

Long before COVID-19 impacted everyone everywhere we were already designing our new hospital and health campus to be ready for the next Ebola or SARS.

Here's how we're making the new St. Paul's Hospital pandemic-ready.

## EXPANDING CAPACITY

Having enough beds is always critical, especially in a pandemic. We've designed 'flexible' spaces that can easily be re-purposed during a crisis to add more beds.

We're adding 115 more beds, including up to 54% more critical care inpatient rooms, for a total of 548 beds. This includes empty 'flex' spaces which can be equipped and put into use when demand warrants.

Medical and surgical inpatient rooms will be big enough to be used as intensive care rooms, if needed, able to accommodate larger critical care teams and more equipment, like ventilators.

Our high acuity and cardiac surgery intensive care units have been designed to be 'flexed' into intensive care units.

Medical gases, such as oxygen, will be piped into more exam and procedure rooms so those rooms could be used for inpatient care and ventilated patients.

## STOCKING SUPPLIES

We've included ways to protect the Personal Protective Equipment (PPE) supply for front-line health care workers.

PPE supplies and other essential care items will be stored outside every inpatient room to ensure sterile PPE is readily accessible to care staff and medical units can stay clean and organized.

A new equipment depot and improved storage for supplies will allow for 'just in time' delivery to inpatient units of equipment and PPE, plus faster removal of dirty wheelchairs, beds and other equipment for cleaning.

The hospital's new ambulance garage will have extra storage space for PPE and other supplies.



## CONTAINING OUTBREAKS

The new hospital has been designed to reduce an infectious patient from spreading their disease to others.

100% of inpatient rooms will be single-patient, versus just 15% today, which greatly limits a patient's exposure to contagions. Each room has a private washroom for the patient, plus a hand-washing sink for staff and family to use.

There will be over 90 special negative pressure 'isolation' rooms used for suspected or infected patients, compared to 12 today. Each room has a ventilation (HVAC) system that can be isolated so its air intake and exhaust is separate from other areas to stop airborne germs from escaping into staff or public areas. Many will have a small adjacent 'anteroom' where staff put on and remove PPE and wash up. Negative pressure rooms will be throughout the hospital — in Emergency, in the critical care, inpatient, maternity, renal and hemodialysis units, in the Urban Health and Mental Health Integrated Substance Use area, in surgical services, in Medical Imaging and in many procedure rooms (used for colonoscopy, GI endoscopy etc.)

Infected patients may be cared for in one of 15 Outbreak Control Zones which are a group of 10 to 16 inpatient rooms and spaces that can be isolated from other care areas.

- Each zone has a ventilation system which can be switched to a negative pressure state so the zone's air supply and exhaust become independent to prevent the re-circulation of airborne germs to other units.
- Each zone will be self-sufficient with its own medication room, clean/soiled utility rooms, and sterile storage rooms.
- The zone's entrance will be controlled by two sets of electronic doors which can not be opened at the same time to ensure the zone maintains its negative pressure and which provides a space where staff don and doff PPE.

The hospital will have more hand-washing sinks including in and outside patient rooms, in all patient care, exam, and procedure rooms, in public and unit hallways, outside all negative pressure rooms and near building entrances.

## LIMITING EXPOSURE

The new St. Paul's Hospital has been planned to reduce a visitor's exposure to anyone who might be infected, and to accommodate physical distancing when needed.

**In Emergency treatment spaces will be separated by walls and glass doors rather than curtains** to improve both privacy and infection control. And, walls or wall dividers, rather than curtains, will be used to separate patients in our Post-Anesthetic Care Units, Hemodialysis Unit and Infusion Clinic.

**Emergency will have a decontamination room near its entrance which could be used to isolate a person** from other Emergency visitors who is suspected of being infected.

**Our new Primary Care Triage and Access Centre could be used as an on-site testing facility.** Normally intended for people who need non-urgent but not Emergency care, using this Centre as a testing facility would help reduce peoples' exposure to Emergency Department patients and visitors.

**The new ambulance garage could easily be converted into a testing or triage centre** during a pandemic so people are screened outside, not inside, the hospital.

**Outpatients will use separate street-level entrances** to our Urban and Mental Health Centre and our Centre for Healthy Aging to reduce their exposure to hospital patients.

**Research and physician offices will be in a separate Clinical Support and Research Centre** on the health campus, rather than inside the acute care hospital as they are today.

**There will be more visitor and family lounges to allow for physical distancing,** or to re-purpose during a pandemic.

**Building entrances can be designated as 'staff only' or 'visitor only'** and there are more and wider stairways to allow for one-direction foot traffic or physical distancing.

**Each clinical area will have a staff lounge big enough to allow for physical distancing** so our front-line workers can take breaks on their unit rather than having to change out of their scrubs and head into the neighbourhood for a coffee.

**Corridors for back-of house staff will be separated in many areas from public and patient hallways** to reduce a visitor's exposure to staff, soiled supplies and equipment.

**We'll have more conference and meeting rooms, many with room dividers,** to make physical distancing easier, and which can be used for other purposes during a pandemic.

**There will be more elevators making it easier for people to use physical distancing** while getting around the hospital.

## USING TECHNOLOGY

We aim to make our new campus the most digitally advanced hospital in western Canada. Here are just some of the technologies we'll use during a pandemic response.

**A new hospital Clinical Operations Centre will serve as St. Paul Hospital's version of an air traffic control tower.** The flow of patients through Emergency, and the entire acute care hospital would be monitored by a team who use data and predictive analytics displayed on a huge wall full of digital screens to make decisions. This view of what's happening hospital-wide will help them orchestrate all the details with fine-tuned precision such as assigning beds, managing critical care capacity, locating ventilators, opening Outbreak Control Zones, stocking PPE, planning discharges, disinfecting rooms and all the other logistics that happen on a normal day, and during a crisis. The Centre would serve as our Emergency Operations Centre during a pandemic.

**Virtual health technology will be available in most areas,** including the outpatient care centre, so clinicians and patients can meet via video instead of coming to the hospital.

**All care team bases will have large digital patient tracking screens that show the status of all patients** in the unit or surgical suite to help the teams deliver and coordinate care.

**A new real-time location system will allow staff to track where equipment is anywhere in the hospital** making it easier and faster to find an available ventilator, stretcher, wheelchair, or any piece of tagged equipment.

**Many corridors will have 'touchless doors'** which open with the wave of a hand and close automatically to reduce the spread of germs.

## APPLYING LESSONS LEARNED

We still have time to consider some lessons learned during COVID-19 even though construction for the new hospital may begin at the end of 2020. And, we haven't yet started the design for our new Clinical Support and Research Centre.

Over the next year we'll be consulting with our physicians and staff and experts around the world to provide input to our design and may incorporate some additional features to help the new St. Paul's Hospital be one of Canada's most pandemic-ready hospitals.