

Appendix 1 (as supplied by the authors): Steps to Maintain ED Flow through the COVID-19 Pandemic

Step	Goal	Action	Outcome
Engage	Provide leadership and support to frontline staff	<p>Determine which staff members are most active and interested in ensuring best department flow.</p> <p>Maintain constant contact with senior management to get approval for each step before implementing any measures.</p> <p>Foster department cohesiveness through leadership rounding, accepting input from all staff, continue to make process improvements while also providing care to patients, promoting an environment accepting of change, and ensuring the delivery of timely emergency care for COVID and non-COVID patients.</p>	Complete and immediate administrative buy-in and action
Re-Structure the ED	Isolate patients presenting with respiratory symptoms to decrease transmission throughout hospital	Prepare a map of the ED floorplan to help decide what areas of the ED are to be repurposed or created for COVID-19 testing and case management. Designated COVID-19 areas should allow for the segregation of patients with respiratory symptoms. This should help reduce SARS-CoV-2 transmission within the department and decrease the usage of PPE required for aerosol-generating medical procedures. (We were able to deploy a negative pressure room in the ED's trauma bay within an 8 hour period after we assessed its feasibility. We also added walls to create an independent area for medical supply storage to avoid exposure and reassigned adjacent office and assessment spaces for COVID-19 case management.)	<p>Effective site planning</p> <p>Identification and immediate usage of space next to ED for separation of respiratory from non-respiratory patients before they enter the ED</p> <p>Reduce inappropriate and promote essential PPE usage</p>

		<p>Create a place where all entering through EMS are assessed, screened, and given a mask. (We are located in a northern climate so there were two doors to pass through to get into building. We asked all EMS to stop in the middle of the two doors for assessment.)</p> <p>Screen all walk-in patients at the front door and before triage to determine who has respiratory symptoms. Provide masks to all patients regardless of symptoms to reduce transmission.</p>	
Decrease Burden to Frontline Staff	<p>Alleviate fear and anxiety amongst frontline staff</p> <p>Support frontline staff with the best available resources</p>	<p>Delegate leadership for both physicians and nurses, to review up-to-date clinical management information and best available evidence before making decisions that would impact frontline staff and ED operations. Information collected can be used to adjust plans for code blue and life support and to plan for safe transfer between facilities and in-hospital units.</p> <p>Obtain support from non-emergency staff who have extra time because of closure of non-elective clinics and surgeries.</p> <p>Promote the use of the provincial public health telephone service (811 Healthline) for stable patients with symptoms to call and follow the directions of public health nurses regarding self-isolation and when to seek immediate medical attention.</p> <p>Develop a plan to manage patient surge, and setup the ability to communicate remotely without the need of telephones, and create protocols for the safe immediate transfer of patients.</p>	<p>Prepare ED staff for rapid change</p> <p>Mobilize external/internal support</p>

		<p>In the event patients cannot be safely transferred to a tertiary referral centre, prepare the ED by increasing bed availability and staff capacity in the intensive care unit and inpatient wards to create wards specifically for COVID-19 overflow. Transferring asymptomatic patients to other care facilities should be performed with a great deal of caution to avoid SARS-CoV-2 transmission given the impact of COVID-19 on vulnerable populations (e.g. elderly, immunosuppressive patients, etc.)</p> <p>Arrange for regular teleconference meetings to review the psychological impact of providing care during a pandemic and to discuss how to promote a supportive work environment, open communication, and team building. Senior administration and staff should explore how best to deliver psychological wellbeing training services to help frontline staff cope with the stress and changes to their daily lives.</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Support Flexibility and Adaptability</p>	<p>Alleviate fear and anxiety amongst frontline staff</p> <p>Reduce burnout</p> <p>Support frontline staff with the best available evidence</p>	<p>Within the ED, work with your team to set maximal expectations.</p> <p>Adapt staff schedules to allow for time associated with pandemic response planning and to establish a rotating roster of backup personnel.</p> <p>With the hospital management team, discuss and prepare for the reallocation of valuable medical resources to the ED which can freed up due to closure of non-elective clinics and surgeries.</p> <p>Discuss availability of locum physicians as travel restrictions are tightened.</p>	<p>A feasible ED working plan</p>

		Communicate up-to-date COVID-19 information with ED staff through email lists and ED bulletin board.	
Implement Safety/Prevention Measures for the Public and Staff Members and be Prepared for Increased Social Isolation	<p>Decrease transmission throughout hospital and to the public</p> <p>Provide a safe work environment at all times.</p> <p>Prepare ED staff for a heightened sense of social isolation outside ED and hospital when interacting with anxious members of the public.</p>	<p>Discuss safety measures with staff members to avoid transmission inside and outside the ED including additional precautions for family members. Discuss the possibility of experiencing increased social isolation outside the ED given staff can be more easily recognized in a rural town as being a frontline provider.</p> <p>Follow regional exposure protocols for healthcare providers who are at risk of exposure to SARS-CoV-2 virus.</p> <p>Determine the order of staff re-assignment from other services to support ED operations. This reassignment process should avoid providers who work with vulnerable populations (e.g. providing services to immunosuppressive patients) as long as providers who work in other sectors of the health system are still available.</p> <p>Develop a declutter program for all rooms for most efficient cleaning. Consider removing almost all equipment to facilitate rapid cleaning (e.g. leave only an examination bed and stethoscope in examination rooms). Remove all non COVID-19 related signage from the walls of the ED. Approve extra cleaning staff during the pandemic. Reassign or hire more staff for housekeeping and transporting.</p> <p>Place highly visible signs asking everyone to avoid contact with others and remind them to practice proper hygiene etiquette.</p>	<p>Plan for quarantine from families</p> <p>Support colleagues to deal with increased level of social isolation and that they may cause the public to feel anxious in their presence outside the hospital</p> <p>Safety measures in ED</p>

		<p>Place frontline staff at entry points to ED for prescreening and to address patients' needs, concerns and questions. Provide a leaflet to ED patients who are asked to self-isolate containing information related to COVID-19, the symptoms to look for during self-assessment, how to avoid transmission, how to access public health resources (website or by telephone), and what to do if their symptoms worsen.</p> <p>Create teams of nurses who will work on the same shift as a group and ask physicians to schedule shifts close together to consolidate the amount of time spent at work to limit the impact of provider infection and transmission.</p> <p>Implement staff social distancing measures by limiting the number of staff members allowed at the nursing station/primary staff area at any given time.</p> <p>Promote patient social distancing by rearranging chairs in waiting room so they are further apart and remind patients to keep a safe distance from one another during pre-screening and while inside the ED.</p> <p>Follow the most recent regional guidance for COVID-19 testing.</p>	
Forecast Future Surge	Address potential surge	<p>Continuously evaluate gaps in transmission prevention and develop protocols for situations where patients are not able to be transferred or admitted.</p> <p>Review provincial forecast models and ED performance data.</p>	Plan for potential surge

<p>See ED and Pandemic from Patient Perspective</p>	<p>Decrease transmission throughout hospital and to the public</p>	<p>Review the physical layout of the ED from the perspective of a patient. Walk through the department as if you are a COVID-19 patient and determine if areas adjacent to the ED can serve as feasible and effective respiratory isolation centers.</p> <p>Walk through the department as a Non-COVID-19 patient to assess the extent of isolation. Assign bed order for admissions of critical and non-critical care.</p>	<p>A feasible respiratory isolation and bed order plan to minimize ED contamination</p>
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