definitional problems and has called for an empirical definition of harm reduction.[6] In this conceptualization one cannot determine a priori whether a policy or program is harm reducing until one examines the evidence of its impact. Any program, be it demand or supply reduction, use tolerance or abstinence, that measurably reduced harm would be deemed harm reduction.

With its present drug strategy Canada spends heavily on law enforcement (more than $400 million annually[7]); these monies comprise the bulk of dedicated resources, yet there has been virtually no research on its effectiveness in reducing drug use or drug-related harm. Accepting and operationalizing an empirical approach would have advantages. As a nation we could develop and invest in policies and programs that were effective in reducing the prevalence of substance use and misuse, that reduced harm resulting from substance use and misuse and that provided users with effective options for managing or quitting substance use.

Perry R.W. Kendall
Provincial Health Officer
Victoria, BC

References

1. Interdepartmental Working Group on Substance Abuse. *Canada's drug strategy*. Ottawa: Public Works and Government Services Canada; 1998. Available: www.hc-sc.gc.ca/hppb/alcohol-otherdrugs/publications.htm (accessed 24 Nov 2000).
2. Single E, Rehm J, Tobson L, Truong MV. The relative risks and etiologic fractions of different causes of death and disease attributable to alcohol, tobacco and illicit drug use in Canada. *CMAJ* 2000;162(12):1669-75.
3. Fischer B, Rehm J, Blitz-Miller T. Injection drug use and preventive measures: a comparison of Canadian and Western European jurisdictions over time. *CMAJ* 2000;162(12):1709-13.
4. Hankins C. Substance use: time for drug law reform [commentary]. *CMAJ* 2000;162(12):1693-4.
5. Cheung YW. Substance abuse and developments in harm reduction [commentary]. *CMAJ* 2000;162(12):1697-1700.
6. Single E. A harm reduction framework for British Columbia: a discussion paper prepared for the British Columbia Federal/Provincial Harm Reduction Working Group. Victoria: Office of the Provincial Health Officer, BC Ministry of Health and Ministry Responsible for Seniors; 1999.
7. Single E, Robson L, Xie X, Rehm J. The economic costs of alcohol, tobacco and illicit drugs in Canada. *Addiction* 1998;93(7):991-1006.

Management of patients with uninvestigated dyspepsia

A recently published randomized controlled trial of the eradication of *Helicobacter pylori* in patients without ulcers who presented with functional dyspepsia[1] was reviewed in a *CMAJ* Clinical Update.[2] We believe the Clinical Update oversimplifies the management of dyspepsia in that it incorrectly leads the reader to believe that these results are applicable to the management of primary care patients with uninvestigated dyspepsia, when in fact this is not the case.

It is essential to distinguish between uninvestigated and investigated dyspepsia. By definition, functional dyspepsia is a diagnosis of exclusion after investigation has ruled out organic disease such as peptic ulcer, gastroesophageal reflux and, less frequently, gastric cancer.[3] For this, upper gastrointestinal endoscopy is the investigation of choice. Over half of patients with dyspepsia will have a normal endoscopy and they are said to have nonulcer dyspepsia.

There is indeed a lot of controversy about whether eradication of *H. pylori* infection in patients with functional dyspepsia leads to sustained improvement in symptoms. Although the study reviewed in the Clinical Update suggests that there is no benefit from eradication of *H. pylori* in patients with functional dyspepsia, a recent meta-analysis of 12 randomized controlled trials shows a modest risk reduction in dyspeptic symptoms resulting from eradication of *H. pylori* (risk reduction 9%, 95% confidence interval 4%–14%).[4]

Perhaps the clinically more relevant question is what is the value of a noninvasive *H. pylori* test-and-treat strategy in patients with uninvestigated dyspepsia in the primary care setting. A recently completed randomized controlled trial of 294 patients showed that 50% of patients randomized to active treatment for eradication of *H. pylori* had improvement in symptoms at 12 months compared with 36% in the group of patients randomized to a placebo.[5] Patients in this study did not undergo endoscopy, so it is not known how much of the improvement is attributable to patients with an ulcer diathesis.

Infection with *H. pylori* is also a risk factor for the development of gastric cancer. We might reasonably expect that eradication of *H. pylori* may provide the additional benefit of preventing some cases of gastric cancer, although there are not yet any data from randomized controlled trials to support this view.

In summary, we believe there are data to support a noninvasive *H. pylori* test-and-treat strategy in patients with univestigated dyspepsia who are less than 50 years old, who do not have alarm symptoms, who are not taking nonsteroidal anti-inflammatory drugs and who do not have symptoms suggesting reflux disease. This was clearly outlined in our recently published *CMAJ* supplement.[6]

Sander Veldhuyzen van Zanten
Department of Medicine
Queen Elizabeth II Health Sciences Centre
Dalhousie University
Halifax, NS
Nigel Flook
Department of Family Medicine
University of Alberta
Edmonton, Alta.
Naoki Chiba
Division of Gastroenterology
McMaster University
Hamilton, Ont.
for the Canadian Dyspepsia Working Group

References

1. Talley NJ, Vakil N, Ballard ED II, Fennerty MB. Absence of benefit of eradicating *Helicobacter pylori* in patients with nonulcer dyspepsia. *N Engl J Med* 1999;341(15):1106-11.
2. Hoey J. The dyspepsia dilemma. *CMAJ* 2000; 163(2):203.
3. Talley NJ, Stranghellini V, Heading RC, Kick KL, Malagelada JR, Tytgat GNJ. Functional gastroduodenal disorders. *Gut* 1999;45(2 Suppl):137-42.
4. Moayyedi P, Soo S, Deeks J, Forman D, Mason J, Innes M, et al, on behalf of the Dyspepsia Group. Systematic review and economic evaluation of *Helicobacter pylori* eradication treatment for non-ulcer dyspepsia. *BMJ* 2000;321:659-64.
5. Chiba N, Veldhuyzen van Zanten SJO, Sinclair P, Ferguson RA, Escobedo SR. Beneficial effect of *H. pylori* eradication therapy on long term

symptom relief in primary care patients with uninvestigated dyspepsia. The CADET Hp Study Group [abstract]. *Gastroenterology* 2000;118(4 Suppl):A2350.
6. Veldhuyzen van Zanten SJO, Flook N, Chiba N, Armstrong D, Barkun A, Bradette M, et al, for the Canadian Dyspepsia Working Group. An evidence-based approach to the management of uninvestigated dyspepsia in the era of *Helicobacter pylori*. *CMAJ* 2000;162(12 Suppl):S1-S23.

On the trail of necrotizing fasciitis in children

Tauyee Hsieh and colleagues are to be commended for their attempt to define the pediatric presentation and outcome of necrotizing fasciitis versus cellulitis, using a case–control study design.[1] One major limitation of their study is the paucity of cases of necrotizing fasciitis (8 cases in total), despite a 16-year period for the retrospective analysis. This raises a question about the accuracy of the ICD-9 coding system for identifying cases of necrotizing fasciitis or similar entities. The answer is that it is not particularly accurate. For example, the sensitivity of ICD-9-CM codes appears to be at most 58.3% for laboratory-confirmed pneumococcal pneumoniae and tends to be much lower than that.[2] Identification of common occurrences such as adult stroke,[3] myocardial infarction,[4] childhood accidents[5] and reportable communicable diseases[6] via ICD-9 and ICD-9-CM codes is often equally poor, especially among pediatricians.[7] Furthermore, coding discrepancies are greater with more complex medical cases,[8] such as necrotizing fasciitis.[9] I do not criticize the authors for this limitation, but feel that it may help explain why so few cases were identified over such a long study period.

I am concerned that the authors did not estimate a study sample size that would have enabled them to address their question(s) with greater study power and precision. Sample size estimation is an important part of any study design, especially in a case–control study that attempts to examine a rare occurrence like pediatric necrotizing fasciitis.[10] Accordingly, a colleague and I developed a practical paper to assist clinician-researchers in the difficult task of estimating sample size for such studies.[10] As Hsieh and colleagues pointed out, they may have identified a greater number of cases by embarking on a multicentre study, which is often required when rare diseases are studied. It was for this purpose that the Ontario Group A Streptococcal Study Group was formed.[9,11] During 1992 and 1993 alone, this group identified 323 cases of invasive group A streptococcal disease in Ontario; the highest rates were among children and elderly people. However, necrotizing fasciitis occurred in only 6% of all patients, highlighting the rarity of this disease and its high rate of associated morbidity and mortality.[9]

Joel Ray
Associate
Departments of Critical Care and
Clinical Epidemiology and Biostatistics
McMaster University
Hamilton, Ont.

References

1. Hsieh T, Samson LM, Jabbour M, Osmond MH. Necrotizing fasciitis in children in eastern Ontario: a case–control study. *CMAJ* 2000; 163(4):393-6.
2. Guevara RE, Butler JC, Marston BJ, Plouffe JF, File TM Jr, Breiman RF. Accuracy of ICD-9-CM codes in detecting community-acquired pneumococcal pneumonia for incidence and vaccine efficacy studies. *Am J Epidemiol* 1999; 149:282-9.
3. Goldstein LB. Accuracy of ICD-9-CM coding for the identification of patients with acute ischemic stroke: effect of modifier codes. *Stroke* 1998;29:1602-4.
4. Cox JL, Melady MP, Chen E, Naylor CD. Towards improved coding of acute myocardial infarction in hospital discharge abstracts: a pilot project. *Can J Cardiol* 1997;13:351-8.
5. Beattie TF. Accuracy of ICD-9 coding with regard to childhood accidents. *Health Bull (Edinb)* 1995;53:395-7.
6. Campos-Outcalt DE. Accuracy of ICD-9-CM codes in identifying reportable communicable diseases. *Qual Assur Util Rev* 1990;5: 86-9.
7. Campos-Outcalt D, England R, Porter B. Reporting of communicable diseases by university physicians. *Public Health Rep* 1991;106:579-83.
8. MacIntyre CR, Ackland MJ, Chandraraj EJ, Pilla JE. Accuracy of ICD-9-CM codes in hospital morbidity data, Victoria: implications for public health research. *Aust N Z J Public Health* 1997;21:477-82.
9. Laupland KB, Davies HD, Low DE, Schwartz B, Green K, McGeer A. Invasive group A streptococcal disease in children and association with varicella-zoster virus infection. Ontario Group A Streptococcal Study Group. *Pediatrics* 2000; 105(5):E60.
10. Ray J, Vermeulen M. Sample size estimation for the uninitiated and intimidated. A guide for the sorcerer's apprentice. *Can Fam Physician* 1999; 45:1732-9.
11. Davies HD, McGeer A, Schwartz B, Green K, Cann D, Simor AE, et al. Invasive group A streptococcal infections in Ontario, Canada. Ontario Group A Streptococcal Study Group. *N Engl J Med* 1996;335:547-54.

I read with interest the article by Tauyee Hsieh and colleagues describing a case–control study of necrotizing fasciitis in children.[1] The authors indicated that they enrolled control subjects who were "matched to the case subjects" by date of admission and by date of birth. Although it was not specifically stated, one might assume by the wording that the control subjects were individually matched to the case subjects. The authors also noted that, for the multivariate analysis, they were unable to obtain odds ratios from conditional logistic regression (which would take the matching into account) but verified their estimates by an alternative approach that did adjust for matching.

However, it is not clear whether appropriate analyses that take matching into account were utilized in their univariate comparisons, and whether the comparisons displayed in their Table 1 represent univariate or multivariate comparisons. They indicated that they analyzed their data using Fisher's exact test for categorical variables and the Wilcoxon rank-sum test for continuous variables. If the authors did not use matching, would the comparisons in Table 1 have been different if they had? Would this have altered the "significant" risk factors included in the multivariate analysis?

Gary M. Liss
Department of Public Health Sciences
University of Toronto
Toronto, Ont.

Reference

1. Hsieh T, Samson LM, Jabbour M, Osmond MH. Necrotizing fasciitis in children in eastern Ontario: a case–control study. *CMAJ* 2000; 163(4):393-6.

[The authors respond:]

We agree with Joel Ray that the ICD-9 coding system may not adequately ensure retrieval of all relevant cases. To ensure that we captured