandemic (e.g., involvement of regional or sub-regional COVID-19 Steering Committees, and the need to establish hospital Surgical and Procedural Oversight Committees, monitor hospital- and regional-level data, and collaborate in the design and implementation of plans to resume surgical and procedural activity); and ○ key implementation considerations (e.g., ensuring transparent communication and ongoing follow-up with patients, establishing a fair process for surgical and procedural case prioritization, and leveraging opportunities to improve care delivery). ● The College of Physicians and Surgeons of Ontario is providing advice about standards of care during a pandemic and how it will address complaints that arise during this time, which may be relevant to re-opening non-COVID-19 activities in hospitals. ● The Ontario Medical Association created <i>Reopening Ontario to a 'new normal': Five public health pillars for a safe return</i> which highlights both select experiences learned from other countries as well as five public-health pillars (and specific recommendations) that need to be in place for Ontario to be ready to re-open, which include: <ul style="list-style-type: none"> ○ continuance of personal protective measures, including wearing masks, physical distancing and hygiene practices; ○ continuance of necessary testing with investments in and uptake of innovative testing solutions, as well as serology testing and immunity research; ○ capacity to trace all case contacts, and enforce and support contact isolation; ○ protection of all populations and targeted approaches to protecting children and vulnerable populations; and ○ balancing public trust and public compliance in the other public-health pillars to safely re-open Ontario.
Quebec	<ul style="list-style-type: none"> ● On 8 May 2020, the provincial government released its plan for the Gradual resumption of activities under the COVID-19-related pause, but plans had already been released specifically about re-opening non-COVID-19 activities in hospitals <ul style="list-style-type: none"> ○ As of May 6, 2020, the Ministry of Health and Social Services updated its recommendations concerning the impact of COVID-19 and breast cancer screening and investigation activities (including criteria to resume activities based on a prioritization process, along with recommendations about psychosocial support for patients during that period) ○ As of May 4, 2020, the Ministry offers a guide for resuming specialized activities, which summarizes the procedures to be put in place to ensure a resumption of activities in a safe manner in healthcare settings (including key infection prevention and control measures, closely monitoring when patients are entering the facilities, extending hours of outpatient clinics, using telehealth services for 30% of consultations, and monitoring occupancy) ○ As of April 24, 2020, the Ministry is implementing a provincial plan for the gradual resumption of relieved specialized activities, to meet the demand related to the COVID-19 pandemic ○ As of April 24, 2020, the Ministry is implementing a prioritization system for access to surgery in a pandemic situation, along with psychosocial and moral support needing to be provided to patients during a pandemic ○ As of April 24, 2020, the Ministry is implementing an adaptation plan for the levels of oncology activities during the COVID-19 pandemic

	<ul style="list-style-type: none"> ○ As of April 24, 2020, the Ministry is implementing recommendations for the resumption of activities in the medical imaging sector
New Brunswick	<ul style="list-style-type: none"> ● As of 11 May 2020, priority elective surgeries resumed in the province. Both regional health authorities are providing detailed information to prepare patients for surgeries
Nova Scotia	<ul style="list-style-type: none"> ● No details found during the scan about re-opening non-COVID-19 activities in hospitals
Prince Edward Island	<ul style="list-style-type: none"> ● On 28 April 2020, the provincial government released its plan Renew PEI Together, with phase 1 indicating that priority non-urgent healthcare services to resume on 1 May 2020. The plan recommends that: <ul style="list-style-type: none"> ○ healthcare delivery should continue virtually whenever possible and feasible; ○ workers should use PPE as recommended by point-of-care risk assessment and/or as depending on their practice/location; and ○ certain elective surgeries and other priority services (e.g., cardiac supports, cancer screening, immunizations) should resume gradually to mitigate long-term impacts while maintaining capacity to treat COVID-19 patients.
Newfoundland and Labrador	<ul style="list-style-type: none"> ● No details found during the scan about re-opening non-COVID-19 activities in hospitals
Yukon	<ul style="list-style-type: none"> ● No details found during the scan about re-opening non-COVID-19 activities in hospitals
Northwest Territories	<ul style="list-style-type: none"> ● No details found during the scan about re-opening non-COVID-19 activities in hospitals
Nunavut	<ul style="list-style-type: none"> ● No details found during the scan about re-opening non-COVID-19 activities in hospitals

Waddell K, Wilson MG, Gauvin FP, Mansilla, C, Moat KA, Wang Q, Lavis JN. COVID-19 rapid evidence profile #7: What are the international lessons learned from re-opening non-COVID-19 activities in hospitals? Hamilton: McMaster Health Forum, 12 May 2020.

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Appendix 1: Methodological details

We use a standard protocol for preparing each rapid evidence profile (REP) to ensure that our approach to identifying research evidence as well as experiences from other countries and from Canadian provinces and territories are as systematic and transparent as possible in the time we were given to prepare the profile.

Identifying research evidence

For each REP, we search our continually updated guide to COVID-19 evidence sources (www.mcmasterforum.org/networks/covid-end/resources-for-researchers/guide-to-all-evidence-sources) for:

- 1) guidelines developed using a robust process (e.g., GRADE);
- 2) full systematic reviews;
- 3) rapid reviews;
- 4) guidelines developed using some type of evidence synthesis and/or expert opinion;
- 5) protocols for reviews or rapid reviews that are underway
- 6) titles/questions for reviews that are being planned; and
- 7) single studies (when no guidelines, systematic reviews or rapid reviews are identified)

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the rapid evidence profile, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment.

During this process we include published, pre-print and grey literature. We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French or Spanish. We provide any documents that do not have content available in these languages in an appendix containing documents excluded at the final stages of reviewing.

Identifying experiences from other countries and from Canadian provinces and territories

For each rapid evidence profile we collectively decide on what countries to examine based on the question posed. For international jurisdictions we search relevant sources included in our continually updated guide to COVID-19 evidence sources. These sources include government-response trackers that document national responses to the pandemic. In addition, we conduct searches of relevant government and ministry websites. In Canada, we search websites from relevant federal and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).

While we do not exclude countries based on language, where information is not available through the government-response trackers, we are unable to extract information about countries that do not use English, Chinese, French or Spanish as an official language.

Assessing relevance and quality of evidence

We assess the relevance of each included evidence document as being of high, moderate or low relevance to the question and to COVID-19. We then use a colour gradient to reflect high (darkest blue) to low (lightest blue) relevance.

Two reviewers independently appraise the methodological quality of systematic reviews and rapid reviews that are deemed to be highly relevant. Disagreements are resolved by consensus with a third reviewer if needed. AMSTAR rates overall methodological quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. High-quality reviews are those with scores of eight or higher out of a possible 11, medium-quality reviews are those with scores between four and seven, and low-quality reviews are those with scores less than four. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to health-system arrangements or to economic and social responses to COVID-19. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

Preparing the profile

Each included document is hyperlinked to its original source to facilitate easy retrieval. For all included guidelines, systematic reviews, rapid reviews and single studies (when included), we prepare declarative headings that provide a brief summary of the key findings and act as the text in the hyperlink. Protocols and titles/questions have their titles hyperlinked given that findings are not yet available. We then draft a brief summary that highlights the total number of different types of highly relevant documents identified (organized by document), as well as their key findings, date of last search (or date last updated or published), and methodological quality.

Appendix 2: Evidence documents that address the question, organized by document type and sorted by relevance to the question and COVID-19

Type of document	Relevance to decisions [based on taxonomy]	Focus	Recency or status
Guidelines developed using a robust process (e.g., GRADE)	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures • Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Training in new procedures • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	<p>Continuing or resuming gastrointestinal endoscopy and gastroenterology units must consider team formation and scheduling, stratification of infection risk based on procedure type, PPE use based on exposure risk level, adapt checklists for procedure preparedness and adapt cleaning of procedure rooms (Sociedad Española de Patología Digestiva and Asociación Española de Gastroenterología)</p>	Last updated April 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing cancer-treatment procedures • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	<p>Continuing or resuming liver transplantation during the COVID-19 pandemic requires additional testing for patients with suspected COVID-19, guidance for patients awaiting liver transplantation, protection of healthcare workers, utilization of telemedicine, and modifications to scheduling procedures (American Association for the Study of Liver Diseases)</p>	Last updated 7 April 2020

	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing cancer-treatment procedures • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Continuing or resuming breast imaging during the COVID-19 pandemic requires PPE for patients and staff, clear roles of offsite radiologist review and necessary equipment, postponement of low priority imaging, and performance of high priority imaging for patients with and without concern for COVID-19 (Canadian Society of Breast Imaging and Canadian Association of Radiology)	Last updated 2 April 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing other treatment procedures 	Continuing or resuming lung cancer radiotherapy requires treatment modifications for risk mitigation, guidance on treatment postponement, and criteria for patient triaging (ESTRO & ASTRO)	Last updated 6 April 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing other treatment procedures 	For performing different types of gastrointestinal procedures for patients regardless of COVID status, healthcare workers should wear different masks and gloves in negative pressure rooms following standard cleaning endoscopic disinfection and reprocessing protocols; and the triage and telemedicine should be considered (American Gastroenterological Association)	Last updated 31 March 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing other treatment procedures 	Principles and operational framework for maternity and neonatal services during the COVID-19 pandemic (Queensland Clinical Guidelines)	Last updated 26 March 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Delaying return visits, elective procedures, etc. 	Several guidelines for the resumption of elective services after COVID-19 have been published including prioritization methods, resource availability, procedures, screening and testing, communication, and use of ambulatory services (CADTH)	Published in 5 May 2020
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 	Strategies must be put in place to address expected or known face mask shortages (U.S. - Emergency Care Research Institute)	Last updated 22 April 2020

	respirators for health workers		
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Conventional-, contingency- and crisis-capacity strategies are necessary to optimize the supply of N95 respirators (U.S. CDC)	Last updated 2 April 2020
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Ethics prioritization guidance on the use of personal protective equipment under critical shortages (Ontario Health Bioethics Table)	Last updated 25 March 2020
	<ul style="list-style-type: none"> • Service planning for ‘return to normal’ <ul style="list-style-type: none"> ○ Wait-list management 	Management of referral, triage, wait list and reassessment of cardiac patients during the COVID-19 pandemic requires modifications to clinical visits and using telemedicine whenever possible, triaging of urgent and non-urgent diagnostic testing, modifications to scheduling procedures, and planning for resumption of services (Canadian Cardiovascular Society)	Last updated 7 April 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing cancer-treatment procedures 	Continuing dialysis services during the COVID-19 pandemic requires adapted patient education and communication, infection prevention for patients and healthcare workers, adapted patient triage, screening, and cohorting, transport, operational planning and staffing considerations, and adapted protocols for home dialysis (National Institute for Health and Care Excellence)	Last updated 20 March 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing cancer-treatment procedures 	Continuing the delivery of radiotherapy requires adapted patient education and communication, assessment and management of patients with symptoms of COVID-19, patient cohorting and scheduling for risk reduction, procedures for managing self-isolation of staff, prioritization of treatments based on risk stratification, and modification of care for risk reduction (National Institute for Health and Care Excellence)	Last updated 28 March 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions 	Continuing the delivery of systemic anti-cancer treatments requires adapted patient education and communication, infection prevention for patients and staff, protocols for patients with	Last updated 20 March 2020

	<ul style="list-style-type: none"> ○ Changing cancer-treatment procedures 	symptoms of COVID-19, guidance on isolating staff and using isolated staff to support care provision, and guidance on prioritizing patients for treatments (National Institute for Health and Care Excellence)	
	<ul style="list-style-type: none"> ● Service planning for COVID-19 treatment ○ Changing other treatment procedures (e.g., dialysis) 	Self-care home based dialysis is recommended for patients with end-stage kidney disease who have been eligible for home therapies (CADTH)	Last update 11 May 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions ○ Changing other treatment procedures (e.g., dialysis) 	Continuing the delivery of care for rheumatological autoimmune, inflammatory and metabolic bone disorders requires adapted patient communication, minimizing potential exposure in patients not known to have COVID-19, infection control and medication management in patients with known or suspected COVID-19, new referral procedures, new inpatient wards, and procedures for managing self-isolation of healthcare team members (National Institute for Health and Care Excellence)	Last updated 3 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions ○ Changing other treatment procedures (e.g., dialysis) 	Continuing the delivery of care for severe asthma requires adapted patient education and communication, minimizing potential exposure in patients not known to have COVID-19, proper care of respiratory equipment, and other modifications to usual care (National Institute for Health and Care Excellence)	Last updated 3 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions ○ Changing other treatment procedures (e.g., dialysis) 	Continuing the delivery of care for cystic fibrosis requires adapted patient education and communication, management considerations for patients with COVID-19, provision of necessary prescriptions and modifications to usual care, and procedures for managing self-isolation of healthcare team members (National Institute for Health and Care Excellence)	Last updated 9 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions ○ Changing other treatment procedures (e.g., dialysis) 	Continuing haematopoietic stem cell transplantation requires adapted patient education and communication, pre-transplant assessment and management for recipients and donors with and without COVID-19, guidance on isolating staff and using isolated staff to support care provision, prioritization of treatment based on risk stratification and modification of care for risk reduction (National Institute for Health and Care Excellence)	Last updated 1 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions 	Continuing or resuming cardiac electrophysiology during the COVID-19 pandemic requires measures to minimize exposure, guidance on urgent, semi-urgent, elective cardiac procedure classification, triaging procedures, modifying office-visit schedule,	Last updated 1 April 2020

	<ul style="list-style-type: none"> ○ Changing other treatment procedures (e.g., dialysis) ● Infrastructure planning and resource allocation ○ Remote monitoring 	using telemedicine and remote device monitoring whenever possible, and guidance on use of PPEs (Heart Rhythm Society COVID-19 Task Force; Electrophysiology Section of the American College of Cardiology; and the Electrocardiography and Arrhythmias Committee of the Council on Clinical Cardiology, American Heart Association)	
Full systematic reviews	<ul style="list-style-type: none"> ● Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down palliative-care capacity 	Hospice and palliative services can contribute through many roles during pandemics including ensuring protocols for symptom management are available and that non-specialists are trained on their use, triage, planning for shifting resources to the community, redeploying volunteers to provide psychosocial and bereavement care, facilitating camaraderie among staff, adopting measures to deal with stress, using technology to communicate with patients and carers, and adopting standardized data-collection systems to inform operational changes and improve care (AMSTAR rating 4/9)	Literature last searched 18 March 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	Cochrane special collection of reviews on regional anesthesia to avoid aerosol generation during surgery	Collection last updated on 29 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	Hospitals should consider planning resources and staffing, modifying clinical environments, ensuring availability of equipment and supplies (including PPE and oxygen therapy), and implementing proper assessment and monitoring protocols in support of regional anesthesia during surgery to reduce risk of virus aerosolization associated with general anesthesia (AMSTAR rating 2/9)	Literature last searched 9 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	For surgery deemed necessary, minimizing number of staff and shortening the time spent in operating theatres should be considered to mitigate risk of infection, with open surgery considered if safe laparoscopy isn't possible (particularly among COVID-19 positive patients) (AMSTAR rating 2/9)	Literature last searched 30 March 2020

	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	Significant changes to inpatient and outpatient units and operating rooms are needed to reduce risk of COVID-19 spread during oral and maxillofacial surgery, including postponing all but emergency procedures, proper planning among specialties with overlapping therapies, testing of patients for SARS-CoV-2, investing in and ensuring access to PPE, and ensuring there is negative pressure in all operating rooms. (AMSTAR rating 2/9)	Literature last searched 29 March 2020
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Lack of evidence about use of masks by those not diagnosed with COVID-19 to limit spread. (AMSTAR rating 3/6)	Literature last searched 10 April 2020
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Adequate PPE (level 4 surgical gowns, face shields and goggles, double gloves, FFP2-3 or N95-99 masks) should be used for orthopedic and trauma surgery particularly those using power tools, pulsatile lavage and electrocautery (which are aerosol-generating procedures), and telemedicine may be considered an electronic form of PPE during the COVID-19 crisis. (AMSTAR rating 6/10)	Literature last searched 1 April 2020
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Using standard PPE and providing training for donning and doffing masks reduces contamination from highly infectious diseases. (AMSTAR rating 9/10)	Literature last searched 26 March 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down emergency-room capacity 	Empty review about the use of ward closures to control outbreaks of infectious diseases among hospitalized patients	Literature last searched 7 July 2014
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	All patients presenting for surgical intervention should be suspected of infection, and risk-mitigation measures should be taken in the ICU and OR, including following guidance about how to reduce potential for aerosolized viral particle transmission, using PPE, handwashing and workplace social distancing	Last updated 20 April 2020

<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	Orthopedic departments should prioritize personal safety and slowing the spread of COVID-19 in order to maintain vital functions, and can consider modifications in selecting patients for surgery, pre-surgical screening, the use of ambulatory surgery centres, inpatient telemedicine and file sharing for online case communications, as well as enhanced support for inpatient physical or social distancing and staff wellness	Last updated 17 April 2020
<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Ventilators for sick COVID-19 patients 	Weaning protocols for ventilator use can be successful when they accommodate the complexities of the ICU environment and when all ICU staff are trained in their implementation	Literature last searched 25 February 2015
<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Ventilators for sick COVID-19 patients 	Scoring systems can be used to prioritize ventilators for pediatric patients during a pandemic	Literature last searched February 2010
<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Remote monitoring ○ Virtual visits 	Surgical subspecialties and oncologic resections lend themselves well to preoperative telehealth surgical evaluations, while effective post-surgical follow-up can be supported through video conferences and pictures with high degrees of success	Last updated 18 April 2020
<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Remote monitoring ○ Virtual visits 	Cochrane special collection of reviews on virtual care including for: asthma and COPD; cardiovascular conditions; mental health and neurological conditions; conditions related to genetic disorders; abdominal and endocrine conditions; fertility, pregnancy, and neonatal conditions; eyes and vision conditions; and skin conditions	Collection last updated 6 May 2020
<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	Telemedicine can be used to address patients' priority concerns such as screening for COVID-19 symptoms, and for providing advice about disease prevention and treatment	Literature last searched 30 March 2020
<ul style="list-style-type: none"> • Workforce planning (including workforce-shortage management and development) <ul style="list-style-type: none"> ○ Role extensions ○ Training in new procedures 	Considerations for implementing task-shifting strategies during the COVID-19 pandemic	Published in April 2020
<ul style="list-style-type: none"> • Workforce planning <ul style="list-style-type: none"> ○ Recruitment ○ Training in new procedures 	Context specific planning including increasing capacity through training, redistribution of existing staff and recruitment from the private sector and civil society may help to address hospital surge capacity during epidemics	Literature last searched 2018

	<ul style="list-style-type: none"> • Workforce planning (including workforce-shortage management and development) <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	The majority of healthcare workers perceive and are accepting of personal and familial health risks and stigmatization from exposure to respiratory infectious diseases, but risk-mitigating strategies (e.g., implementation of infection prevention and control measures, avoidance of patients and compliance with PPE protocols) and other incentives are needed to ensure willingness to work, particularly among those with high-risk perceptions	Literature last searched January 2009
	<ul style="list-style-type: none"> • Employment <ul style="list-style-type: none"> ○ Worker supports • Financial protection <ul style="list-style-type: none"> ○ Wage subsidies for essential workers 	Institutions may want to consider providing supports such as compensation payment and additional vacation where appropriate to professionals following their exposure to infected patients	Literature last searched 2009
Rapid reviews	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers • Workforce planning (including workforce-shortage management and development) <ul style="list-style-type: none"> ○ Training in new procedures • Support for workers in healthcare settings 	Front-line health workers should be provided with personal protective equipment (PPE) in adequate quantity, training on proper usage of PPE, psychosocial support, non-performance-based incentives, additional transport allowance, childcare support, awards and recognition (AMSTAR rating 3/9)	Last updated 23 May 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 prevention <ul style="list-style-type: none"> ○ Re-locating hospital-based ambulatory clinics, cancer treatments, etc. 	Targeted interventions to influenza, COPD, CHF, diabetes, UTI, and cellulitis should be increasingly managed in primary-care settings to reduce preventable hospital admissions	Published 22 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down capacity to manage the pandemic-related impacts on health 	Services that have been put in place for young people in difficulty should be maintained during the recovery phase of the pandemic, especially to support those who experienced trauma (Institut national d'excellence en santé et en services sociaux)	Literature last searched 20 April 2020

	<p>more generally (e.g., mental health and addictions)</p> <ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down capacity to manage the pandemic-related impacts on health more generally (e.g., mental health and addictions) • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	<p>Services put in place to support people with addiction or homelessness during the COVID-19 pandemic should be maintained during the recovery phase (including remote services and mobile clinics, openings of emergency beds and accommodation, or adapting the management of opioid addictions) (Institut national d'excellence en santé et en services sociaux)</p>	<p>Literature last searched 20 April 2020</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down capacity to manage the pandemic-related impacts on health more generally (e.g., mental health and addictions) • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	<p>Remote mental health services and those using innovative technologies should be maintained, scaled up and deployed during the recovery phase and after the pandemic, for both the general population and healthcare providers (Institut national d'excellence en santé et en services sociaux)</p>	<p>Literature last searched 20 April 2020</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down capacity to manage the pandemic-related impacts on health more generally (e.g., mental health and addictions) 	<p>Mental health services should be maintained, restored or deployed to the general population during the recovery phase of the pandemic (Institut national d'excellence en santé et en services sociaux)</p>	<p>Literature last searched 9 April 2020</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Triage protocols 	<p>A number of approaches and principles are available to triage tools for ICU admissions during COVID-19, including the survival probability, clinical criteria, and patient factors</p>	<p>Last updated 13 April 2020</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down palliative-care capacity 	<p>Guidance varies in the use of stepped approaches to palliative care during COVID-19 pandemic</p>	<p>Last updated 12 April 2020</p>

	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Testing for COVID-19 before surgery is usually recommended for high-risk surgeries	Literature last searched 14 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	A roadmap for action in healthcare facilities is recommending a series of strategies to control and manage outbreak infections	Published 31 March 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Two health technology assessments, three systematic reviews, six non-randomized studies, and one evidence-based guideline were identified to address non-manual room disinfection techniques to prevent infections in healthcare settings	Literature last searched 11 October 2018
	<ul style="list-style-type: none"> • Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Role extensions 	Rapid orientation programs and training issues should be implemented when redeploying staff, whereas welfare and wellness issues should be mitigated.	Literature last searched in 29 March 2020
	<ul style="list-style-type: none"> • Workforce planning (including workforce shortage-management and development) <ul style="list-style-type: none"> ○ Training in new procedures ○ Volunteer engagement to support vulnerable populations 	Training non-specialists in palliative care, deploying volunteers, using technology to support communication with patients and carers, and providing different models could be considered when organizing palliative care during the COVID-19 pandemic	Last updated 12 April 2020
Guidelines developed using some type of evidence synthesis and/or expert opinion	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing cancer-treatment procedures 	Consider delaying or postponing non-urgent appointments, screening, diagnosis/staging, management procedures for patients with cancer, but carefully weigh the related risks and benefits, using telemedicine for appointments, consultations, and follow-up visits (DynaMed)	Last updated 8 May 2020
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions 	Recommendations on safely conducting imaging and image-guided intervention during the COVID-19 pandemic (Canadian Association of Radiologists, Canadian Society on Thoracic Radiology)	Last updated 25 March 2020

	<ul style="list-style-type: none"> ○ Changing other treatment procedures • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures • Workforce planning <ul style="list-style-type: none"> ○ Role extensions ○ Training in new procedures ○ Movement-control strategies ○ Support for workers in healthcare settings • Professional authority <ul style="list-style-type: none"> ○ Licensure changes to accommodate out-of-jurisdiction or retired health workers 	Recommendations for surgeons and surgical teams on adapting surgical services, extending scope of practice and team-working, and protecting the workforce (Royal College of Surgeons of England)	Last updated 3 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 prevention <ul style="list-style-type: none"> ○ Changing emergency medical-service procedures (ambulances, paramedics) 	Best practices to prevent and control healthcare-associated infections in prehospital care settings, including paramedic vehicle design (Canadian Standard Association Group)	Published in September 2018
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Surge-management models 	Preparing for hospital surge in critical care as a result of COVID-19 requires rapid and collaborative planning and development of procedures for infection control, clinical operational challenges, ICU-bed surge capacity, adequate staffing, complex ethical dilemmas and staff wellness (U.S.)	Published April 16, 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Recommendations for inpatient management of patients to prevent and control COVID-19 in Acute Healthcare Settings (Public Health Agency of Canada)	Last updated: 22 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment 	Recommendation of healthcare facility design strategies to prevent and control infections (Canadian Standard Association Group)	Published during 2018

	<ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 		
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	Surgeons performing gynecological surgery deemed necessary during the COVID-19 pandemic should take all precautions to reduce aerosolization of the virus, and aim for minimally invasive procedures to reduce inpatient hospitalization period	Last updated 29 April 2020
	<ul style="list-style-type: none"> ● Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Delaying return visits, elective procedures, etc. 	A range of special precautions need to be considered in adapted clinical service models (e.g., work-place segregation, social distancing, containment of cross-infection to healthcare workers, use of PPE and telemedicine) in order to safeguard mothers, the fetus and healthcare workers during the COVID-19 pandemic	Last updated 17 March 2020
	<ul style="list-style-type: none"> ● Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	Recommendations to minimize the need for gowns, to plan contingency or crises capacity strategies, or alternatives where no gowns are available (Emergency Care Research Institute (ECRI))	Published 8 April 2020
	<ul style="list-style-type: none"> ● Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers ● Workforce planning (including workforce shortage-management and development) <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	Protecting and supporting staff to optimize maternity services during the COVID-19 pandemic	Last updated 8 April 2020
	<ul style="list-style-type: none"> ● Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Ventilators for sick COVID-19 patients 	Clinical recommendations to allocate ventilators and intensive care treatments in exceptional resource-limited circumstances (Societa Italiana Di Anestesia Analgesia Rianimazione e Terapia Intensiva (SIAARTI))	Last update 16 March 2020

	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	Patient assessments and follow-up via phone or telehealth could be the alternate prenatal- and postpartum-care approach during the COVID-19 pandemic	Last updated 11 May 2020
Protocols for reviews or rapid reviews that are underway	<ul style="list-style-type: none"> • Service planning for COVID-19 prevention <ul style="list-style-type: none"> ○ Relocating hospital-based ambulatory clinics, cancer treatments, etc. 	Effectiveness, safety and acceptability of medical abortion at home in response to COVID-19	Anticipated completion date 15 June 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down testing capacity 	Effectiveness of mass testing to control COVID-19	Anticipated completion date 31 August 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Triage protocols 	Triage protocols for ICU admissions during periods of high demand for ICU care during the COVID-19 pandemic	Anticipated completion date 10 May 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Efficacy of disinfectants and safety for decontamination of surfaces in healthcare environments	Anticipated completion date 01 June 2020
	<ul style="list-style-type: none"> • Workforce planning <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	Examining the impact of COVID-19 on mental well-being of healthcare workers in hospital settings and recommendations for moving forward	Anticipated date of completion 19 May 2020
	<ul style="list-style-type: none"> • Workforce planning <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	Supports for post-traumatic stress disorder following infectious-disease outbreaks	Anticipated completion date 30 July 2020
	<ul style="list-style-type: none"> • Treatment of COVID-19 sequelae 	Examining the radiological and lung function sequelae of viral pneumonias including COVID-19 in adults	Anticipated dated of completion 01 November 2020
	Titles/questions for reviews that are being planned	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down testing capacity 	Clinical markers or scoring systems for diagnosis or assessment of severity of COVID-19 infection
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment 		Reorganizing health services to respond to sharp increases in demand for ICU beds	Question not yet addressed (added 29 April 2020)

	<ul style="list-style-type: none"> ○ Scaling up/down ICU capacity 		
	<ul style="list-style-type: none"> ● Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down palliative-care capacity 	<u>Determining the circumstances to palliate elderly/frail patients at home</u>	Question under review
	<ul style="list-style-type: none"> ● Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down palliative-care capacity ● Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for unpaid caregivers 	<u>Enabling and supporting patients with COVID-19 and their family or unpaid carers to manage safe and effective titration of palliative care medication at home</u>	Question under review
	<ul style="list-style-type: none"> ● Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for unpaid caregivers ● Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for unpaid caregivers 	<u>Enabling and supporting patients with COVID-19 and their lay carers to manage safe and effective palliative care treatment at home</u>	Question in development
	<ul style="list-style-type: none"> ● Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down COVID-19 sequelae-management capacity 	<u>Determining risk for serious illness in ED patients to identify who needs ICU, acute care or discharge home</u>	Question in development
	<ul style="list-style-type: none"> ● Service planning for COVID-19 treatment 	<u>Appropriate use of medical imaging in COVID-19 patients (chest X-Ray, chest CT and lung ultrasound)</u>	Question in development

	<ul style="list-style-type: none"> ○ Scaling up/down COVID-19 sequelae-management capacity 		
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down COVID-19 sequelae-management capacity 	Information that can help healthcare workers identify when treatment aimed at prolonging life is proving ineffective (or its burden outweighs its benefit), and to support appropriate treatment de-escalation decisions	Question under review
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down capacity to manage the pandemic-related impacts on health more generally (e.g., mental health and addictions and pediatrics) 	Optimizing preparedness of pediatric units during the COVID-19 pandemic	Question not yet addressed (added 30 April 2020)
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Continuous support for asymptomatic women in labour and the risks of COVID-19 transmission	Question not yet addressed (added 6 April 2020)
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Effects of spending less than 15 minutes in contact with COVID - 19 patients to protect healthcare workers from contamination	Question not yet addressed (added 6 April 2020)
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Effectiveness of negative pressure operation theatre settings for controlling infection	Question not yet addressed (added 6 April 2020)
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Impact of COVID-19 on staff infection prevention and control practices	Question not yet addressed (added 29 April 2020)

<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Effectiveness of interventions to prevent infection among healthcare professionals	Question not yet addressed (added 25 March 2020)
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Aerosol-generating procedures, virus transmission and PPE during cardiac-arrest treatment (CPR and defibrillation)	Question in development
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Assessing the risk of transmission of COVID-19 through aerosols from nasopharyngeal/oropharyngeal swabs for testing	Review underway
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Mother-to-child transmission and outcomes of COVID-19 during pregnancy	Question in development
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Determining whether there is elevated risk of asymptomatic women admitted for childbirth for contracting COVID-19	Question not yet addressed (added 6 April 2020)
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Immediate postnatal care of the newborn in the delivery room to prevent transmission of COVID-19	Question in development
<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Handling dead bodies 	Safe management of dead bodies	Question in development
<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	Diagnostic methods for use in remote consultations (telephone and video consulting) to identify whether a patient needs hospital treatment	Question in development

	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	<u>Use of telephone or video consultations in palliative care and the impact on physical, psychological, social and spiritual well-being during COVID-19</u>	Question under review
	<ul style="list-style-type: none"> • Workforce planning (including workforce shortages management) and development <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	<u>Evidence about healthcare workers continuing to work at the clinical front line when pregnant</u>	Question under review
	<ul style="list-style-type: none"> • Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	<u>Healthcare service leadership and management practices that reduce or mitigate burnout among front-line managers</u>	Question not yet addressed (added 27 April 2020)
	<ul style="list-style-type: none"> • Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	<u>Supporting staff resilience and well-being during the COVID-19 pandemic</u>	Question in development
	<ul style="list-style-type: none"> • Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	<u>Effects of psychological interventions for healthcare providers on the response to necessary exposure in life-threatening situations</u>	Question not yet addressed (added 29 April 2020)
	<ul style="list-style-type: none"> • Workforce planning (including workforce-shortages management) and development <ul style="list-style-type: none"> ○ Support for workers in healthcare settings 	<u>Long-term implications of COVID-19 for front-line healthcare workers</u>	Question not yet addressed (added 27 April 2020)
	<ul style="list-style-type: none"> • Service planning for ‘return to normal’ <ul style="list-style-type: none"> ○ Sequencing of services re-starting, by sector, 	<u>Organizing services to provide essential non-COVID-19 care</u>	Question not yet addressed (added 25 March 2020)

	conditions, treatments (including diagnostics), and populations		
	<ul style="list-style-type: none"> • Approach to population-health management for COVID-19 and for those whose care is disrupted by COVID-19 <ul style="list-style-type: none"> ○ Segmenting the population into groups with shared health and social needs 	Harms for vulnerable populations of public-health measures to prevent the spread of COVID-19	Question in development
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down COVID-19 sequelae-management capacity 	COVID-19 patients and their illness trajectory, resource utilization, and outcome on ICU	Question in development
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	Assessing the risk of transmission of COVID-19 through aerosols from high-flow nasal cannula oxygen therapy	Review underway
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing cancer-treatment procedures 	Risk of COVID-19 for adult patients on chemotherapy treatment for cancer	Question in development
	<ul style="list-style-type: none"> • Service planning for 'return to normal' <ul style="list-style-type: none"> ○ Sequencing of services re-starting, by sector, conditions, treatments (including diagnostics), and populations 	Clinical pharmacy staffing models in a prolonged pandemic	Question not yet addressed (added 25 March 2020)
Primary studies of particularly innovative models	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down emergency-room capacity 	Framework for physician deployment to scale up emergency-room care can be based on six principles: 1) create an organizational structure; 2) define your need; 3) identify and optimize the pools of healthcare providers; 4) create surge teams; 5) prepare and deliver orientation materials; and 6) optimize working conditions for staff	Published May 4 2020

	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Surge-management models 	<u>Locally developed models to simulate surges in clinical demand can inform clinical operations and staffing procedures</u>	Published 7 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Surge-management models 	<u>Surge management requires multidisciplinary collaboration to allow for appropriate space definition, supply provisions, staff recruitment, and ad hoc training of providers</u>	Published 4 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Triage protocols 	<u>Hospital triage using epidemiological characteristics may support the rapid identification of COVID-19 cases, however lack of sharing information between healthcare facilities may slow down this triage model</u>	Pre-print
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	<u>Refined management strategies, including prevention and control measures, grid auditing, improved communication between teams and public reporting, may be effective for the prevention and control of COVID-19 in non-isolated areas of a general hospital</u>	Published 8 April 2020
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Ventilators for sick COVID-19 patients 	<u>Few hospitals were found to have ventilator triage policies or triage committees and those that did showed significant heterogeneity in their make-up</u>	Published 24 April 2020
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	<u>Internet hospitals in China have been used to offer essential medical supports to the public during COVID-19 outbreak and continue to play an important role in supporting hospitals during their transitions back to regular operations</u>	Published 14 April 2020

Appendix 3: Abstracts for highly relevant documents

Note that the table below only includes the abstracts for the documents that we identified in Table 1 as being highly relevant to the question.

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
Full systematic reviews	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down palliative-care capacity 	<p>Hospice and palliative services can contribute through many roles during pandemics including ensuring protocols for symptom management are available and that non-specialists are trained on their use, triage, planning for shifting resources to the community, redeploying volunteers to provide psychosocial and bereavement care, facilitating camaraderie among staff, adopting measures to deal with stress, using technology to communicate with patients and carers, and adopting standardized data-collection systems to inform operational changes and improve care</p> <p>Abstract Cases of coronavirus disease 2019 (COVID-19) are escalating rapidly across the globe, with the mortality risk being especially high among those with existing illness and multimorbidity. This study aimed to synthesize evidence for the role and response of palliative care and hospice teams to viral epidemics/pandemics and inform the COVID-19 pandemic response. We conducted a rapid systematic review according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines in five databases. Of 3,094 articles identified, 10 were included in this narrative synthesis. Included studies were from West Africa, Taiwan, Hong Kong, Singapore, the U.S., and Italy. All had an observational design. Findings were synthesized using a previously proposed framework according to systems (policies, training and protocols, communication and coordination, and data), staff (deployment, skill mix, and resilience), space (community provision and use of technology), and staff (medicines and equipment as well as personal protective equipment). We conclude that hospice and palliative services have an essential role in the response to COVID-19 by: responding rapidly and flexibly; ensuring protocols for symptom management are available, and training non-specialists in their use; being involved in triage; considering shifting resources into the community; considering redeploying volunteers to provide psychosocial and bereavement care; facilitating camaraderie among staff and adopting measures to deal with stress; using technology to communicate with patients and carers; and adopting standardized data collection systems to inform operational changes and improve care.</p>
	<ul style="list-style-type: none"> • Service planning for the ongoing 	<p>Hospitals should consider planning resources and staffing, modifying clinical environments, ensuring availability of equipment and supplies (including PPE and oxygen therapy) and implementing proper</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
	management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	<p>assessment and monitoring protocols in support of regional anesthesia during surgery to reduce risk of virus aerosolization associated with general anesthesia</p> <p>Abstract Coronavirus disease 2019 (COVID-19) has had a significant impact on global healthcare services. In an attempt to limit the spread of infection and to preserve healthcare resources, one commonly used strategy has been to postpone elective surgery, whilst maintaining the provision of anesthetic care for urgent and emergency surgery. General anesthesia with airway intervention leads to aerosol generation, which increases the risk of COVID-19 contamination in operating rooms and significantly exposes the healthcare teams to COVID-19 infection during both tracheal intubation and extubation. Therefore, the provision of regional anesthesia may be key during this pandemic, as it may reduce the need for general anesthesia and the associated risk from aerosol-generating procedures. However, guidelines on the safe performance of regional anesthesia in light of the COVID-19 pandemic are limited. The goal of this review is to provide up-to-date, evidence-based recommendations, or expert opinion when evidence is limited, for performing regional anesthesia procedures in patients with suspected or confirmed COVID-19 infection. These recommendations focus on seven specific domains including: (1) planning of resources and staffing; (2) modifying the clinical environment; (3) preparing equipment, supplies and drugs; (4) selecting appropriate personal protective equipment; (5) providing adequate oxygen therapy; (6) assessing for and safely performing regional anesthesia procedures; and (7) monitoring during the conduct of anesthesia and post-anesthetic care. Implicit in these recommendations is preserving patient safety whilst protecting healthcare providers from possible exposure.</p>
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	<p>For surgery deemed necessary, minimizing number of staff and shortening the time spent in operating theatres should be considered to mitigate risk of infection, with open surgery considered if safe laparoscopy isn't possible (particularly among COVID-19 positive patients)</p> <p>Abstract INTRODUCTION: Several articles have been published about the reorganisation of surgical activity during the COVID-19 pandemic but few, if any, have focused on the impact that this has had on emergency and trauma surgery. Our aim was to review the most current data on COVID-19 to provide essential suggestions on how to manage the acute abdomen during the pandemic. METHODS: A systematic review was conducted of the most relevant English language articles on COVID-19 and surgery published between 15 December 2019 and 30 March 2020. FINDINGS: Access to the operating theatre is almost exclusively restricted to emergencies and oncological procedures. The use of</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
		<p>laparoscopy in COVID-19 positive patients should be cautiously considered. The main risk lies in the presence of the virus in the pneumoperitoneum: the aerosol released in the operating theatre could contaminate both staff and the environment. CONCLUSIONS: During the COVID-19 pandemic, all efforts should be deployed in order to evaluate the feasibility of postponing surgery until the patient is no longer considered potentially infectious or at risk of perioperative complications. If surgery is deemed necessary, the emergency surgeon must minimise the risk of exposure to the virus by involving a minimal number of healthcare staff and shortening the occupation of the operating theatre. In case of a lack of security measures to enable safe laparoscopy, open surgery should be considered.</p>
	<ul style="list-style-type: none"> • Service planning for the ongoing management of other conditions <ul style="list-style-type: none"> ○ Changing acute-care surgery and trauma-care procedures 	<p><u>Significant changes to inpatient and outpatient units and operating rooms are needed to reduce risk of COVID-19 spread during oral and maxillofacial surgery including postponing all but emergency procedures, proper planning among specialties with overlapping therapies, testing of patients for SARS-CoV-2, investing in and ensuring access to PPE, and ensuring there is negative pressure in all operating rooms</u></p> <p>Abstract</p> <p>Oral and maxillofacial surgery is correlated with a high risk of SARS-CoV-2 transmission. Therefore, the aim of the review is to collect and discuss aspects of the management of patients in oral and maxillofacial surgery during the COVID-19 pandemic.</p> <p>In order to save resources and to avoid unnecessary exposure to infected patients, there is the need to schedule interventions depending on their priority. During the peak of the pandemic, no elective surgery should be performed. Even urgent procedures might be postponed if there is a view to recovery of a COVID-19 patient within a few days. Emergency procedures do not allow any delay. Specialties with overlap in therapies should have well-defined arrangements among each other concerning the treatment spectra in order to avoid redundancy and loss of resources.</p> <p>Inpatient and outpatient units have to be organized in such a way that the risk of cross-infection among patients is reduced to a minimum. Especially, testing of patients for SARS-CoV-2 is important to detect the infected patients at an early stage. When surgery is performed on COVID-19 patients, adequate personal protective equipment is crucial. There must be negative pressure in the operating room, and aerosol formation must be reduced to a minimum.</p> <p>In order to address the COVID-19 challenge adequately, significant changes in the infrastructure of outpatient units, inpatient units, and operating rooms are needed. In addition, the demands concerning personal protective equipment increase significantly. The major aim is to protect patients as well as the medical staff from unnecessary infection, and to keep the healthcare system running effectively. Therefore, every effort should be taken to make the necessary investments.</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	<p>Lack of evidence about use of masks by those not diagnosed with COVID-19 to limit spread (</p> <p>Background Face masks are being used by individuals who are not medically diagnosed with COVID-19 as a means to limit the spread of COVID-19 in several countries around the world. While some countries recommend the use of face masks, other countries do not recommend their use to limit the transmission of COVID-19 among this specific population. Because of contradicting recommendations provided by health authorities of different countries, this paper aims to investigate the availability of scientific evidence on the effectiveness of face mask use in limiting the spread of COVID-19 among individuals who are not medically diagnosed with COVID-19 through a systematic review search. This paper will further discuss concerns around current recommendations provided to those who are not medically diagnosed with COVID-19 regarding face mask use in the context of available evidence.</p> <p>Methods To carry out the systematic review on the effectiveness of face mask use in limiting the spread of COVID-19 among individuals who are not medically diagnosed with COVID-19, databases Cochrane Library, EMBASE, Google Scholar, PubMed, and Scopus were searched for relevant studies. Two groups of keywords were combined: those relating to face masks and COVID-19.</p> <p>Results The systematic review search did not find any studies that investigated the effectiveness of face mask use in limiting the spread of this specific virus, COVID-19 among this specific population, those who are not medically diagnosed with COVID-19.</p> <p>Conclusions In light of the finding of this systematic review search, which is a lack of scientific evidence on the effectiveness of face masks in limiting the spread of COVID-19 among those who are not medically diagnosed with COVID-19, the significance of this finding is highlighted and extensively discussed in this paper. This paper calls for, but does not limit to; 1) evidence-based recommendations; 2) considerations when providing recommendations in the absence of evidence; 3) evidence and knowledge transparency on current recommendations with the public; 4) global alignment on recommendations; and 5) further research.</p>
	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation 	<p>Adequate PPE (level 4 surgical gowns, face shields and goggles, double gloves, FFP2-3 or N95-99 masks) should be used for orthopedic and trauma surgery, particularly those using power tools, pulsatile lavage and electrocautery (which are aerosol-generating procedures), and telemedicine may be considered an electronic form of PPE during the COVID-19 crisis</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
	<ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	<p>Abstract</p> <p>PURPOSE: With the COVID-19 crisis, recommendations for personal protective equipment (PPE) are necessary for protection in orthopaedics and traumatology. The primary purpose of this study is to review and present current evidence and recommendations for personal protective equipment and safety recommendations for orthopaedic surgeons and trauma surgeons. METHODS: A systematic review of the available literature was performed using the keyword terms "COVID-19", "Coronavirus", "surgeon", "health-care workers", "protection", "masks", "gloves", "gowns", "helmets", and "aerosol" in several combinations. The following databases were assessed: Pubmed, Cochrane Reviews, Google Scholar. Due to the paucity of available data, it was decided to present it in a narrative manner. In addition, participating doctors were asked to provide their guidelines for PPE in their countries (Austria, Luxembourg, Switzerland, Germany, UK) for consideration in the presented practice recommendations. RESULTS: World Health Organization guidance for respiratory aerosol-generating procedures (AGPs) such as intubation in a COVID19 environment was clear and included the use of an FFP3 (filtering face piece level 3) mask and face protection. However, the recommendation for surgical AGPs, such as the use of high-speed power tools in the operating theatre, was not clear until the UK Public Health England (PHE) guidance of 27 March 2020. This guidance included FFP3 masks and face protection, which UK surgeons quickly adopted. The recommended PPE for orthopaedic surgeons, working in a COVID19 environment, should consist of level 4 surgical gowns, face shields or goggles, double gloves, FFP2-3 or N95-99 respirator masks. An alternative to the mask, face shield and goggles is a powered air-purifying respirator, particularly if the surgeons fail the mask fit test or are required to undertake a long procedure. However, there is a high cost and limited availability of these devices at present. Currently available surgical helmets and toga systems may not be the solution due to a permeable top for air intake. During the current COVID-19 crisis, it appeared that telemedicine can be considered as an electronic personal protective equipment by reducing the number of physical contacts and risk contamination. CONCLUSION: Orthopaedic and trauma surgery using power tools, pulsatile lavage and electrocautery are surgical aerosol-generating procedures and all body fluids contain virus particles. Raising awareness of these issues will help avoid occupational transmission of COVID-19 to the surgical team by aerosolization of blood or other body fluids and hence adequate PPE should be available and used during orthopaedic surgery. In addition, efforts have to be made to improve the current evidence in this regard. LEVEL OF EVIDENCE: IV.</p>
	<ul style="list-style-type: none"> ● Infrastructure planning and resource allocation 	<p>Using standard PPE and providing training for donning and doffing masks reduces contamination from highly infectious diseases</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
	<ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers 	<p>Findings for practice</p> <p>In addition to other infection control measures, consistent use of full-body personal protective equipment (PPE) can diminish the risk of infection for healthcare workers (HCW). EN (European) and ISO (international) standards for protective clothing and fabric permeability for viruses are helpful to determine which PPE should technically protect sufficiently against highly infectious diseases. However, the risk of contamination depends on more than just these technical factors. In simulation studies, contamination happened in almost all intervention and control arms.</p> <p>For choosing between PPE types, there is very low-certainty evidence, based on single-exposure simulation studies. Covering more parts of the body leads to better protection but usually comes at the cost of more difficult donning (putting on) or doffing (taking off) and user comfort, and may therefore even lead to more contamination. A powered, air-purifying respirator (PAPR) with a hood may protect better than an N95 mask with a gown but is more difficult to don. A long gown may be the best compromise between protection and ease of doffing. Coveralls may be more difficult to doff. A more breathable fabric may still lead to similar levels of contamination protection to less breathable fabric, and may be preferred by users.</p> <p>For changes to PPE, there is low- to very low-certainty evidence that adding tabs to gloves or masks or closer fit of gowns at the neck or the wrist may decrease contamination, even though one study could not show a decrease in donning or doffing errors.</p> <p>For different procedures of donning and doffing, there is very low-certainty evidence that double gloves, as part of PPE and following Centers for Disease Control and Prevention (CDC) guidelines, and providing users with help or spoken instructions during donning and doffing may reduce the risk of contamination. Extra disinfection of gloves with bleach or quaternary ammonium may decrease hand contamination but not alcohol-based hand rub.</p> <p>For various training procedures there is very low-certainty evidence that more active training (including video or computer simulation or spoken instructions) may increase compliance with instructions compared to passive training (lectures or no added instructions). No studies compared methods to retain PPE skills needed for proper donning and doffing in the long term.</p> <p>The certainty of the evidence is low to very low for all comparisons because conclusions are based on one or two small studies and a high or unclear risk of bias in studies, indirectness of evidence, and small numbers of participants. This means that we are uncertain about the estimates of effects and it is therefore possible that the true effects may be substantially different from the ones reported in this review.</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
Rapid reviews	<ul style="list-style-type: none"> • Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Personal protective equipment (under shortage conditions), including N95 respirators for health workers • Workforce planning (including workforce-shortage management and development) <ul style="list-style-type: none"> ○ Training in new procedures ○ Support for workers in healthcare settings 	<p>Front-line health workers should be provided with personal protective equipment (PPE) in adequate quantity, training on proper usage of PPE, psychosocial support, non-performance-based incentives, additional transport allowance, childcare support, awards and recognition</p> <p>Key policy considerations</p> <p>COVID-19 is a respiratory illness caused by a newly discovered coronavirus. It has now become a pandemic affecting 187 countries. Apart from hospital preparedness, it is essential to ensure front-line health workers (FLHWs) are prepared too, considering all possible scenarios. FLHWs like Accredited Social Health Activists (ASHA) can potentially play a role in COVID-19 prevention and control. Key policy considerations are:</p> <ol style="list-style-type: none"> 1. FLHWs will be at an increased risk of COVID-19, even in the course of their normal activities. It is essential to provide personal protective equipment (gloves, surgical masks, hand sanitizers; N95 masks if involved in contact tracing) in adequate quantity. This should be accompanied by training on proper usage in the early phase itself. 2. Disruption in supply-chain, logistics and supportive supervision might be expected and this would impact routine service delivery. Advice should be given on which activities are to continue and which might be postponed. Guidelines and protocols for conducting additional activities and training is required. 3. Engaging FLHWs who continue to perform routine service delivery in additional contact identification and listing, is not without its risk including that of transmission of COVID-19. A role focussed on creating awareness and support for prevention and countering social stigma is recommended for FLHWs. 4. FLHWs might experience stigmatization, isolation and be socially ostracized. Providing psychosocial support, non-performance-based incentives, additional transport allowance, and childcare support should be planned. Awards and recognition are required for motivation. 5. Social distancing related measures might not be appropriate in many contexts like urban slums, large/joint families, those living in small houses and the homeless.
Primary studies of particularly innovative models	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Scaling up/down emergency-room capacity 	<p>Framework for physician deployment to scale up emergency-room care can be based on six principles: 1) create an organizational structure; 2) define your need; 3) identify and optimize the pools of healthcare providers; 4) create surge teams; 5) prepare and develop orientation materials; and 6) optimize working conditions for staff</p> <p>Summary</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
		<p>The coronavirus pandemic has led to tremendously increased numbers of patients requiring hospitalization, particularly in New York City, which is currently an epicenter of the disease. Mount Sinai Hospital was able to successfully plan for and accommodate patient load by taking an aggressive, proactive approach to physician deployment, which allowed them to quickly scale delivery of care for hospitalized patients. They provide a framework based on six overarching principles: (1) create an organizational structure; (2) define your need; (3) identify and optimize your pool of healthcare providers; (4) create surge teams; (5) prepare and deliver orientation materials; and (6) optimize working conditions for staff. They hope that this will serve as a blueprint for other institutions to optimize staffing models to continue delivery of high-quality patient care through the patient surge.</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Surge-management models 	<p>Locally developed models to simulate surges in clinical demand can inform clinical operations and staffing procedures</p> <p>Abstract Background: The coronavirus disease 2019 (COVID-19) pandemic challenges hospital leaders to make time-sensitive, critical decisions about clinical operations and resource allocations. Objective: To estimate the timing of surges in clinical demand and the best- and worst-case scenarios of local COVID-19-induced strain on hospital capacity, and thus inform clinical operations and staffing demands and identify when hospital capacity would be saturated. Design: Monte Carlo simulation instantiation of a susceptible, infected, removed (SIR) model with a 1-day cycle. Setting: 3 hospitals in an academic health system. Patients: All people living in the greater Philadelphia region. Measurements: The COVID-19 Hospital Impact Model (CHIME) (http://penn-chime.phl.io) SIR model was used to estimate the time from 23 March 2020 until hospital capacity would probably be exceeded, and the intensity of the surge, including for intensive care-unit (ICU) beds and ventilators. Results: Using patients with COVID-19 alone, CHIME estimated that it would be 31 to 53 days before demand exceeds existing hospital capacity. In best- and worst-case scenarios of surges in the number of patients with COVID-19, the needed total capacity for hospital beds would reach 3,131 to 12,650 across the 3 hospitals, including 338 to 1,608 ICU beds and 118 to 599 ventilators. Limitations: Model parameters were taken directly or derived from published data across heterogeneous populations and practice environments, and from the health system's historical data. CHIME does not incorporate more transition states to model infection severity, social networks to model transmission dynamics, or geographic information to account for spatial patterns of human interaction.</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Surge-management models 	<p>Conclusion: Publicly available and designed for hospital operations leaders, this modeling tool can inform preparations for capacity strain during the early days of a pandemic.</p> <p>Surge management requires multidisciplinary collaboration to allow for appropriate space definition, supply provisions, staff recruitment, and ad hoc training of providers</p> <p>Abstract The first person-to-person transmission of the 2019 novel coronavirus in Italy on 21 February 2020 led to an infection chain that represents one of the largest known COVID-19 outbreaks outside Asia. In northern Italy in particular, we rapidly experienced a critical care crisis due to a shortage of intensive-care beds, as we expected according to data reported in China. Based on our experience of managing this surge, we produced this review to support other healthcare services in preparedness and training of hospitals during the current coronavirus outbreak. We had a dedicated task force that identified a response plan, which included: (1) establishment of dedicated, cohorted intensive care units for COVID-19-positive patients; (2) design of appropriate procedures for pre-triage, diagnosis and isolation of suspected and confirmed cases; and (3) training of all staff to work in the dedicated intensive-care unit, in personal protective equipment usage and patient management. Hospital multidisciplinary and departmental collaboration was needed to work on all principles of surge capacity, including: space definition; supplies provision; staff recruitment; and ad hoc training. Dedicated protocols were applied where full isolation of spaces, staff and patients was implemented. Opening the unit and the whole hospital emergency process required the multidisciplinary, multi-level involvement of healthcare providers and hospital managers all working towards a common goal: patient care and hospital safety. Hospitals should be prepared to face severe disruptions to their routine and it is very likely that protocols and procedures might require re-discussion and updating on a daily basis.</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Triage protocols 	<p>Hospital triage using epidemiological characteristics may support the rapid identification of COVID-19 cases, however lack of sharing information between healthcare facilities may slow down this triage model</p> <p>Abstract In the end of 2019, the epidemic of a new coronavirus (SARS-CoV-2) occurred in Wuhan and spread rapidly. Changsha, a city located south to the epicenter, was soon impacted. To control the transmission of the coronavirus and avoid nosocomial infection, triage procedures based on epidemiology were implemented in a local hospital of the city. This retrospective study analyzed the</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
		<p>data collected during the triage period and found that COVID-19 patients were enriched seven folds into the Section A designated for rapid detection and quarantine. On the other side, roughly triple amounts of visits were received at the Section B for patients without obvious epidemiological history. Eight COVID-19 cases were spotted out of 247 suspected patients. More than 50% of the suspected patients were submitted to multiple rounds of nucleic acid analysis for SARS-CoV-2 infection. Of the 239 patients who were diagnosed as negative of the virus infection, 188 were successfully revisited and none was reported as a COVID-19 case. Of the eight COVID-19 patients, three were confirmed only after multiple rounds of nucleic acid analysis. Besides comorbidities, delayed sharing of epidemiological history added another layer of complexity to the diagnosis in practice. While SARS-CoV-2 epidemic is being alerted in many countries, our report will be helpful to other colleagues in rapid identification of COVID-19 cases and controlling the transmission of the disease.</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment <ul style="list-style-type: none"> ○ Infection prevention and control measures in health facilities 	<p>Refined management strategies, including prevention and control measures, grid auditing, improved communication between teams and public reporting, may be effective for the prevention and control of COVID-19 in non-isolated areas of a general hospital</p> <p>Abstract Objective: This article summarizes the experience in the prevention and control of coronavirus disease 2019 (COVID-19) epidemic in non-isolated areas in a general hospital. Methods: Based on refined management theory, we professionally developed the standards for prevention and control of COVID-19 in non-isolated areas, systematically implemented various prevention and control measures, performed gridding audit, effectively communicated among teams and between doctors and patients assisted by information techniques, and reported results for quality improvement. Results: There was no hospital acquired COVID-19 infections among staff in the hospital. The rates of mask wearing, epidemiological history screening and the medical supplies disinfection were all 100% in the hospital. The accuracy rate of mask wearing of patients and their families was 73.79% and the compliance of their hand hygiene was 40.78%. Conclusion: Refined management strategies for the prevention and control of COVID-19 infection in non-isolated areas of the general hospital are effective. The accuracy rate of mask wearing and hand hygiene compliance of patients and their families need to be further improved.</p>
	<ul style="list-style-type: none"> • Service planning for COVID-19 treatment 	<p>Few hospitals were found to have ventilator triage policies or triage committees and those that did showed significant heterogeneity in their make-up</p> <p>Abstract</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
	<ul style="list-style-type: none"> ○ Ventilators for sick COVID-19 patients 	<p>Background: The coronavirus disease 2019 pandemic has or threatens to overwhelm health care systems. Many institutions are developing ventilator triage policies.</p> <p>Objective: To characterize the development of ventilator triage policies and compare policy content.</p> <p>Design: Survey and mixed-methods content analysis.</p> <p>Setting: North American hospitals associated with members of the Association of Bioethics Program Directors.</p> <p>Participants: Program directors.</p> <p>Measurements: Characteristics of institutions and policies, including triage criteria and triage committee membership.</p> <p>Results: Sixty-seven program directors responded (response rate, 91.8%); 36 (53.7%) hospitals did not yet have a policy, and 7 (10.4%) hospitals' policies could not be shared. The 29 institutions providing policies were relatively evenly distributed among the 4 U.S. geographic regions (range, 5 to 9 policies per region). Among the 26 unique policies analyzed, 3 (11.3%) were produced by state health departments. The most frequently cited triage criteria were benefit (25 policies [96.2%]), need (14 [53.8%]), age (13 [50.0%]), conservation of resources (10 [38.5%]), and lottery (9 [34.6%]). Twenty-one (80.8%) policies use scoring systems, and 20 of these (95.2%) use a version of the Sequential Organ Failure Assessment score. Among the policies that specify the triage team's composition (23 [88.5%]), all require or recommend a physician member, 20 (87.0%) a nurse, 16 (69.6%) an ethicist, 8 (34.8%) a chaplain, and 8 (34.8%) a respiratory therapist. Thirteen (50.0% of all policies) require or recommend those making triage decisions not be involved in direct patient care, but only 2 (7.7%) require that their decisions be blinded to ethically irrelevant considerations.</p> <p>Limitation: The results may not be generalizable to institutions without academic bioethics programs.</p> <p>Conclusion: Over one half of respondents did not have ventilator triage policies. Policies have substantial heterogeneity, and many omit guidance on fair implementation.</p>
	<ul style="list-style-type: none"> ● Infrastructure planning and resource allocation <ul style="list-style-type: none"> ○ Virtual visits 	<p>Internet hospitals in China have been used to offer essential medical supports to the public during COVID-19 outbreak and continue to play an important role in supporting hospitals during their transitions back to regular operations</p> <p>Abstract</p> <p>Background: During the spread of the novel coronavirus disease (COVID-19), internet hospitals in China were engaged with epidemic prevention and control, offering epidemic-related online services and medical support to the public.</p> <p>Objective: The aim of this study is to explore the role of internet hospitals during the prevention and control of the COVID-19 outbreak in China.</p>

Type of document	Relevance to decisions [based on taxonomy]	Abstract and link to full text
		<p>Methods: Online epidemic-related consultations from multicenter internet hospitals in China during the COVID-19 epidemic were collected. The counselees were described and classified into seven type groups. Symptoms were recorded and compared with reported patients with COVID-19. Hypochondriacal suspicion and offline visit motivation were detected within each counselees' group to evaluate the social panic of the epidemic along with the consequent medical-seeking behaviors. The counselees' motivation and the doctors' recommendation for an offline visit were compared. Risk factors affecting the counselees' tendency of hypochondriacal suspicion and offline visit motivation were explored by logistic regression models. The epidemic prevention and control measures based on internet hospitals were listed, and the corresponding effects were discussed.</p> <p>Results: A total of 4,913 consultations were enrolled for analysis with the median age of the counselees at 28 years (IQR 22-33 years). There were 104 (2.12%) healthy counselees, 147 (2.99%) hypochondriacal counselees, 34 (0.69%) exposed counselees, 853 (17.36%) mildly suspicious counselees, 42 (0.85%) moderately suspicious counselees, 3,550 (72.26%) highly suspicious counselees, and 183 (3.72%) severely suspicious counselees. A total of 94.20% (n=4,628) of counselees had epidemic-related symptoms with a distribution similar to those of COVID-19. The hypochondriacal suspicion (n=2,167, 44.11%) was common. The counselees' motivation and the doctors' recommendation for offline visits were inconsistent (P<.001) with a Cohen kappa score of 0.039, indicating improper medical-seeking behaviors. Adult counselees (odds ratio [OR]=1.816, P<.001) with epidemiological exposure (OR 7.568, P<.001), shortness of breath (OR 1.440, P=.001), diarrhea (OR 1.272, P=.04), and unrelated symptoms (OR 1.509, P<.001) were more likely to have hypochondriacal suspicion. Counselees with severe illnesses (OR 2.303, P<.001), fever (OR 1.660, P<.001), epidemiological exposure history (OR 1.440, P=.01), and hypochondriacal suspicion (OR 4.826, P<.001) were more likely to attempt an offline visit. Reattending counselees (OR 0.545, P=.002) were less motivated to go to the offline clinic.</p> <p>Conclusions: Internet hospitals can serve different types of epidemic counselees, offer essential medical supports to the public during the COVID-19 outbreak, reduce the social panic, promote social distancing, enhance the public's ability of self-protection, correct improper medical-seeking behaviors, reduce the chance of nosocomial cross-infection, and facilitate epidemiological screening, thus, playing an important role on preventing and controlling COVID-19.</p>

Appendix 4: Documents excluded at the final stages of reviewing

Type of document	Focus
Guidelines developed using a robust process (e.g., GRADE)	Not applicable
Full systematic reviews	Not applicable
Rapid reviews	Not applicable
Guidance developed using some type of evidence synthesis and/or expert opinion	Not applicable
Protocols for reviews that are underway	Not applicable
Titles/questions for reviews that are being planned	Not applicable
Single studies in areas where no reviews were identified	<p>Emergency responses to COVID-19 outbreak: Experiences and lessons from a general hospital in Nanjing, China</p> <p>Hospital visiting policies in the time of COVID-19: A nationwide website survey in Taiwan</p> <p>COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals</p> <p>Challenges and responses: A tertiary hospital in 2019-nCoV epidemic.</p> <p>The application of temporary ark hospitals in controlling COVID-19 spread: the experiences of one temporary ark hospital, Wuhan, China.</p> <p>A high efficient hospital emergency responsive mode is the key of successful treatment of 100 COVID-19 patients in Zhuhai (pre-print)</p> <p>COVID-19: Forecasting short term hospital needs in France (pre-print)</p> <p>Rapid viral diagnosis and ambulatory management of suspected COVID-19 cases presenting at the infectious diseases referral hospital in Marseille, France, - January 31st to March 1st, 2020: A respiratory virus snapshot.</p>

[Factors associated with preventive behaviours of COVID-19 among hospital staff in Iran in 2020: An application of the protection motivation theory](#)

[Screening and managing of suspected or confirmed novel coronavirus \(COVID-19\) patients: Experiences from a tertiary hospital outside Hubei province \(pre-print\)](#)

[Pharmacy administration and pharmaceutical care practice in a module hospital during the COVID-19 epidemic.](#)

[How hospitals in mainland China responded to the outbreak of COVID-19 using IT-enabled services: An analysis of hospital news webpages](#)

[A brief telephone severity scoring system and therapeutic living centers solved acute hospital-bed shortage during the COVID-19 outbreak in Daegu, Korea](#)

[Health management of breast cancer patients outside the hospital during the outbreak of 2019 novel coronavirus disease](#)

[Standardized diagnosis and treatment of colorectal cancer during the outbreak of corona virus disease 2019 in Renji hospital](#)

[Treatment strategies for colorectal cancer patients in tumor hospitals under the background of corona virus disease 2019](#)

[Hospital emergency management plan during the COVID-19 epidemic](#)

[Population-level interest and telehealth capacity of US hospitals in response to COVID-19: Cross-sectional analysis of Google search and national hospital survey data](#)

[From isolation to coordination: How can telemedicine help combat the COVID-19 outbreak \(pre-print\)](#)

[Utilization of a mobile platform for the dissemination of validated institutional measurements during COVID-19 outbreak: A practical example in the Children's Hospital](#)

[Forecasting the impact of coronavirus disease during delivery hospitalization: An aid for resources utilization](#)

[Clinical and laboratory predictors of in-hospital mortality in patients with COVID-19: A cohort study in Wuhan, China](#)

[Recommended psychological crisis intervention response to the 2019 novel coronavirus pneumonia outbreak in China: A model of West China Hospital](#)

	<p><u>Mental health survey of 230 medical staff in a tertiary infectious disease hospital for COVID-19</u></p> <p><u>Emotional responses and coping strategies of nurses and nursing college students during COVID-19 outbreak</u> (pre-print)</p> <p><u>The evaluation of sleep disturbances for Chinese frontline medical workers under the outbreak of COVID-19</u></p> <p><u>Mental health status among family members of health care workers in Ningbo, China during the Coronavirus Disease 2019 (COVID-19) outbreak: A Cross-sectional Study</u> (pre-print)</p> <p><u>COVID-19 in pregnancy and delivery: Rapid review</u> (pre-print)</p> <p><u>Maternal and neonatal outcomes of pregnant women with COVID-19 pneumonia: A case-control study</u> (pre-print)</p>
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