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## A rural community hospital's response to COVID-19

### INTRODUCTION

The COVID-19 pandemic has required unique responses by rural Canadian hospitals. The initial approach taken at Lennox and Addington County General Hospital (LACGH) is presented as one response. Located in Greater Napanee, Ontario, LACGH has a catchment of 43,000 people, and operates under primary care leadership. Early planning and implementation in preparation for COVID-19 led to restructuring and resource optimisation.

### ADMINISTRATIVE COORDINATION

A strong administrative infrastructure and collaborative teamwork were critical to respond to the suddenly changing environment at the onset of the COVID-19 pandemic:

- An incident command team was established, co-chaired by the chief of staff and chief nursing officer and included administrative staff and frontline healthcare workers. In the early stages, the team held daily roundtable meetings to encourage idea sharing and implement change rapidly with decisive leadership

- Workflow changes were determined collaboratively with staff
- Partnerships were developed with local Public Health
- Proactive education included: training on personal protective equipment (PPE) and infection control practices, simulation of patient-care scenarios and training on aerosol generating medical procedures (AGMPs) in the era of COVID-19.

### ACTIVE AND PASSIVE SCREENING

LACGH maintained essential medical services while limiting the community's exposure in the hospital, following Ministry of Health and Public Health Ontario recommendations:<sup>1,2</sup>

- All doorways, except through the Emergency Department (ED), were closed to the public
- Additional infection prevention and control (IPAC) measures were implemented at the levels of engineering, administrative control and PPE
- Billboards were posted at the entrance and in the parking lot reading, "STOP. Proceed inside only if you are experiencing a serious medical emergency. Otherwise, please call (phone number) to speak to one of our healthcare professionals now."

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## COVID-19 ASSESSMENT CENTRE

LACGH established a COVID-19 Assessment Centre (CAC) by dividing the ED into two zones – one functioning as a typical ED and one as the CAC. The CAC is a 6-bed unit, run by family physicians. Before entering the hospital, patients were screened by telephone for COVID-19 symptoms and high-risk exposures. If patients screened positive, they were directed to a CAC nurse for telephone-based triage, and to an ED nurse if they screened negative. Even patients whose chief complaint was neither infectious nor respiratory, but had risk factors, were seen in the CAC. For example, a recently returned traveller with a fractured wrist was assessed, imaged and casted in the CAC. The CAC also saw numerous respiratory complaints unrelated to COVID-19. The triage process was intended to direct potential COVID-19 cases to the CAC with high sensitivity, but low specificity.

Subsequent patient flow was optimised to limit viral spread:

- CAC patients spoke with a physician by telephone who would either: (1) provide telephone-based advice, (2) arrange drive-through COVID-19 testing, or (3) arrange assessment inside the CAC
- For drive-through testing, vehicles lined up in the ambulance bay during assigned time slots and patients were swabbed through their vehicles' windows. The assessors could don PPE at the beginning of the line and would only need to change their gloves between swabs
- Patients requiring assessment in the CAC waited outside until a room was ready
- Cardiorespiratory monitoring, emergency physician consultation and a dedicated x-ray machine were available.

From March to May 2020, the CAC saw an average of 21 patients assessed per day and 13 patients swabbed per day [Figure 1]. The CAC saw a surge in late June due to an outbreak in a neighbouring county. In those first several months, 15 positive cases of COVID-19 were detected in Lennox and Addington County. One LACGH staff member tested positive early on in the pandemic, due to travel, but this was quickly contained and there have been no further cases among staff. Several positive cases have been seen

and treated in the CAC, but none have required supplemental oxygen and none have required admission or transfer to a tertiary centre.

## PERSONAL PROTECTIVE EQUIPMENT

Due to anticipated shortages, adaptations to the use of PPE were necessary:

- For patients who screened negative, standard precautions were used. For patients who screened positive, all clinical staff used level 2 surgical mask, face shield, gown and gloves
- Shortages of PPE were a constant threat, with demand across the world increasing. Exploring new supply chains and prioritising reusable PPE early on relieved some of this stress
- Reusable surgical gowns were used to maintain supplies. Rather than sending these out to the regional laundry service typically used by the hospital, these gowns were washed in-house so that access to an adequate supply of gowns could be more tightly controlled
- The use of N95 and reusable masks was reserved for aerosol-generating medical procedures (intubation and select surgical procedures)
- Early on, the hospital purchased a P100 reusable mask for every clinical staff and they were trained on cleaning them between uses in specified decontamination areas in the hospital. When governing bodies had suggested N95 masks be sterilised and reused, the Incident Command Team arranged this with the nearby

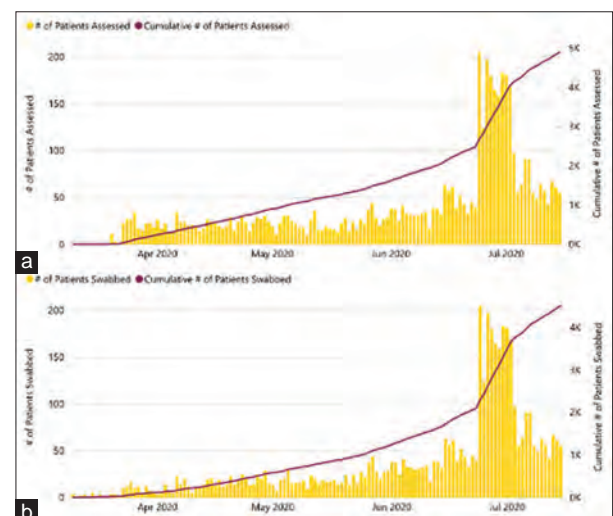


Figure 1: Patients assessed (a) and tested (b) each day at Lennox and Addington County General Hospital COVID-19 Assessment Centre from March 10 to July 15

tertiary care centre. However, with improvements in the supply chain and a low number of COVID-19 cases, utilising these systems has not yet been necessary. With these extra precautions in place, the hospital remains ready for a potential surge of patients requiring invasive critical care.

## EMERGENCY MEDICINE AND RESUSCITATION

The ED was also subject to many changes:

- Registration, triage and care were conducted by telephone where possible
- Screening protocols were established for patients arriving by ambulance in collaboration with paramedics
- The negative pressure room was fitted as a resuscitation room
- A Protected Code Blue Policy was enacted for resuscitations and intubations. A dedicated Code Blue team was established for possible COVID-19 cases, and the team participated in regular simulations and huddles
- ED staff huddled at shift changes to review resuscitation and infection control principles
- IPAC measures were incorporated into all AGMP.<sup>5</sup>

## MANAGEMENT OF THE INPATIENT WARD

In-patient capacity was increased to make room for COVID-19 admissions:

- Patient discharges were expedited where possible, and transfers to long-term care (LTC) were facilitated by provincial changes allowing crisis placement from hospital. Other alternate level of care patients were transferred to the convalescent care unit
- The acute care unit was divided into one unit for regular in-patients and a locked COVID-19 unit with 7 isolation rooms. Staff were stationed near the unit's entrance to prevent people from entering unnecessarily and to observe PPE use
- Patients admitted with COVID-19 risk factors were tested and kept in the designated unit until COVID was ruled out clinically and with diagnostic testing, at which point they were moved to the regular unit

- Negative pressure rooms were reserved for AGMPs where possible.

New patient-care resources were developed:

- Guidance on PPE, IPAC and N95 usage were derived from best practices<sup>3</sup>
- LACGH's Internal Medicine specialist developed guidelines on medical management and enteral feeding for COVID-19 patients and collaborated with respiratory therapy on guidance for oxygen delivery options
- Evidence-based order sets for COVID-19 patients were created
- Pharmacists disseminated advice on medication stewardship to conserve drug supplies at risk of depletion in a COVID-19 surge
- Processes to optimise supplies were introduced. For example, a process to sterilise inhalers was developed since nebulisers were avoided given aerosolisation risk.

## OUTPATIENT SUPPORTS AND LONG-TERM CARE

During the COVID-19 pandemic, LACGH used an electronic platform for home monitoring of recently discharged patients which was already in use for diabetes care and COPD pathways. The system integrated video-conference technology and electronic recording of vital signs. During the pandemic, it allowed for virtual assessment of ED patients when appropriate and helped with short-term monitoring of patients discharged from the hospital.

Early partnerships with LTC facilitated symptomatic and new asymptomatic testing of staff and residents. As well, patient-centred processes were developed that allowed additional medical procedures to occur within the LTC facility and thereby minimise residents' exposure to the hospital.<sup>4</sup>

## CONCLUSION

Preparation for COVID-19 at LACGH was proactive and significantly changed hospital operations. The principles of early planning, multidisciplinary collaboration and protection of caregivers are critical for all healthcare facilities as they prepare and respond to the current and future pandemics. Since the development of the initial response described here, the CAC

at LACGH has undergone numerous changes. Throughout the summer months of 2020, it moved locations and mainly facilitated drive-through COVID-19 testing of those with mild symptoms or potential exposures. By the end of 2020, it will have entered a third iteration, with significant changes to staffing, patient flow and scope of assessments. This underscores the essential nature of feedback mechanisms to determine what is working, and to be able to respond to the community's needs as new outbreaks emerge.

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