



Most significant incidents are the result of a “perfect storm” of multiple administrative and site management errors. This near drowning incident was no exception.

Administrative Errors

1. Program administration did not take into account the potential consequences unseasonably warm temperatures and an early spring run-off.
2. Field staff were unfamiliar with the course area.
3. Field staff were not trained in Swiftwater rescue or high-water river crossing techniques. As a result they did not have the training or experience to correctly assess the hazard the swollen stream presented.
4. No emergency communication was provided/available. Had reliable emergency communication (cell or satellite phone) been available the instructors could have called for assistance.

Site Management Errors

1. Poor trip planning in light of the high potential of an early spring run-off. The decision to attempt the stream crossing was influenced by a desire to get to the end-of-course pick-up. In this sense it was itinerary driven.
2. Poor hazard and risk assessment.
3. Poor personal (staff) assessment of their ability to plan and manage a safe stream crossing under the highwater conditions.
4. No training progression and skill assessment for students.

It is the program administration’s responsibility to ensure that the site management skills of their staff are balanced with the inherent risks present in the trip’s itinerary.



The failure of the program administration to recognize the hazard presented by the unseasonably warm temperatures and their failure to ensure that the trip staff were well trained in high-water stream crossings precipitated this incident. That said, had the field staff been able to accurately assess their own site management skills and elected to turn around or patiently wait until the water receded (or help arrived), the incident could easily have been averted.

First Aid

Although luck played a large part in the rescue, once the student was safely on shore the staff responded correctly with immediate CPR. Upon successful recovery of their patient's pulse, respirations, and consciousness their problem list was: possible concussion (however unlikely, it could not be ruled out because she had a loss of consciousness and amnesia) and near drowning. Her anticipated problems are increased ICP and delayed respiratory distress secondary to pulmonary edema. 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, 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.). Delayed infection is also a potential respiratory complication that may result in the patient's death due to bacteria in the aspirated water. While their patient does not currently present with respiratory distress, she may develop it. It is prudent to begin a Level 2 Evacuation (may develop into a life threatening situation) to the nearest hospital for evaluation and observation. Unfortunately, the group is still on the wrong side of the swollen stream. At this point they will need to decide whether to wait for the water to recede to a safe crossing level or help to arrive, to back track with the group to their original drop-off, or to find another potential pick-up spot.