

## Medical News

EDITED BY GINA PUGLIESE, RN, MS; MARTIN S. FAVERO, PHD

### Hand Rubbing With Alcohol Compared With Hand Scrubbing: Influence on Risk of Surgical-Site Infection

Surgical-site infections (SSIs) prolong hospital stays, are among the leading nosocomial causes of morbidity, and are a source of excess medical costs. Clinical studies comparing the risk of nosocomial infection after different hand antisepsis protocols are scarce. To compare the effectiveness of hand cleansing protocols in preventing SSIs during routine surgical practice, Parienti and colleagues from the Cote de Nacre University Hospital Centre in Caen Cedex, France, conducted a randomized equivalence trial among six surgical services from teaching and non-teaching hospitals in France. This included a total of 4,387 consecutive patients who underwent clean and clean-contaminated surgery between January 1, 2000, and May 1, 2001.

Surgical services used two hand cleansing methods alternately every other month: a hand rubbing protocol with a 75% aqueous alcoholic solution containing propanol-1, propanol-2, and mecetronium etilsulfate; and a hand scrubbing protocol with an antiseptic preparation containing 4% povidone-iodine or 4% chlorhexidine gluconate. Thirty-day SSI rates were the primary end point; operating department teams' tolerance of and compliance with hand antisepsis were secondary end points.

The two protocols were found to be comparable regarding risk factors for SSI. SSI rates were 55 (2.44%) of 2,252 in the hand rubbing protocol and 53 (2.48%) of 2,135 in the hand scrubbing protocol, for a difference of 0.04% (95% confidence interval, -0.88% to 0.96%). On the basis of subsets of personnel, compliance with the recommended duration of hand antisepsis was better in the hand rubbing protocol of the study compared with the hand scrubbing protocol (44% vs 28%, respectively;  $P = .008$ ), as was tolerance, with less skin dryness and less skin irritation after use of the aqueous solution.

The authors concluded that hand rubbing with the aqueous alcoholic solution, preceded by a 1-minute nonantiseptic hand wash before each surgeon's first procedure of the day and before any other procedure if the hands were soiled, was as effective as traditional hand scrubbing with antiseptic soap in preventing SSIs. The hand rubbing protocol was better tolerated by the surgical teams and improved compliance with hygiene guidelines. Hand rubbing with liq-

uid aqueous alcoholic solution can thus be safely used as an alternative to traditional surgical hand scrubbing.

FROM: Parienti JJ, Thibon P, Heller R, et al. Hand-rubbing with an aqueous alcoholic solution vs traditional surgical hand-scrubbing and 30-day surgical site infection rates: a randomized equivalence study. *JAMA* 2002;288:722-727.

### Financial Burden of Drug Resistance in Canada

In a recent report to the Canadian Committee on Antibiotic Resistance, David Birnbaum of the University of British Columbia and colleagues provided a comprehensive assessment of the human and financial burden from drug-resistant infections in Canada, with a focus on hospital-associated infections, especially methicillin-resistant *Staphylococcus aureus*. This project is the first attempt to develop a Markov model of national cost augmented by experiences and concerns expressed by patients, their families, and care providers.

The investigators created an econometric computer model for direct costs, and to add a human dimension for indirect costs, they conducted structured interviews with affected individuals across Canada. Results indicated that antimicrobial resistance now adds \$8.7 to \$13.9 million more in direct costs than if these infections were drug susceptible, plus costs of screening programs (another \$10.3 million) and measures to contain carriers detected (\$15.9 million more). If American prevalence is applied, direct cost rises to \$103.9 to \$187.1 million (approximately \$63.9 to \$102.2 million more than for similar susceptible infections), screening cost remains \$10.3 million, and cost to contain colonized carriers rises to \$157.2 million.

The investigators confirmed prior research showing psychological harm from both infection control practices and serious underlying disease, finding depression and fears that extend beyond discharge from the hospital. Infection control measures and the impact of resistance on the ability of acute care hospitals to transfer patients ready for discharge constitute a larger part of direct cost than antibiotic treatment itself.

FROM: Birnbaum D, Jandciu E, Twells L. Antimicrobial resistance: a deadly burden no country can afford to ignore. Available at [www.ccar-ccra.org](http://www.ccar-ccra.org).