Hospitalizations for Injury in New Zealand: Prior Injury as a Risk Factor for Assaultive Injury

ABSTRACT

Objectives. This study sought to determine the degree to which injury hospitalization, especially for assaultive injury, is a risk for subsequent hospitalization due to assault.

Methods. A New Zealand hospitalization database was used to perform a retrospective cohort study. Exposure was defined as an injury hospitalization, stratified into assaultive and nonassaultive mechanisms. Hospitalizations for an assault during a 12-month follow-up period were measured.

Results. Individuals with a prior nonassaultive injury were 3.2 times more likely to be admitted for an assault than those with no injury admission (95% confidence interval [CI] = 2.7, 3.9). The relative risk associated with a prior assault was 39.5 (95% CI = 35.8, 43.5), and the subsequent admission rate did not vary significantly by sex, race, or marital or employment status. Among those readmitted for an assault, 70% were readmitted within 30 days of the initial hospitalization.

Conclusions. Prior injury is a risk for serious assault, and the risk is even greater if the injury is due to assault. Risk of readmission for assault is largely independent of demographic factors and greatest within 30 days of the initial assault. (*Am J Public Health.* 1996;86:929–934)

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Introduction

In New Zealand, as in other countries such as the United States, interpersonal violence is a growing public health problem and a leading cause of injury mortality and morbidity. In 1990, 70 people were victims of homicide and an additional 2460 were hospitalized as the result of an injury inflicted by another person, representing 3% of all injury deaths and 5% of all injury hospitalizations in New Zealand.[1] In the United States, more than 19 000 people are murdered each year, and an estimated 130 000 are admitted to a hospital after an assault; these figures represent 14% of all injury deaths and 5% of all injury hospitalizations, respectively.[2] Despite the importance of this problem, there have been few population-based investigations in either country of the factors that place one at risk for an injury due to assault. Demographic characteristics that have been identified as risk markers for assaultive injury, in both the United States and New Zealand, include being young, male, of a minority race, single, and unemployed and living in an urban environment.[3–5] Studies in the United States have suggested that the extent to which these demographic factors are predictors is dependent on socioeconomic level, as measured by level of poverty and household crowding.[4,6]

Few studies have examined previous injury as a risk factor for assaultive injury.[7–12] Among trauma surgeons in the United States, recurrence of intentional trauma is a commonly recognized and frustrating phenomenon.[11] Studies based in trauma centers in the United States indicate that readmission rates may be as high as 44% and that subsequent homicide rates may be as high as 20%.[8] While these studies provide evidence of an association between prior violent injury and subsequent injury, they are largely based on hospitalized urban, minority US populations and lack comparison groups.

Although it appears that there is a significant association between assaultive injury and risk of subsequent assault, it is not known to what extent this association exists in the general population and what influence demographic variables such as gender, race, and marital and employment status have on the relationship. To determine the extent to which prior injury hospitalization, especially that due to interpersonal violence (assault), places one at risk for a subsequent assaultive injury resulting in hospitalization, we conducted a nationwide retrospective cohort study of the population of New Zealand.

Methods

Data Sources and Quality

New Zealand has a total population of 3.3 million persons, 80% of European origin. The indigenous Maori population makes up the next largest group of the

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population, about 13% in 1991. The country enjoys a comprehensive and universal system of public health care. The Health Information Service records data on all discharges from public and private hospitals in New Zealand. The present study was restricted to inpatient discharges from public hospitals, since the vast majority (98.6%) of individuals who require inpatient treatment in the acute phase of their injury are admitted to public hospitals. In 1990, admissions to private hospitals for injuries represented 3.1% of all injury admissions and only 1.4% (n = 630) of the acute injury hospitalizations for the country. Most injury admissions to private hospitals involve complications of medical or surgical care or late effects of injury.[13] Virtually all residents of the country with an acute injury necessitating hospitalization can be conveniently identified by a unique personal identifier number on a single database provided by the Health Information Service. Injury hospitalizations are coded on these files according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) supplementary classification of external causes of injury and poisoning,[14] commonly referred to as E-codes. The E-codes permit the identification and enumeration of patients classified under a variety of categories relating to "environmental events, circumstances, and conditions."

Exposure Definition

The exposed group was defined as all persons who were discharged one or more times from a New Zealand hospital between January 1, 1990, and December 31, 1990, with a diagnosis of an acute injury or poisoning (ICD-9-CM codes 800 to 999). Individuals who sustained an injury as the result of a medical or surgical procedure (ICD-9 codes E996 through E999) and those with "late effects of injury" (ICD-9 codes E929, E959, E977, and E989) were excluded. In addition, those who died as a result of their injuries were not included in the exposed group.

The main exposure group was subclassified by dividing ICD-9-CM E-codes into three main exposure groups: nonassaultive, assaultive, and undetermined. Nonassaultive injuries included all injuries that were unintentional (E800 through E869, E880 through E928), self-inflicted (E950 through E958), and due to legal intervention (E970 through E976 and E978). Assaultive injuries were those injuries purposely inflicted by another person (E960 through E968). All those whose mechanism was undetermined (E980 through E988) constituted the third category of exposure. This analysis focused on people whose injuries were nonassaultive and people with an injury due to assault (interpersonal violence). In order to investigate the possibility of exposure misclassification, those whose injury was classified as undetermined were also analyzed.

The unexposed group consisted of the total population of New Zealand minus those who were hospitalized for an acute injury in 1990; thus, members of the unexposed group were not identified on the national hospitalization database. Their demographic characteristics were drawn from the 1991 New Zealand census.[15] This approach was justified since the number of persons hospitalized for an injury was a relatively small (1.2%) proportion of the population. Thus, the demographic characteristics of the group not hospitalized for an injury (unexposed) were virtually identical to those of the general population.

Outcome and Follow-Up

The outcome of interest was one or more hospitalizations for an injury due to assault (codes E960 through E968). Both fatal and nonfatal injuries were included, and each person was counted only once. Through the use of the personal identifier number, members of the group hospitalized for an injury in calendar year 1990 were followed through the records for 12 months after their index injury. Hospitalizations were excluded if they were due to late effects of injury or if they involved a readmission for an earlier injury. By definition, persons eligible for the unexposed group had no hospitalizations for injury in 1990, so their 1-year follow-up period was calendar year 1991.

Variable Definitions

Individuals were classified into one of six 10-year age groups (0 through 9, 10 through 19, 20 through 29, 30 through 39, 40 through 49, > 50). Race was collapsed into one of three categories: Maori, Pacific Islander, or other. The "other" racial category was made up predominantly of White individuals of European descent (94.1%). Asians accounted for 3.1% of this group, and those of mixed or unknown race constituted the remaining 2.8%. Pacific Islanders were defined as those whose race was identified as one of seven single Pacific Islander groups including Samoan, Cook Islander, Tongan, Niuean, Tokelauan, Fijian, and unspecified. Marital status was collapsed into five categories: single (never married), married, widowed, separated or divorced, and other (common-law marriages and unknown). Employment status was derived from the occupation variable for those between 15 and 65 years of age. "Unemployed" is noted in this data field as a type of occupation. Non–labor force status consisted of those whose occupation was listed as retiree, beneficiary, student, or housewife. Those who were not noted as unemployed or as in the nonlabor force category were considered employed.

Statistical Analysis

Incidence rates were calculated by dividing the number of persons hospitalized for an assaultive injury by the number of person-years of follow-up. Ten-year age categories were used to calculate age- and gender-adjusted incidence rates by the direct method; the 1991 population of New Zealand was the standard population.[16] Denominators were obtained from estimates based on the results of the 1991 New Zealand census.[15] A stratified analysis was performed, and relative risks (RRs) were calculated by the method of Mantel and Haenszel.[17] Ninety-five percent confidence intervals (CIs) for relative risks were calculated by the method of Greenland and Robins.[18] As a means of determining the probability of subsequent admission for an assault injury over time, a Kaplan–Meier survival analysis[19] was performed for each exposure group and the results displayed by a histogram. A log-rank test was performed to compare the male vs female probability of hospital admission for an assaultive injury.

Results

In 1990, 43 507 residents of New Zealand were hospitalized for an acute injury. Of these individuals, 94% (40 927) had nonassaultive injuries, 2419 (5.6%) had assaultive injuries, and 161 (0.4%) had injuries of an undetermined mechanism. Of those suffering nonassaultive injuries, 38 567 (94.2%) had unintentional injuries, 2335 (5.7%) had self-inflicted injuries, and 29 (0.1%) had injuries due to legal intervention.

Demographic characteristics of the study group are summarized in Table 1. In both the group hospitalized for a nonassaultive injury and the group admitted for an assaultive injury, males, Maori, and those who were single were represented

in greater proportion than in the nonhospitalized group. In the hospitalized groups, those in the 10- to 19-year and 20- to 29-year age categories were also more highly represented. The proportion of unemployed individuals was higher in the assaultive injury group than in either the no-injury group or the nonassaultive injury group.

In total, 2770 persons were hospitalized for an injury due to assault in the follow-up period, resulting in an incidence rate of 82.1 per 100 000 person-years (Table 2). The rate for those who did not have an injury admission was 74.5 per 100 000 person-years. The incidence rate increased to 253.2 per 100 000 person-years for those with a hospitalization for a nonassaultive injury, representing a relative risk of 3.2 (95% CI = 2.7, 3.9) in comparison with that of the no-prior-injury group. If this previous injury was the result of an assault, the rate of subsequent assault increased to 6785.1 per 100 000 person-years, 39.5 times the rate for the unexposed group (95% CI = 35.8, 43.5). The group whose injury type was coded as undetermined had a risk that was 29.4 times that of the no-prior-injury group (95% CI = 12.3, 69.8). In more than half (53.3%) of the individuals with any injury who returned within the 12-month follow-up period for an assaultive injury admission (n = 289), the initial injury was due to assault.

Gender-specific incidence rates revealed that, for the general population, males had a rate of assaultive injury nearly triple that of females (122.2 vs 43.2 per 100 000 person-years). Relative risks reveal an interesting pattern. For both males and females whose initial hospitalization was for a nonassaultive injury, the risk of subsequent assault hospitalization was approximately threefold greater than for the nonhospitalized population (Table 3). However, when the previous hospital admission was for an injury due to assault, the relative risk of a hospitalization for assault among females was 118.4 times that of females without a prior injury hospitalization (95% CI = 86.9, 161.2); the relative risk for males was 31.9 (95% CI = 26.6, 38.3). This difference in relative risk was largely due to the lower rate of admission among women with no prior injury admission in comparison with men with no prior injury admission.

Demographic characteristics associated with increased risk of assault and injury hospitalization are shown in Table 4. The stratum with the lowest assaultive injury hospitalization rate for each variable was used as the reference group. In the group without a previous hospitalization (no-injury group), higher relative risks were associated with male sex, Maori

TABLE 1—Selected Characteristics of the New Zealand Total Population, by Injury Status and Type of Index Injury, 1990

	No Injury (n = 3 330 429)		Hospitalized, Any Injury (n = 43 507)		Hospitalized, Assaultive Injury (n = 2419)		Hospitalized, Nonassaultive Injury[a] (n = 40 927)	
	No.	%	No.	%	No.	%	No.	%
Gender								
Male	1 635 820	49.1	26 731	61.4	1 822	75.3	24 828	60.7
Female	1 694 609	50.9	16 776	38.6	597	24.7	16 099	39.3
Age, y								
0–9	520 610	15.6	7 727	17.8	225	9.3	7 492	18.3
10–19	531 141	16.0	9 165	21.1	545	22.5	8 564	20.9
20–29	534 390	16.1	9 054	20.8	991	41.0	8 016	19.6
30–39	514 281	15.4	4 941	11.4	402	16.6	4 522	11.0
40–49	421 049	12.6	3 034	7.0	164	6.8	2 856	7.0
≥50	808 958	24.3	9 586	22.0	92	3.8	9 477	23.2
Race								
Other[b]	2 773 313	83.3	34 617	79.6	1 501	62.1	32 992	80.6
Maori	428 709	12.9	7 139	16.4	681	28.2	6 425	15.7
Pacific Islander	128 407	3.8	1 751	4.0	237	9.8	1 510	3.7
Marital status								
Single	1 560 695	46.9	25 651	59.0	1 675	69.2	23 868	58.3
Married	1 330 303	39.9	10 688	24.6	371	15.3	10 290	25.1
Widowed	172 208	5.2	3 406	7.8	12	0.5	3 392	8.3
Divorced/ separated	232 603	7.0	1 736	4.0	148	6.1	1 579	3.9
Other[c]	34 620	1.0	2 026	4.7	213	8.8	1 798	4.4
Employment status[d]								
Employed	1 400 415	54.1	17 777	67.5	1 250	59.9	16 466	68.3
Unemployed	163 764	6.3	3 054	11.6	501	24.0	2 525	10.5
Non–labor force	1 026 205	39.6	5 494	20.9	337	16.1	5 120	21.2

[a]Does not include those injuries for which mechanism was undetermined.
[b]Predominantly White (94.1%); includes Asian (3.1%) and mixed plus unknown races (2.8%).
[c]Includes common-law marriages and unknown.
[d]For those 15–65 years of age; non–labor force includes all retirees, beneficiaries, housewives, and students.

TABLE 2—Incidence Rate and Relative Risk of Hospitalization for Subsequent Assaultive Injury, by Exposure Group

Group	No.	No. Hospitalized for an Assaultive Injury	Incidence Rate[a]	Relative Risk[b]	95% Confidence Interval
Total population, New Zealand	3 373 936	2 770	82.1	...	...
Prior injury hospitalization					
None	3 330 429	2 481	74.5	1.0	...
Any injury	43 507	289	596.5	6.5	5.8, 7.4
Nonassaultive	40 927	130	253.2	3.2	2.7, 3.9
Assaultive	2 419	154	6 785.1	39.5	35.8, 43.5
Undetermined	161	5	4 479.3	29.4	12.3, 69.8

[a]Age- and gender-adjusted incidence rate expressed as number per 100 000 person-years.
[b]Adjusted for age and gender by Mantel–Haenszel method.

TABLE 3—Gender-Specific Incidence Rates and Relative Risks of Hospitalization for Subsequent Assaultive Injury, by Exposure Group

Group	Male			Female		
	Incidence Rate[a]	RR[b]	95% CI	Incidence Rate[a]	RR[b]	95% CI
Total population, New Zealand	122.2	...	...	43.2	...	...
Prior injury hospitalization						
None	110.1	1.0	...	40.1	1.0	...
Any injury	762.5	6.1	5.3, 7.0	435.1	8.9	6.8, 11.6
Nonassaultive	382.4	3.3	2.7, 4.0	127.6	3.0	1.9, 4.8
Assaultive	7088.6	31.9	26.6, 38.3	6490.4	118.4	86.9, 161.2

Note. RR = relative risk; CI = confidence interval.
[a]Age-adjusted incidence rate expressed as hospitalizations per 100 000 person-years.
[b]Adjusted for age by Mantel–Haenszel method.

TABLE 4—Relative Risk of Subsequent Hospitalization for an Assault, by Injury Status, Type of Index Injury, and Demographic Characteristics

	No Injury		Hospitalized, Nonassaultive Injury		Hospitalized, Assaultive Injury	
	RR[a]	95% CI	RR[a]	95% CI	RR[a]	95% CI
Gender						
Female	1.0	...	1.0	...	1.0	...
Male	2.8	2.5, 3.0	2.6	1.6, 4.3	0.9	0.7, 1.3
Race						
Other	1.0	...	1.0	...	1.0	...
Pacific Islander	2.1	1.8, 2.5	0.6	0.2, 1.8	1.0	0.6, 1.7
Maori	2.7	2.5, 2.9	1.8	1.2, 2.7	0.9	0.6, 1.3
Marital status						
Married	1.0	...	1.0	...	1.0	...
Divorced/ separated	2.3	1.9, 2.8	3.0	1.3, 7.0	1.0	0.5, 1.8
Single	3.4	3.0, 4.0	2.7	1.4, 5.5	1.0	0.6, 1.4
Employment status[b]						
Employed	1.0	...	1.0	...	1.0	...
Unemployed	2.6	2.3, 2.9	3.1	2.1, 4.7	0.8	0.5, 1.3

Note. RR = relative risk; CI = confidence interval.
[a]Adjusted for age and gender by Mantel–Haenszel method.
[b]For all those in labor force 15–65 years of age.

race, single or divorced/separated marital status, and unemployment. Those who had been hospitalized for a nonassaultive injury showed a similar pattern. In this exposure group, those who were divorced or separated represented the marital status group at highest risk. In those whose previous injury hospitalization involved an injury due to assault, no one group of individuals had a significantly higher risk, as evidenced by relative risks of one or close to one. Thus, rates of assaultive injury in this exposure group were very similar among the various demographic subgroups.

The probability of returning for an assaultive injury hospitalization within a year among males previously assaulted was 6.3%, in comparison with 0.5% among those with a nonassaultive injury. Among females with a previous hospitalization for assault, 6.7% were subsequently hospitalized within a year vs 0.1% of those with a nonassaultive injury. Among the 154 individuals with a previous hospitalization for an assault, 70.0% were subsequently hospitalized within 30 days of the initial injury. Figure 1 represents time to rehospitalization in the previously assaulted group. There was no significant difference in the survival analysis for males and females with a prior assault admission (log-rank test, $P = .72$).

Discussion

Our data indicate that an injury hospitalization is a significant risk marker for subsequent hospitalization due to interpersonal violence. If this initial injury is the result of interpersonal violence, the risk of returning with an assaultive injury is substantially greater and is most likely to occur within 30 days after the index injury. For women who have a past history of assaultive injury, the relative risk is far greater than that for men in the same exposure group (118.4 vs 31.9), chiefly because of the lower baseline risk in women. In the general population and in the group with any injury hospitalization in the preceding year, being male, Maori, single, and unemployed were risk factors for a subsequent hospitalization due to assault. Interestingly, when the previous admission was due to assault, these factors did not appear to further increase the risk of subsequent assaultive injury.

The association between assaultive injury and male sex, Maori race, single marital status, and unemployment has been previously described in New Zealand.[5] Similar high-risk groups have been described in the United States.[20,21] Racial differences in assaultive injury rates are likely to be due to socioeconomic differences between race groups. A limited number of studies have examined race-specific rates of homicide and assaultive injury; when socioeconomic factors such as household crowding and poverty level have been controlled, differences have decreased or disappeared.[4,6] Similar analyses for gender and marital status do not exist.

This population-based epidemiologic study confirms what has been suggested by the previously mentioned US hospital-based studies,[7–12] although the subsequent admission rate of 6.4% that we observed in those previously assaulted is significantly less than the rates found in previous studies. Our lower proportion is understandable given the fact that previous studies have focused on high-risk groups presenting to trauma centers, whereas the present study included all groups of individuals in the country. In addition, there may be some inherent differences in baseline trauma admission and readmission rates between the United States and New Zealand. In the United States, Rivara et al., in an investigation of

the effects of alcohol abuse on readmission for trauma,[12] described the importance of a history of an assaultive injury hospitalization as a predictor of subsequent injury hospitalizations. Although they did not examine assaultive injury as an outcome specifically, they found that a previous admission for an assault was the single strongest predictor of admission for a new injury.

A novel finding in the present nationwide study is that although male sex, minority race, single marital status, and unemployment were strongly associated with the risk of assaultive injury in the general population, these demographic factors were not predictive in the group with a history of a hospitalization for a prior assaultive injury. In other words, all individuals who were previously assaulted and hospitalized, regardless of gender, race, or marital and employment status, had similar rates of subsequent assaultive injury hospitalization. Thus, admission to the hospital for an injury due to assault may reflect some other environmental or behavioral risk factor or group of factors common to this population. Possible candidates include being in an abusive relationship, drinking or drug abuse, and psychiatric comorbidity, such as depression.[22-25] It was not possible to measure such behavioral or environmental variables in this study. In addition, it was not possible to exclude the influence of socioeconomic status (SES), because this variable was not well measured in the present study. Employment status, our only socioeconomic factor, does not fully describe SES. It is possible that income, household density, educational level, or a combination of these factors may more accurately reflect true SES.

Interestingly, in the group previously exposed to an assaultive injury, the relative risk (as compared with that of the nonhospitalized group for each gender) of subsequent assaultive injury for women was far greater than that for men. This was primarily due to the lower baseline rate of assaultive injury in the female population in general. In the previously assaulted group, the incidence rates for subsequent assaultive injury became essentially equal in men and women. In an effort to explain this relatively larger increase in assault injury rates for women, consideration must be given to the most likely etiology of assaultive injury occurring in women as compared with men. Although the etiologies of assaultive injury are heterogeneous, assaultive injuries in women are largely the result of domestic violence. In fact, "battering" may be the single most common cause of injury to women.[26] Domestic violence is recurrent and escalates over time [27]; this repetitive pattern is a characteristic of what has been termed the "battering syndrome."[28] In fact, one study showed that nearly one in five battered women had seen a physician at least 11 times for trauma, and another 23% had seen a physician 6 to 10 times for abuse-related injuries.[28] Women who are seriously assaulted as the result of a domestic dispute may be caught in a repetitive cycle of abuse and are at a risk equal to that of men, who are likely to be assaulted in situations outside of the home.

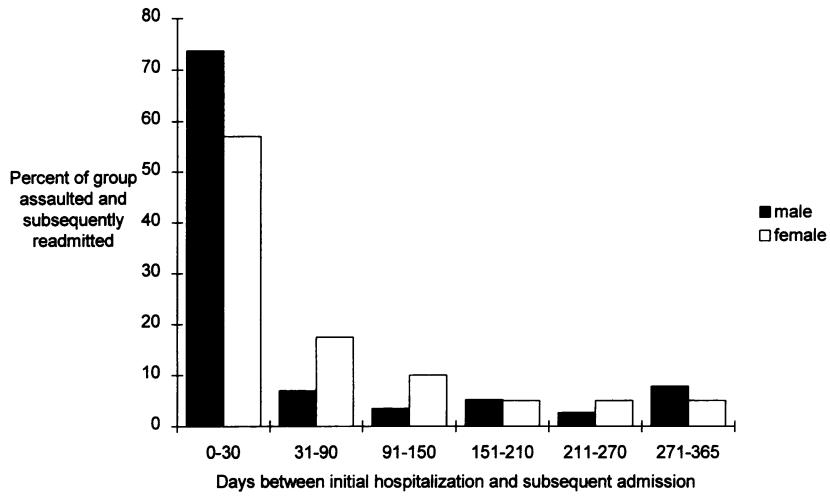

FIGURE 1—Distribution of days from initial hospitalization to subsequent assault hospitalization for the group with an initial assaultive injury hospitalization (males, n = 114; females, n = 40), New Zealand.

Despite the fact that this was a population-based study, there are some important limitations that must be addressed. Misclassification of injury type is always a possibility. Not only could random coding errors occur, but there may be a reluctance to describe an event as intentional in the process of ICD-9 coding. Intentional injuries may be incorrectly coded as undetermined or unintentional. Such misclassification could result in the biasing of the relative risk toward one. We found that those in the undetermined injury category had a relative risk of 29.4 (95% CI = 12.3, 69.8), which was much closer to the relative risk among those previously hospitalized for an assaultive injury (RR = 39.5, 95% CI = 35.8, 43.5) than to the risk among those with a nonassaultive injury (RR = 3.2, 95% CI = 2.7, 3.9). This points to the possibility that intentional injuries were misclassified as undetermined; however, wide confidence intervals around the estimate, as well as lack of additional information, prevent us from drawing any firm conclusions. Fortunately, such injuries represented only 0.4% of the total injury hospitalizations.

Misclassification bias could also have occurred with regard to measurement of subsequent admission for assault. If this misclassification favored those with a previous assaultive injury being coded as having another assaultive injury, this could have led to an inflated relative risk. The extent to which coders were aware of reasons for previous hospitalizations and the extent to which that knowledge influenced them are not known.

Misclassification is also a concern in the identification of a hospitalization as resulting from an acute assault. If any admissions for rehabilitation (nonacute) of a prior assaultive injury were included among these hospitalizations, this would have resulted in an inflated relative risk. We do not feel that this was a significant problem because all cases coded as "late effects of injury," as well as those noted to involve readmissions for the same injury, were eliminated.

A number of private hospitals in New Zealand were not represented in the database used for this study. Recent years have seen the development of the private sector's role in the treatment of injury in the acute phase. This is most noticeable in the provision of emergency services for

minor injuries. However, the number of patients admitted to private hospitals in the acute phase of injury is small. For example, of the 52 981 patients admitted to a hospital for treatment of an injury in 1991, 2% (1016) were admitted to private hospitals. More than half were admitted for late effects of injury (n = 308) or a complication of surgical or medical care (n = 263).[29]

Although the aim of our study was to measure risk for hospitalization due to assault in those previously assaulted, inclusion of all homicides in the outcome would have described the risks to exposed individuals more completely. The lack of a personal identifier number for out-of-hospital deaths made the linking between these cases and exposure impossible. However, it is unlikely that excluding them would have resulted in a seriously inflated risk estimate because of the very small number of homicides each year in New Zealand. If one were to assume that 100% of the homicides in New Zealand in 1991 (n = 66)[30] occurred among those with no previous injury hospitalization (the unexposed group), then the incidence rate among the unexposed group would change from 74.5 to 76.6 per 100 000 persons per year. This very small change would not result in any significant decrease in the relative risk estimates for either the nonassaultive injury group or the assaultive injury group.

The degree to which this nationwide study is generalizable to other countries, such as the United States, is not known. Countries may differ greatly in the incidence of injury and death due to interpersonal violence; however, identified demographic risk markers for assaultive injury are similar. Circumstances of assaultive injuries may also differ between countries. For instance, the United States has a much higher rate of firearm deaths and injuries than does New Zealand. Whereas 19% of all homicides in New Zealand are due to firearms, 63% of those in the United States are due to firearms.[5,31] Future population-based studies in other countries would certainly be illuminating and would further our understanding of an important public health problem. A greater understanding of the risk factors for assaultive injury would assist our knowledge of the determinants and patterns of violent injury. Refining our definition of high-risk groups beyond traditional demographic lines will help focus interventions and valuable resources on the groups at highest risk. In addition, the high risk of a recurrent assault in an assault victim and the fact that the time of greatest risk is within 30 days should be taken into account in the process of discharge planning and counseling of hospitalized assault victims. □

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