

# **Canada**

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## **Patient A**

Patient A has been admitted to our medical-surgical intensive care unit (ICU) from an institution unable to deal with his case. This man has multiple organ dysfunction that at this point is almost certainly reversible. Once transfer from the sending institution was completed, we would begin our stabilization by attempting to improve his organ dysfunction status. Although I will present the therapies in a linear fashion, most of these interventions would begin simultaneously.

This patient has developed acute respiratory distress syndrome (ARDS) secondary to aspiration of gastric contents. His oxygen saturation is 88% while he is receiving ventilation with an  $\text{FIO}_2$  of 100% and a positive end-expiratory pressure (PEEP) of 5 cm  $\text{H}_2\text{O}$ . The mode of ventilation is not specified. This patient meets the criteria for ARDS, and we would elect to ventilate him according to the Acute Respiratory Distress Syndrome Clinical Network (ARDSNet) protocol and use volume ventilation with a tidal volume of 5–6 mL/kg of ideal body weight. Positive end-expiratory pressure would be increased, and we would try to decrease  $\text{FIO}_2$ . The patient would receive sedation and analgesia to aid with ventilation.

The patient is almost certainly volume contracted and would begin receiving crystalloid boluses immediately. It is unlikely that fluids alone would be adequate to increase this man's blood pressure and aid organ perfusion. We would likely start a norepinephrine infusion and attempt to increase his mean arterial pressure to 65–70 mm Hg while continuing crystalloid boluses or infusion.

The evidence for use of a pulmonary artery catheter in such cases is still pending. However, we would use a pulmonary artery catheter to aid us in our fluid and vasopressor management. This patient is having multifocal premature ventricular contractions and he has coagulopathy, so placement of the pulmonary artery catheter is not without major risk. However, I believe that following the trends of the data obtained using the pulmonary artery catheter would be helpful, and therefore one would be placed.

Given the patient's coagulopathy, we would also include fresh frozen plasma among the fluids used in resuscitation.

Continuous venovenous hemodiafiltration would be initiated after a nephrology consultation, if the nephrologist concurred. Cardiological opinion would also be obtained to aid with treatment of the patient's arrhythmias and to help assess left ventricular ejection fraction.

The choice of a first-generation cephalosporin to treat aspiration pneumonia is not one we would have made. Given the 3 days of sepsis in another institution, we would have chosen a wider spectrum of antimicrobials. We would begin empirically with an antipseudomonal agent as well as antibiotics against methicillin-resistant *Staphylococcus aureus* and anaerobes. Blood, urine, and sputum samples would be sent for culture.

If oxygenation or ventilation worsened while ARDSNet tidal volumes were used, we would consider therapy with high-frequency oscillation and/or nitric oxide (aware as we are of the need for evidence of efficacy for these interventions).

If the patient's hemodynamic status worsened, we would consider adding other inotropes or vasopressors as necessary, and if we thought doing so would be beneficial, we would insert an intra-aortic balloon pump.

The patient's neurological status is probably related to his overall septic state; however, if his level of consciousness did not improve, we would obtain a neurology consultation and obtain a computed tomography scan of his head.

The 25th-anniversary edition of *Maclean's* included the results of the magazine's annual poll of what values Canadians hold dear. According to the article, Canada's health care system, Medicare, remains "a matter of enormous pride for many Canadians, up there with the Maple Leaf flag as a symbol of what we are as a people."<sup>1</sup> The author and I share amazement that Medicare plays such an important role in Canadian self-identity, considering that the system has been around for only about 30 of Canada's 133 years. The federal legislation that codifies the five principles of the country's public health system, the Canada Health Act,<sup>2</sup> has been in existence only since 1985. These five principles are public administration, comprehensiveness, universality, portability, and accessibility. This system for ensuring that all Canadians have access to health care functions well for the most part. However, access to needed resources can at times be frustratingly slow. Waiting lists for certain procedures and technologies are longer than most patients and their health care workers would wish. With regard to Patient A, if I had unlimited access to resources and unlimited authority, I would have more rapid access to those resources.

Although Canadians are insured for 100% of their health care, some people never bother to obtain the documentation necessary for enrollment in the program. These individuals still receive full medical care; however, reimbursement for services rendered to such patients is often delayed and not always fully retroactive.

Visitors to Canada are not covered, nor are refugees (until their hearings begin, and then the federal government reimburses the provincial health care system).

If Patient A is a Canadian or is having his refugee status assessed, our taxes cover his care. However, whether Patient A is a Canadian or not, he should (and almost certainly would) receive the exact same level of care. Obviously, most Canadian physicians hope to be paid for their work, but this still would not change the care Patient A received. Although one would prefer that Canadians receive the health care that their taxes pay for (rather than nonresidents who do not pay taxes), the reality is that the acuity of the patient's condition and the potential reversibility of his underlying disease outweigh other factors.

## Patient B

Patient B's premorbid status was quite poor. At age 88 years, he has a number of chronic diseases, including dementia, and he has required 24-hour nasal oxygen. This patient has now developed sepsis with shock. The patient was intubated and ventilated, with central access obtained and fluid resuscitation started, because relatives were called and said they wanted everything done. Patient B then developed multiple organ dysfunction with volume overload, pulmonary edema, and renal failure with hyperkalemia and metabolic acidosis.

Unfortunately, this is not an uncommon situation. People not skilled in critical care have little or no understanding of what "doing everything" entails, and I therefore believe that the phrase is a meaningless one. However, once resuscitation has been initiated because of the demand that everything be done, it is very difficult to suddenly stop therapy.

I would give the patient a 50-mL ampule of 50% dextrose intravenously and intravenous insulin and calcium to temporarily deal with the potential for cardiac arrhythmia related to the hyperkalemia. However, my most important intervention would be my discussions with family members. This superficial desire for everything to be done would have to be clarified. Although I would suggest to them that the outcome of any intervention was likely to be extremely poor, I would undertake a short trial of aggressive therapy to see if he indeed would improve as he had in the past. I would give

the family an artificial timeline of 2–3 days for seeing if there was any improvement. This timeline would be a “floating window”: I would tell the family members that if the patient showed continuing improvement, we would continue our aggressive therapy for another 2–3 days, and we would continually reassess.

This patient will require dialysis if he is going to survive in the short term. A nephrology consultation would be obtained and acute dialysis started. Acute dialysis in this type of situation is not difficult to initiate. However, there is a shortage of chronic dialysis spaces in Toronto and the surrounding cities. Given his multitude of chronic diseases, his advanced age, and his dementia, it is unlikely that this patient would be accepted for chronic dialysis. Both the nephrologist and I would clearly outline for the family the plan for acute intervention with no intention of chronic dialysis.

Vasopressor therapy would be started, and the patient would be made comfortable with analgesia and sedation. Blood, urine, and sputum cultures would be obtained, and treatment with broad-spectrum antibiotics would be started, with kidney-toxic choices being avoided. I would not insert a pulmonary artery catheter but would transduce the central line and follow his central venous pressure trend. I suspect that his infiltrates and oxygen status would improve with ultrafiltration, but I would increase PEEP while waiting for this improvement. If his infiltrates did not improve with ultrafiltration, he would be ventilated using ARDSNet-protocol volume-based ventilation.

I would head the multidisciplinary team that would have daily meetings with the family, meetings in which the present situation and the prognosis would be emphasized. If the patient responded to our interventions, we would continue our therapy for another 2–3 days. However, if he showed no improvement over those 2–3 days, or if he deteriorated despite our aggressive measures, we would recommend to the family a change in focus from aggressive measures to comfort measures.

In our experience, the vast majority of families are reasonable about this change in focus, especially if the physician has made an earnest attempt to reverse the acute disease process and has kept the family involved and aware of the situation.

There are, of course, families who continue to insist on aggressive measures even in the most hopeless of situations, in which deterioration continues despite therapies. Although they constitute a minority, it is these families that critical care personnel tend to remember and focus on. This is very understandable, because the situation tends to be a most frustrating experience for all concerned. We usually require regular protracted family

meetings and involve the chaplain, request an ethics consultation, and obtain a second (and third) critical care physician opinion. We also suggest that the family ask a trusted physician to discuss the case with us. Again, portions of these families do eventually come to terms with the situation and allow the dying process to conclude without further prolongation.

Despite all this information, there will be families who will not see the circumstances as the medical team does and will not agree to a change in focus of care. If Patient B's family belonged to this small minority of "vitalists," we would continue our attempts to keep the lines of communication open and would make sure the family understood that the patient was likely to die despite our present interventions. In such cases, we do end up prolonging the dying process, even though the family cannot recognize this. I do not add any new therapies in these situations unless they are for the comfort of the patient. Cardiopulmonary resuscitation is not performed when it will not work (such as in Patient B's case), and this is explained to the family. The option of transfer of the patient to another institution is given to these families but is rarely accepted.

I do not believe that there would be much change in the way I would treat Patient B if his family was like the majority of families I routinely encounter in my ICU. If I had unlimited resources and unlimited authority, the only major change in care for this patient would be strict enforcement of my set timeline if the patient's family belonged to that small subset of families who are vitalists.

Although I appreciate that it can take time for some people to come to terms with the impending death of a loved one, I also believe that once death is almost certain, it is inappropriate to prolong the dying process. If Patient B's situation was not improving or was deteriorating beyond my original set time limit, I would begin comfort measures and withdraw aggressive care. I further believe that cardiac arrest secondary to multiple organ failure in a patient with such a poor premorbid health status is a terminal event. If I had unlimited authority, unreasonable and ineffective interventions such as cardiopulmonary resuscitation would not be offered to this patient. As well, once it became clear that the patient was not going to survive, the focus of care would be palliation, with a plan to transfer him to a palliative care unit.

## Patient C

Patient C is dying and has no hope of recovery. One could choose any prognostic scoring system one wished; however, the bedside assessment of this patient is clear: he is going to die, and no therapy is going to change that outcome. Patient C should not have been read options to pick from; patient

care possibilities should not be presented like some restaurant menu. He should have been told that our plan was to make sure that he was comfortable, and that he would receive aggressive comfort care on a ward, not in the ICU. This patient does not fit criteria for admission to our ICU; he is preterminal with irreversible disease. I would have involved our palliative care team and human immunodeficiency virus (HIV) specialists in this patient's care. His lack of relatives, alcohol abuse, HIV status, lack of insurance, and history of noncompliance are not issues here. He has every right to ask for another opinion, another physician to be in charge of his care, or transferral to another institution. He does not have the right to ICU admission simply because he wishes everything done, just as he would not be offered a liver or lung transplantation if he wished one and the organ was available. Whether I had unlimited resources and unlimited authority or not would have no effect on the underlying inappropriateness of admitting this irreversibly ill patient to anywhere other than a palliative care setting. If "doing everything" has any meaning at all, that meaning probably is "do not abandon this patient."

## **References**

<sup>1</sup>Marshall R: Paying the price. Maclean's. December 25, 2000.

<sup>2</sup>RS 1985, c C-6. Also available at: <http://laws.justice.gc.ca/en/C-6/text.html>. Accessed September 24, 2001.