



nario, thus choosing a middle-of-the-road decision point. Alternatively, physicians with patients who have specifically requested not to receive transfusions unless the opinion to give the transfusion is shared by a substantial majority of physicians might pick a transfusion decision threshold 2 standard deviations below the mean.

It is our hope that with the continuing development of histogram data for a large number of representative clinical scenarios this technique of expressing clinical opinion may become useful in clinical decision-making.

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Ordering radiographs with the law in mind

In the article "Variation in emergency department use of cervical spine radiography for alert, stable trauma patients" (*Can Med Assoc J* 1997;156[11]:1537-44), Dr. Ian Stiell and associates indicate that cervical

spine radiography could be used more efficiently and cost-effectively if there were clinical guidelines governing its use. Even though I agree with these authors, I order this type of imaging for asymptomatic patients who have been in motor vehicle accidents, particularly rear-end collisions that may have caused cervical hyperextension. The explanation that "I didn't think, on clinical grounds, that such an imaging study was warranted" holds little sway in Canada's courtrooms.

If there is loss of cervical lordosis because of muscle spasm after a motor vehicle accident, the speed with which the first radiographs were obtained becomes a factor in determining what health problems eventually develop and the size of insurance settlements. A person who has survived such an accident may have loss of cervical lordosis immediately, but it may be 2 or 3 days before symptoms appear. The radiographs obtained initially will serve as a baseline for subsequent radiographic findings.

Because of my court experiences, I send patients to the radiology department as soon as I have seen them, even if the casualty officer feels that imaging is unnecessary. I know that in the long term I am the one who will be questioned extensively about muscle spasm, onset of symptoms and radiologic evidence of muscle spasm. I also order lumbar spine films because lap-belt injuries may cause lumbar muscle spasm. This means that evidence will be available should the problem reach the courtroom. The existence of radiographs often makes it unnecessary to go to court because, despite the possibility of pre-existing conditions such as osteoarthritis, the insurance adjusters and lawyers will decide that a claim is legitimate and settle it. In the long run these radiographs probably save money, even if they do not necessarily help me in deciding how to handle these soft-tissue injuries.

Legal questions sometimes dictate whether radiographs should be ordered. Twenty-five years of experience have led me to request such images as soon as possible after an accident because I might need them 3 or 4 years later in court.

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Virtual reality in medical training

The recent article "Time to 'rethink models of medical education,' ACMC meeting told," by Nancy Robb (*Can Med Assoc J* 1997;157[3]:304-5), contained an important sidebar on virtual reality. It reported on a workshop given by Dr. David Kaufman, in which he described some of the new developments in this field that are being applied to medical education.

Virtual reality is an interesting form of simulation and may be best suited to the acquisition of both knowledge and skills. The simulators usually fall between low-fidelity models, as found on a computer screen, and medium- to high-fidelity simulators, which can re-create a cockpit or an operating room. Low-fidelity simulators are best suited to acquiring knowledge, whereas the more sophisticated models allow the acquisition of knowledge, skills and attitudes.¹

The sidebar reported the hope of workshop participants that virtual reality might allow physicians (including those in training) to "reach mastery" of a skill and then to maintain that mastery. Kaufman added that "airline pilots have the same biologic responses when they practise on aircraft simulators as when they fly. Indeed, pilots have to be certified in flight simulation before they can fly commercially."

However, one important use of