LETTERS TO THE EDITOR

Limitations of NEISS child injury data

EDITOR,—As the Director of the National Electronic Injury Surveillance System (NEISS) at the Consumer Product Safety Commission (CPSC), I have read and discussed with Mr Weiss several drafts of his article. There are several statements made in the article that require further comment. First, he claims ‘For trend analysis of product related injuries at the level of occurrence studied for baby walkers, NEISS suffers from poor sensitivity due to the relatively large sample size of NEISS samples, which are designed as a stratified probability sample of all hospitals in the US and its territories having at least six beds and an emergency department open for business 24 hours a day. The sample design provides a balance between three factors most important to the CPSC (fixed costs, case finding, and minimum sampling error). There are a variety of statistical models and tests than can be applied to analyze trends in these data. Mr Weiss claims the system suffers from poor sensitivity because there can be relatively large differences between estimates for different years with overlapping confidence intervals around these estimates. However, there can be statistically significant differences among estimates with overlapping confidence intervals. In the paper cited by Mr Weiss, a regression test is used to show a significant increase in the baby walker injury estimates for the period 1984—91. In a 1994 CPSC paper on baby walker injuries, a non-parametric rank test applied to the injury rates for an extended period also showed a significant increase.

Mr Weiss concludes that the NEISS data at the frequency ‘have poor sensitivity’ because of the failure of a weak test on one set of data to show a significant difference. In fact, the ‘poor sensitivity’ is a function of the study of the study (requiring disjoint confidence intervals) rather than the sample design.

Second, Mr Weiss claims, ‘NEISS . . . reflects a random geographic imbalance . . . because one north eastern state contributes both of the reporting children’s hospitals’. As mentioned above, the NEISS sample is a probability sample which does not give unbiased estimates of the numbers of injuries treated in hospital emergency departments throughout the country. Hospitals in the sampling frame were stratified into geographic areas. Sample hospital selections were made from each of the geographic strata within each of four different strata. Selection of multiple hospitals from large states such as Pennsylvania was a result of the large number of hospitals in these states and not a deficiency in the design.

Children’s hospitals were included in the frame under the same conditions as any other hospital in the country. The current NEISS sample provides estimates because it represents a carefully drawn probability sample of all hospitals in the frame. Selection of two children’s hospitals in Pennsylvania is a perfectly acceptable result of the random sampling process.

And third, Mr Weiss asserts, ‘It was obvious that the number of child injuries from a certain size sample hospital serving only children must be considerably higher than a similar size non-children’s hospital. Yet CPSC has not performed any special accounting in the NEISS . . .’. Children’s hospitals in this country treat relatively few of the total number of children’s emergency room visits. In 1995, the CPSC has been collecting injury reports from a total of 11 children’s hospitals. Preliminary data from these hospitals indicate that children’s hospitals treat less than 5% of the product related children’s injuries treated in hospital emergency departments.

There will always be some uncertainty accompanying use of estimates from a probability sample and room for different interpretations of their value. I appreciate the opportunity to review Mr Weiss’ article and to express my comments in the same issue of the journal.

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BOOK REVIEW


Adolescent injuries are a tremendously important problem. Intentional and unintentional trauma are far and away the leading cause of death in this age group in all countries of the world, including those that are generally considered industrialized alike. In the US motor vehicle injuries alone are the single largest cause of all deaths during adolescence, not just injury deaths. Any effort to address this problem and suggest prevention strategies for these problems is both much needed and welcome.

This volume represents a helpful addition to the field. Edited by two respected injury investigators, KK Christoffel and CW Runyan, the 10 chapters contributed by 24 different individuals cover a broad range of topics. The format of the chapters, while not totally uniform, includes information on the magnitude of the problem, the descriptive epidemiology, and potential interventions. Some chapters offer a more comprehensive literature review than others, for example, the chapter on post-traumatic stress disorder by L Amaya-Jackson and JS March. All chapters offer something for both the scientist trying to discern new areas for investigation and the injury control practitioner deciding which interventions to implement in a given setting.

For example, the chapter on injury prevention in primary care by J Paulson and C DiGuiseppi offers helpful, hands-on suggestions for the primary care practitioner.

I was also impressed by the critical nature of the reviews of the literature in many chapters.
For example, R Wilson-Brewer, addressing school based, peer violence prevention programs does not accept the myriad interventio ns that have been suggested, such as conflict resolution programs, at face value. Instead she discusses the evidence (or mostly the lack thereof) for the effectiveness of these programs. This type of critical review of the literature and existing programs is often lacking in many reviews and the editors and authors are to be congratulated for stressing it.

The volume suffers from the usual American bias of focusing only on the US, or at best North America, and largely ignores other countries of the world. One exception is in the chapter on the epidemiology and prevention of homicide, but that is more to point out how terrible it really sheds any light on what is happening elsewhere. Some countries have dealt better with some of these problems that others; exploring data and programs from these success stories may have much to teach all of us about what works and why.

The chapter by staff from the National Center for Injury Prevention and Control on suicide was somewhat surprising for the scant attention to contribution of firearms and strategies for preventing firearm suicides. This chapter is focused largely on US data where firearms are responsible for the majority of deaths. The data clearly point to a relationship between firearm availability and risk of teen and young adult suicide. No mention is given, for example, of promoting ways to keep guns away from the hands of teens at risk of suicide, the role of the primary care practitioner in counseling families, or strategies to be used in the community.

I also found the relative lack of attention given to the role of alcohol to be almost alarming. In our trauma center, and in many other centers in North America and Europe, alcohol is one of the most important, and potentially changeable, risk factors for adolescent injury. Many chapters give alcohol passing mention, but none discuss basic ways in which we might deal with the problem. No authors, for example, discuss the importance of treating adolescent trauma victims for alcohol intoxications, nor do any discuss screening these patients for chronic alcohol problems. This lack of attention to perhaps one of the most important risk factors for injury seems to ignore the need for volumes such as these to deal with it realistically.

I would have also liked to see a chapter discussing how injuries in adolescents fit in with other risk taking behaviors, including early sexual activity, substance abuse, smoking, and delinquency. Many authors currently view each of these high risk behaviors as markers for adolescents at risk for one of the Sternberg/adolescent trauma victim for alcohol intoxications, nor do any discuss screening these patients for chronic alcohol problems. This lack of attention to perhaps one of the most important risk factors for injury seems to ignore the need for volumes such as these to deal with it realistically.

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