



Most significant incidents are the result of a cascade of multiple errors and this near drowning was no exception. Had John and Ann taken paddling and rescue lessons, practiced their skills, worn life jackets suitable to whitewater, and had airbags/floatation well-secured in their canoe, this tragic incident could have been avoided.

Although luck played a part in Ann's rescue, once she was safely on shore John responded correctly with immediate CPR. Upon successful recovery of her pulse and respirations Ann is voice responsive (due to lack of oxygen) and in respiratory distress (due to pulmonary edema from the near drowning). The extra clothing you used to protect her from the cold seems to be working and hypothermia is NOT a current problem. Ann's anticipated problems are death due to increased ICP (she is not currently awake and increased ICP is possible due to lack of oxygen) and/or increased respiratory arrest (due to increasing pulmonary edema).

Remember: most near drowning patients aspirate greater than 4 ml/kg; 1-3 ml/kg fluid leads to significantly impaired gas exchange. During resuscitation aspirated water is absorbed into the microvascular bed surrounding the alveoli where it may wash out the surfactant and stimulate Mast cell degranulation. If the Mast cells degranulate — as they rapidly did in this case — inflammation will occur within 24 hours and plasma will leak into the alveoli, causing pulmonary edema, respiratory distress, and potentially arrest within 72 hours of the event. The incidence of pulmonary edema increases with the amount of particulate matter dissolved or suspended in the water (salt, dirt, sand, chemicals, etc.). Because Ann is low voice responsive and currently experiencing respiratory distress her ultimate prognosis is poor. If communication, access, and resources permit, attempt an immediate — Level 1 — helicopter evacuation to the nearest major hospital with Advanced Life Support.

