



Research Update

Rapid defibrillation boosts survival following out-of-hospital cardiac arrest

A relatively inexpensive tune-up of communities' emergency response programs can significantly increase the number of patients who survive cardiac arrest outside hospitals.

In a controlled trial set in 19 urban and suburban Ontario communities, researchers found that changes designed to ensure that portable defibrillators were on site within 8 minutes yielded a 33% increase in relative survival among cardiac arrest victims (*JAMA* 1999;281:1175-81). Survival to hospital discharge rose from 3.9% to 5.2%. Study author Dr. Ian Stiell says this is the equivalent of another 21 lives saved annually in the study communities, or approximately 1 life for every 120 000 residents.

Existing defibrillation programs were optimized by cutting times from call receipt to treatment, speeding up

ambulance dispatch and having firefighters — who are typically the first on the scene — apply defibrillation. Establishing the rapid defibrillation program would cost an estimated \$69 000 per life saved, with annual maintenance pegged at about \$3500 per life saved.

Stiell and colleagues compared outcomes for 36 months before and 12 months after the rapid defibrillation program was implemented. Before the changes, 77% of victims received treatment within the 8-minute "window of opportunity"; after the enhancements, 92% of patients received defibrillation within this window. There were 4690 cardiac arrest patients in the "before" group and 1641 in the "after" group.

"We've shown quite clearly that just having the machines is not enough," says Stiell, a self-titled emergency medicine health services re-

searcher with the Ottawa Hospital's Loeb Health Research Institute. "You have to get them [defibrillators] to victims quickly. I see this as a challenge to all North American communities with populations under a million. I suspect most don't know what their survival rates are, or response times, or even their CPR rates."

The study, phase II of the Ontario Prehospital Advanced Life Support (OPALS) project, was funded by the Ontario Ministry of Health. The communities involved, which had populations ranging from 16 000 to 750 000, were part of an umbrella emergency medical services system that offered basic life support and defibrillation. Stiell is now studying the additional impact on survival of advanced life support measures (intubation, intravenous lines and drugs). — © *Greg Basky*Saskatoon

Quelling the controversy over needle exchange and high HIV rates

Controversy has surrounded needle-exchange programs for injection drug users in Vancouver's Downtown Eastside neighbourhood since recent studies showed high rates of HIV infection among drug users participating in the programs. This question was recently revisited by Dr. Martin Schechter and his colleagues in a study designed to find out whether the programs contribute to HIV transmission by promoting needle sharing and other high-risk behaviours, or simply attract participants who are already involved in high-risk activities (*AIDS*1999;13:F45-51).

A total of 694 intravenous drug users who were HIV-negative when they were recruited and had injected illegal drugs within the previous month participated in the project. The researchers set up a storefront office in the Downtown Eastside, where 80%

of the subjects came for at least one follow-up visit. The researchers found no evidence that needle-exchange programs resulted in drug users forming new needle-sharing partnerships. Only 1 of 498 subjects said he or she had met new needle-sharing partners through the needle-exchange programs. The increased infection rate among people using the program was consistent with their pre-existing higher-risk profile. The researchers also point out that Vancouver's Downtown Eastside was "a haven for intravenous drug users long before needle exchange." As well, needle-exchange programs are just one of a range of services needed for HIV prevention, such as methadone maintenance and adequate housing.

The study's findings follow on those of a previous study (*AIDS*



1997;11:F59-65), which found that of 1000 injection drug users, those who had participated in the needle-exchange programs had significantly higher rates of HIV infection than those who did not attend the exchange. Those results were interpreted in the US to mean that the programs promote increased HIV infection rates. The US government still refuses to fund needle-exchange programs. — © *Heather Kent*Vancouver