

# Primary medical care can help to protect acute care capacity, if properly incorporated into local COVID-19 pandemic preparedness and response

by Rudy Zimmer MD FCFP FRCPC



Many physicians in Canada are anxiously waiting for the coming surge of sick patients infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus leading to a wide range of clinical presentations from no symptoms to life-threatening viral pneumonia, acute respiratory distress syndrome (ARDS) and/or multiple organ dysfunction syndromes (MODS) [1]. Symptomatic "coronavirus disease 2019" (COVID-19) is consistently worse in patients who are older (especially over 65-years-old) and/or with co-morbidities such as diabetes, hypertension, active cancer, chronic cardiac and respiratory diseases [1][2][3]. Following an average incubation period of 5 days [4], younger adults and children do not appear to be as significantly affected compared with the elderly or chronically ill [5].

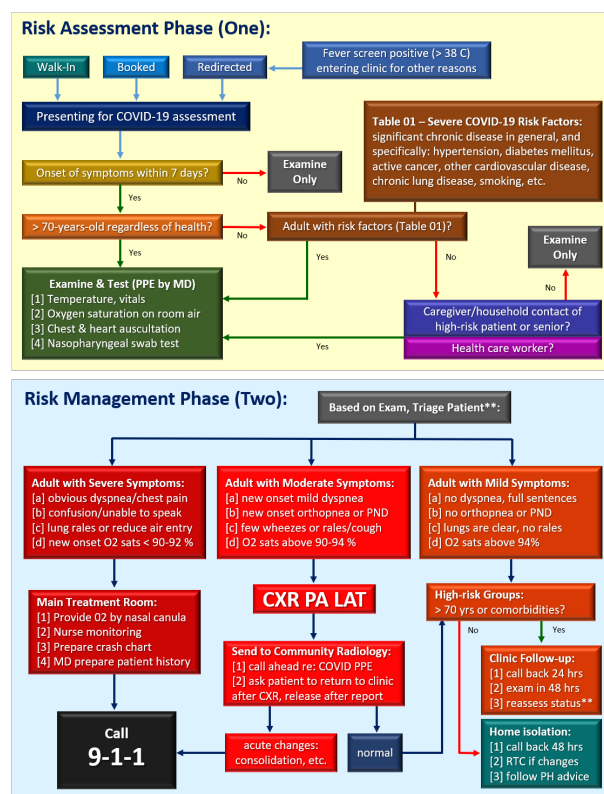
While about 80% of symptomatic cases are likely to be mild and manageable at home, 20% or more of patients may require hospitalization based on early data from the United States [6]. Some elderly or high-risk patients may present to the local emergency department (ED) with early onset severe symptoms (e.g., dyspnea). However, many more will initially have mild symptoms (e.g., fever, dry cough, fatigue, myalgia, headache), which may suddenly deteriorate by the second week of illness [7]. It is this latter group that is often forgotten within institutional outbreak management plans, because initial follow-up occurs in the community and not in overburdened acute or chronic care facilities. Many independent seniors live alone with limited monitoring by family or friends, especially under states of voluntary or enforced physical distancing and home quarantine.

If Canada's health care organizations are trying to preserve emergency department and in-patient capacity, then early diagnosis and follow-up of high-risk patients needs to occur in the community. The best locations for this activity are within large primary care clinics that have the capacity to create dedicated isolation rooms using experienced staff and doctors, who become proficient in donning and doffing personal protective equipment (PPE). These same clinics may also be able to keep additional medical colleagues on standby should attending physicians contract SARS-CoV-2 infection and require home isolation for two weeks during the surge. During widespread community spread, primary care physicians wearing appropriate PPE to examine and test suspect cases (i.e., nasopharyngeal swab) are just as likely to contract the infection from household contacts or other close community contacts in less controlled environments.

Alberta Health Services has recently recommended restricting nasopharyngeal testing to hospitalized patients, nursing home residents and health care workers [8]. Based on the unique nature of this infection targeting the elderly regardless of health with an unpredictable clinical progression, it is a mistake to demote testing of high-risk patients who are living in the community. As we leave the annual influenza season, any person requiring intensive care presenting with ARDS or MODS is almost surely a severe COVID-19 case. During periods of testing limitations in China at the peak of the original epidemic, physicians were accurately testing severe COVID-19 using CT scans alone [9]. While such diagnostic tools are readily available in hospital, they are not available in the community. While residents of long-term care facilities are monitored daily by health care staff following exposure to a known COVID-19 case in a nursing home, independent seniors are home alone.

With targeted testing as outlined in the algorithm [Figure 1] created for a Calgary-based primary care clinic, family doctors are able to follow their confirmed cases of SARS-CoV-2 infection over the risk period for deterioration. If in the near future, certain medications are found to blunt the risk of severe COVID-19 outcomes if started earlier rather than later in the course of infection (e.g., hydroxychloroquine, darunavir or lopinavir boosted with ritonavir, remdesivir, etc.) [10], then family doctors would be well placed to start early therapy and ongoing management in the community. The primary care physician has the patient's ongoing medical history, list of medications, allergies and intolerances; and has the best understanding of the patient's normal clinical baseline. This approach has the potential of conserving capacity within local hospitals by identifying patients with COVID-19 early that are at risk of decompensating in the coming 1-2 weeks. If this were to occur, the family doctor could subsequently coordinate transfer of an increasingly ill patients to hospital via ambulance using appropriate infection control in an organized manner.

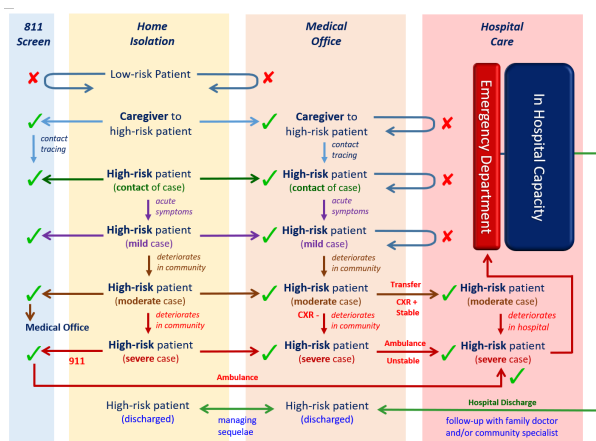
**Figure 1: Algorithm for screening high-risk patients for COVID-19 in the community**



The current approach in Alberta (and likely other Provinces) relies too heavily on 811 (Health Link) communications for triaging public inquiries as we anticipate the coming surge, which will severely tax if not collapse these few potential choke points. Long delays are already being experienced prior to any real test of these systems. In emergency preparedness of this scale, redundancy is important to ensure that there are no significant gaps in care during outbreak management. While hospitalists and specialists sidelined during public health measures to slow community transmission (e.g., cancellation of surgery or outpatient clinics) will become repurposed in managing COVID-19 patients admitted to acute care facilities, family doctors and other primary care physicians are better positioned to monitor the high-risk groups still remaining in the home isolation and managing those moderately ill cases not requiring hospitalization. This would have the effect of pushing out patient demand back into the community helping to buffer and preserve the limited capacity of in-patient beds.

Figure 2 illustrates this concept.

**Figure 2: Model for medical offices into acute care outbreak management plans**



Local medical offices are also most appropriate for safely testing suspected COVID-19 cases still remaining in the community that may later require planned admission to hospital rather than unplanned entry to the ED. That is why the Alberta government's recent policy to employ retail pharmacies to do in-person COVID-19 screening is deeply concerning [11]. While a larger family practice or multi-disciplinary clinic may have the dedicated space and trained staff to properly isolate infected patients and provide adequate infection control, this is not feasible at the local drug store. Unlike in Europe, the majority of dispensaries in Canada are located within larger retail spaces especially in convenience stores, grocers and mass merchandizers [12]. These are the same locations where seniors and other high-risk groups will continue to need to access the necessities of life (e.g., food and prescription medications) during weeks of lock down. It would be foolish to encourage suspected COVID-19 patients to go and share that same space with uninfected but vulnerable persons.

Canada's single payer universal health care system has an advantage over the United States in that we have historically invested more heavily in primary care over specialized care [13]. This means we have additional access point to seeking testing and management of COVID-19 in the community rather than putting all the pressure onto an overtaxed hospital sector, when cases start flooding into the local ED in presenting in an unstable condition. Provincial Ministries of Health need to better incorporate their primary care workforce into region-wide outbreak management plans for local health facilities before we find ourselves in the thick of things. To do so may prevent countless cases of seniors dying at home alone, as has been reported in other jurisdictions badly ravaged by this new viral pandemic.

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