Injuries associated with bunk beds occurring at schools: results using a US national data base

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ABSTRACT

Objective To investigate bunk bed injuries occurring across all educational institutions using a national data base.

Methods National Electronic Injury Surveillance System data for the years 2006–2015 associated with bunk beds was analysed.

Results There were an estimated 639 700 emergency department (ED) visits for bunk bed injuries; 1.3% occurred at school. Those occurring at school were older than those not at school (18.2 vs 12.8 years), and more commonly female (56.4% vs 40.6%), Caucasian (91.7% vs 68.3%) and associated with alcohol (10.8% vs 0.4%). For those occurring at school, the average age for those involving the trunk, upper extremity, lower extremity and head/neck areas was 17.9, 14.9, 19.2 and 18.7 years, respectively ($p<10^{-4}$). A fracture was present in 6.4%, 52.3%, 21.2% and 9.6% of the trunk, upper extremity, lower extremity and head/neck areas, respectively (p=0.009). Males had a higher percentage of lacerations and females had a higher percentage of internal organ injuries. The vast majority of the fractures and strain/sprains occurred in the extremities; lacerations in the head/neck and contusion/abrasions predominantly involved the extremities and head/neck.

Conclusions 1.3% of all ED visits due to bunk bed injuries occurred in places of education. The majority of these were during college age. Prevention strategies should be directed at educational institutions and students, as well as following proper bunk bed equipment guidelines. Education regarding alcohol risks might assist college age students.

INTRODUCTION

Physicians of many different specialties are often called on to care for patients who have sustained an injury associated with a bunk bed. Although several studies investigate bunk bed injuries in general,[1–7] only one investigates those occurring at an educational institution.[8] That study involved only college students and was conducted 30 years ago. It was the purpose of this study to further investigate bunk bed injuries occurring across all ages and educational institutions (eg, students younger than college age, who may be in boarding schools or other situations where bunk beds are used). Further understanding the demographics of these injuries can lead to proposed prevention strategies.

MATERIALS AND METHODS

Data sources

The data in this study are from the National Electronic Injury Surveillance System (NEISS). The NEISS is a dataset maintained by the US Consumer Product Safety Commission (CPSC). Data from ~100 selected hospitals in the USA and its territories is collected involving injuries associated with consumer products. Patient information is collected from each NEISS hospital for every emergency department (ED) visit involving an injury. This data base is in the public domain and can be found at www.cpsc.gov/library/neiss.html. Details regarding the acquisition of the NEISS data and guidelines for its use can be accessed at the above website.

Case selection criteria

The data for the 10-year period 2006 through 2015 due to bunk beds (NEISS product code 0661) was downloaded from the NEISS website and placed into a Microsoft Excel file (Microsoft Office 2003, Microsoft 1985–2003). Included in the NEISS data is stratified hospital size, date of ED visit, product involved in the injury, gender/race/age of the injured patient, diagnosis, disposition from the ED, geographic location of the injury and body part injured. Hospital strata comprised four hospitals based on size (the annual number of ED visits reported by the hospital which are small (0–16 830), medium (16 831–21 850), large (28 151–41 130), very large (>41 130)) and one stratum consisting of children's hospitals of all sizes. At the end of each case are narrative comments giving further information regarding the particulars of each case and injury.

Variables

The injured anatomic areas were grouped into upper extremity, lower extremity, trunk and head/neck. Race was classified according to Eveleth and Tanner[9] as white, black, Amerindian (Hispanic and Native American), Indo-Malay (Asian origins), Indo-Mediterranean (Middle Eastern and Indian subcontinent) and Polynesian. Due to the small numbers of Indo-Malays, Indo-Mediterranean and Polynesian people in the data set, race/ethnicity is only reported for the white, black and Amerindian groups.

Subcategories were created for further analyses. These were: those with/without a fracture, head injury or internal organ injury. A fracture was defined as an osseous fracture, excluding teeth and other organs. Narrative comments were reviewed to find fractures which were not coded as the primary diagnosis when a more severe injury was given as the primary diagnosis. When an injury coded as a fracture was a 'fracture' of an organ such as the

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spleen or eye, it was reclassified as not being a fracture. A head injury was defined as a concussion, skull fracture or any bleed within the calvarium. A traumatic brain injury (TBI) in this study excluded skull fractures. Internal organ injuries were defined as any injury involving the lung, heart, mediastinum, trachea/larynx, abdominal organs (liver, spleen, kidney, pancreas, intestines, genitourinary organs (bladder, testicle, scrotum, vagina, uterus)) and head injury excluding skull fracture. Due to this refinement of data using the narrative comments, the estimated numbers given in the tables are not totally identical when comparing the various groups (head injury to TBI, and fracture/no fracture to fracture diagnosis as the major diagnosis).

The narrative comments were also reviewed to determine the mechanism of injury. Five categories were created: 1) a fall off the bed, 2) jumping on/off the bed, 3) hit the bed in some manner, 4) climbing on/off the bed and 5) miscellaneous. Involvement of alcohol was ascertained by searching the individual narrative comments for each case using the FIND command in Excel. The terms used to search for alcohol were: alcohol, ethanol, EtOH, intoxicated, drinking, drank, drunk, liquor, booze, beer, whiskey, brandy, rum, vodka, scotch, tequila, wine, sake, champagne and cognac. Similarly, the occurrence of a seizure disorder was ascertained, by reviewing the narrative comments for the terms 'seizure, seize, seizing'.

Statistical methods and ethical considerations

SUDAAN 10 software (RTI International, Research Triangle Park, North Carolina, 2008) was used which accounts for the weighted and stratified nature of the data. This give estimated values with 95% CI across the entire population encompassed by the data set. Continuous data are expressed as the mean and categorical data as frequencies/percentages. Analyses between groups of continuous data were performed with the t-test (two groups) or analysis of variance (three or more groups). Differences between groups of discrete data were analysed by the χ^2 test. A p value <0.05 was considered to be statistically significant.

RESULTS

Those occurring at school or not at school

There were an estimated 639 700 (543 023, 736 161) ED visits for bunk bed injuries from 2006 to 2015; 8207 (1.3%) (4926, 13 626) occurred at school (table 1). There were significant differences in age between those occurring at school (18.2 (17.1, 19.3) years) or not at school (12.8 (11.8, 13.8) years) (figure 1), month of occurrence (figure 2), gender (43.6% (35.1, 52.6) male at school, 59.4% (57.9, 61.0) not at school), race (91.7% (96.0, 93.3) Caucasian at school, 68.3% (56.1, 79.1) not at school), anatomic area injured (figure 3) and alcohol involvement (10.8% (5.4, 20.3) at school, 0.4% (0.3, 0.6) not at school).

Injury patterns for those occurring at school

Analyses by the four major anatomic areas (trunk, upper extremity, lower extremity, head/neck) demonstrated significant differences by age, occurrence of a fracture and alcohol involvement. For the trunk, upper extremity, lower extremity and head/neck groups, the average ages were 17.9, 14.9, 19.2 and 18.7 years, respectively ($p<10^{-4}$). A fracture was present in 6.4% (15/236), 52.3% (735/1406), 21.2% (714/2299) and 9.6% (397/4143) of the trunk, upper extremity, lower extremity and head/neck groups, respectively ($p=0.009$). Alcohol was involved in 5.9% (14/235), 2.2% (31/1406), 6.1% (140/2299) and 13.9% (1035/4132) of the trunk, upper extremity, lower extremity and head/neck groups ($p=0.04$). There were no differences by gender, race or disposition from the ED. A seizure disorder was only present in 1.6% (0.45, 5.5) of the patients.

Analyses by the five major diagnoses (contusion/abrasion, fracture, laceration, internal organ injury, strain/sprain) (table 2) documented significant differences by age/age group, gender and anatomic area injured. Although the overall number of patients in the 5–9 years age group was small, injuries in that group were mainly fractures. Males had a higher percentage of the lacerations and females a higher percentage of the internal organ injuries and fractures. All of the internal organ injuries involved the brain; the vast majority of the fractures and strain/sprains occurred in the extremities; lacerations in the head/neck and contusion/abrasions predominantly involved the extremities and head/neck. There were no differences by race, disposition from the ED or alcohol involvement.

The mechanism of injury was a fall off the bed in 5046 (61.5%), jumping on/off in 719 (14.2%), climbing on/off in 255 (3.1%), hit the bed in some manner in 1497 (12.8%) and miscellaneous in 690 (8.4%). The only difference between these five groups was patient age. Those jumping on the bed were younger (15.8 years) compared with those who fell off the bed (17.1 years), hit the bed (20.2 years), climbing on the bed (18.5 years) or miscellaneous mechanisms (23.4 years) ($p<10^{-4}$). There were no differences by gender, race, disposition from the ED, anatomic area injured, alcohol involvement or diagnosis.

DISCUSSION

Of the estimated 639 700 ED visits for bunk bed injuries; 1.3% occurred at school. Those occurring at school were older than those not at school (18.2 vs 12.8 years), and more commonly female (56.4% vs 40.6%), Caucasian (91.7% vs 68.3%) and associated with alcohol (10.8% vs 0.4%). For those occurring at school, the average age for those involving the trunk, upper extremity, lower extremity and head/neck areas was 17.9, 14.9, 19.2 and 18.7 years ($p<10^{-4}$). The vast majority of the fractures and strain/sprains occurred in the extremities; lacerations in the head/neck and contusion/abrasions predominantly involved the extremities and head/neck. Males had a higher percentage of lacerations and females a higher percentage of internal organ injuries.

There are certain limitations to this study. First, the NEISS only identifies individuals who sought care in an ED. It does not include those who might have been treated in urgent care centres, physician offices or those patients who did not seek medical care. Thus, the overall number of injuries in this study is likely lower than the true number; the magnitude of this difference is impossible to determine. Another potential limitation is the accuracy of the NEISS data. However, two studies have demonstrated over 90% accuracy.[10 11]

This is the first study to the authors' knowledge of bunk bed injuries occurring at all levels of educational institutions. A previous study 30 years ago investigated bunk bed injuries only among University of Michigan college students.[8] However, bunk beds are also present in non-college educational institutions, such as boarding schools, high school military academies and even day care centres. In this study, the majority (5134 of 8207–62.5%) of the injuries occurred in the 15–19 years age group, most likely college students. The next most common group was the 10–14 years age group (1670 of 8207–20.5%), and most likely represents boarding schools, college preparatory schools and military academies. There were also some below age 10 years (892

Table 1 Injuries associated with bunk beds for those occurring in a school setting or not

	Total		At school		Not at school		
Variable	**n**	**%**	**n**	**%**	**n**	**%**	**P values**
All	639 700	–	8207	1.3	631 493	98.7	–
Age (years)	12.9	–	18.2	–	12.8	–	$<10^{-4}$
Gender							
Male	378 827	59.2	3581	43.6	375 246	59.4	0.015
Female	260 810	40.8	4625	56.4	256 183	40.6	
Race							
White	324 102	68.9	4110	91.7	319 992	68.3	0.024
Black	86 695	18.4	181	4.0	86 514	18.5	
Amerindian	59 488	12.6	191	4.3	59 298	12.7	
Disposition from ED							
Release	606 687	95.7	7876	96.3	598 811	95.7	0.049
Admit	27 137	4.3	302	3.7	26 835	4.3	
Death	90	0.0	0	0.0	90	0.0	
Alcohol involved							
Yes	3427	0.5	885	10.8	2542	0.4	0.018
No	636 273	99.5	7321	89.2	628 952	99.6	
Body part injured							
Trunk	63 107	9.9	236	2.9	62 871	10.0	0.0034
Upper extremity	154 702	24.2	1406	17.1	153 296	24.3	
Lower extremity	106 286	16.6	2300	28.0	103 986	16.5	
Head/neck	310 539	48.5	4143	50.5	306 397	48.5	
Multiple	5044	0.8	123	1.5	4921	0.8	
Diagnosis							
Contusion/abrasion	150 230	23.5	1887	23.0	148 344	23.5	0.43
Fracture	122 942	19.2	1392	17.0	121 555	19.3	
Laceration	151 901	23.8	1724	21.0	150 177	23.8	
TBI/internal organ	100 218	15.7	1658	20.2	98 560	15.6	
Strain/sprain	113 933	17.8	1546	18.8	112 387	17.8	
Head injury present							
Yes	99 960	15.6	1674	20.4	98 287	15.6	0.081
No	539 740	84.4	6533	79.6	533 207	84.4	
Type of head injury							
Concussion	96 506	96.5	1582	94.5	94 927	96.6	0.71
Skull fracture	2037	2.0	76	4.5	1961	2.0	
Intracranial bleed	1418	1.4	16	1.0	1402	1.4	
Spine injury present							
Yes	2168	0.3	15	0.2	2153	0.3	0.43
No	637 532	99.7	8192	99.8	629 340	99.7	
Fracture present							
Yes	118 294	18.5	1635	19.9	116 658	18.5	0.62
No	521 298	81.5	6571	80.1	514 727	81.5	
Fracture location							
Spine	2089	1.8	30	1.8	2059	1.8	0.02
Upper extremity	86 441	73.1	873	53.4	85 568	73.3	
Lower extremity	20 373	17.2	488	29.9	19 885	17.0	
Head/face	6938	5.9	244	14.9	6694	5.7	
Rib/sternum	2468	2.1	0	0.0	2468	2.1	
Spine	1635	1.4	30	1.8	2059	1.8	0.50
Extremities	94 648	80.0	1167	71.4	93 481	80.1	
Axial not spine	21 572	18.2	438	26.8	21 134	18.1	

n, values for the estimated number of cases.
ED, emergency department; TBI, traumatic brain injury.

of 8207–10.9%). When reviewing the narrative comments in the NEISS data set, these children were typically in day care centres. The older patients in this study appear to have been adult helpers during moves in/out of dormitories and fraternity/sorority houses.

One very stark difference between those injured at school and not at school was in the racial composition of the two groups.

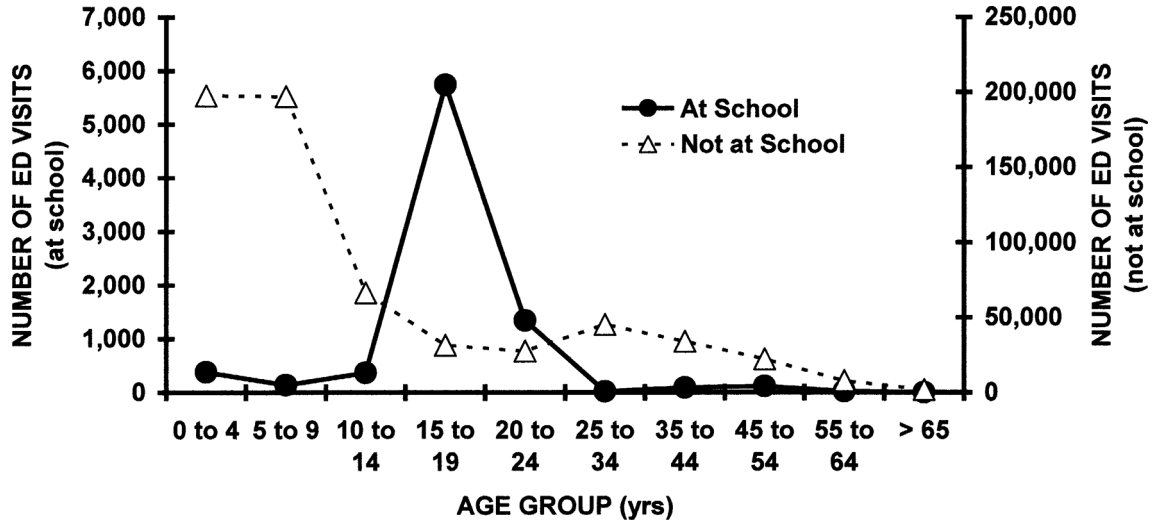

Figure 1 Differences between injuries associated with bunk beds occurring at school or not at school by age group. ED, emergency department.

The not in school group racial composition was 68.3% white, 18.5% black and 12.7% Hispanic (Amerindian); the same numbers for those injured in school were 91.7%, 4.0% and 4.3%, respectively. In 2010, the composition for these same groups matriculating in degree-granting postsecondary institutions, according to the National Center for Education statistics[12] was 95.6% white, 2.3% black and 2.1% Hispanic (Amerindian). The ethnicity proportions for US college enrolment are thus very similar to that of the in school group.

Another interesting finding is the differences in injury diagnosis by anatomic area for those occurring at school. Contusions/abrasion primarily involved the head/neck and lower extremity; the upper extremity fractures; the head/neck lacerations and strain/sprains in the extremities. We surmise that fractures were more common in the upper extremities as the bones in the upper extremity are much smaller than those in the lower extremity resulting in a higher fracture prevalence. A common mechanism for a patient falling out of an upper bunk would be to land on an outstretched upper extremity, thus taking the first impact of the force that combined with smaller bones results in the high prevalence of fractures for the upper extremity injuries. As the bones in the lower extremity are much larger, and in the trunk much deeper, the impact of the fall is far less likely to result in a fracture, thus resulting more commonly in other injuries, such as lacerations, contusions/abrasions and strains/sprains.

Dedrick *et al*[8] investigated bunk bed-related injuries in a cohort of 1431 upper classmen college students using a questionnaire. The average age was 23 years, 55% were male and 99 (7%) had fallen out of bed while in college. The falls occurred early in their college time with freshman accounting for 52% and sophomores 31%. Alcohol was involved in 37% of the students who had fallen. Of those that fell, 45 were injured, and involved the lower extremity in 58%, trunk in 23%, head/face in 14% and

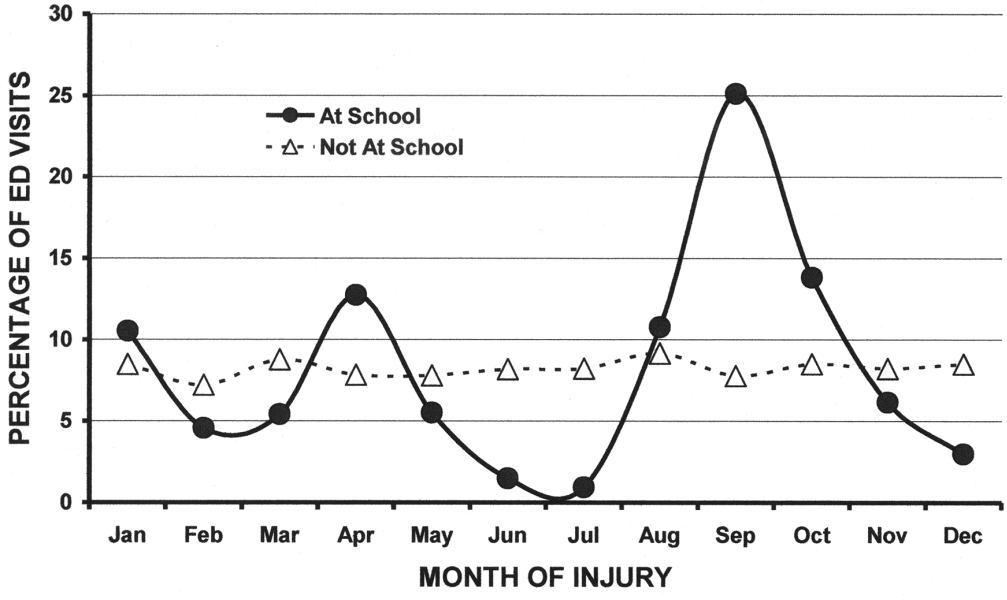

Figure 2 Differences between injuries associated with bunk beds occurring at school or not at school by month of injury. ED, emergency department.

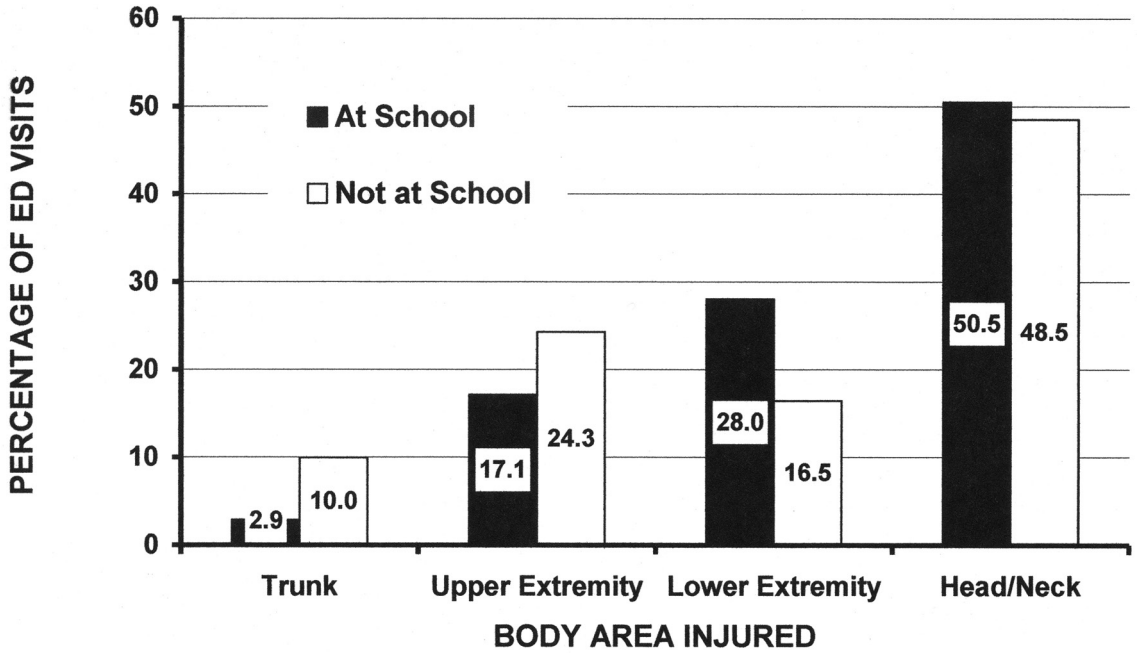

Figure 3 Differences between injuries associated with bunk beds occurring at school or not at school by anatomic area injured (the actual percentages are shown in the columns). ED, emergency department.

upper extremity in 5%. The injuries were a contusion/abrasion in 84%, laceration in 9% and fracture in 7%.

There are certain similarities and differences between our study and the Michigan study.[8] The gender composition was different, 44% male in this study and 55% in the Michigan study. This difference likely reflects the increasing numbers of females attending college compared with 30 years ago[13]; the average percentage of male college students in 1987–1988 was 50% and in 2006–2015 was 41%. Alcohol involvement was higher in the Michigan study (37%) compared with the present study (10.8%). Alcohol involvement in the Michigan study was self reporting, while our study depended on notation in the narrative comments of the NEISS data base. Our results are probably lower than the real value, but the value of such a difference is unknown. Also, it may reflect changes in alcohol behaviour over time among college students, as there has been a mild decrease in binge drinking in youths and young adults.[14 15]

The average age in our study was 18.2 years and the Michigan study 23 years. Although slightly different, the Michigan study was intentionally performed later in college years, while

Table 2 Injury diagnosis for bunk bed injuries occurring at school

	Contusion abrasion		Fracture		Laceration		Internal organ injury		Strain sprain		
Variable	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**P values**
Age (years)	18.2	–	15.9	–	19.7	–	18.4	–	18.4	–	$<10^{-4}$
Gender											
Male	777	41.2	530	38.1	1169	67.8	371	22.4	667	46.9	0.01
Female	1110	58.8	862	61.9	555	32.2	1287	77.6	753	53.0	
Race											
White	774	87.0	727	98.0	1055	92.8	854	86.8	648	96.7	0.83
Black	44	4.9	15	2.0	82	7.2	11	1.1	22	3.3	
Amerindian	71	8.0	0	0.0	0	0.0	119	12.1	0	0.0	
Disposition from ED											
Release	1187	100.0	1279	91.9	1704	99.6	1489	89.8	1391	98.9	0.16
Admit	0	0.0	113	8.1	6	0.4	169	10.2	14	1.0	
Alcohol involved											
Yes	46	2.4	16	1.1	264	15.3	282	17.0	278	19.6	0.23
No	1841	97.6	1376	98.9	1460	84.7	1376	83.0	1143	80.4	
Body part injured											
Trunk	185	9.8	15	1.1	15	0.9	0	0.0	20	1.4	0.013
Upper extremity	263	13.9	735	52.8	21	1.2	0	0.0	342	24.1	
Lower extremity	641	34.0	488	35.1	261	15.1	0	0.0	843	59.3	
Head/neck	797	42.2	153	11.0	1427	82.8	1658	100.0	92	6.5	

n, values for the estimated number of cases.
ED, emergency department.

our study captures the age at actual injury. Our younger average age is also impacted by the younger, non-college age children. The most interesting differences were in the anatomic areas of injury. In our study, the head/face was injured in 50.5%, lower extremity in 28%, upper extremity in 17.1% and trunk in 2.9%; in the Michigan study, the same numbers were 14%, 58%, 5% and 23%, respectively. Our study comprised documented injuries seeking ED medical care; the Michigan study was a recollection of the injury/location by the student. It is difficult to know if this can explain the differences. Another interesting difference is the type of injury. In the Michigan study, a contusion/abrasion occurred in 84%, laceration in 9% and fracture in 7% of the 99 students who had fallen out of bed. In this study, the overall percentage of contusion/abrasions was 23%, lacerations 21% and fractures 17%. The percentage of fractures is higher in this study, and there are marked differences in the percentage of contusion/abrasions and lacerations.

The overall prevalence/incidence of serious bunk bed injury occurring in schools is difficult to quantify. In the Michigan study,[8] only 7 of 45 (16%) injured students sought medical care. The acuity of such care was not stated (eg, an actual visit to an ED, or a visit a few days later to the college infirmary/student healthcare clinic). The present study used actual ED visits, indicating a potentially serious injury, as the patient and/or other individuals felt urgent medical evaluation and care was needed. Using the 16% value of those actually seeking care after a bunk bed injury in college, and applying it to the number of ED visits from this study, then a conservative estimate of the actual number of bunk bed injuries occurring at college (the 15–24 years age group which accounted for 7082 of the ED visits) would be (7082/0.16), or 44 000 injuries over 10 years.

D'Souza *et al*[4] studied bunk bed injuries in those ≤21 years of age, using the NEISS data as was used in this study. Similar to the study of Dedrick *et al*,[8] there are both similarities and differences between this study and that of D'Souza *et al*. The first notable difference is in the proportion of alcohol involvement. In this study, the percentage of alcohol involvement in those at school was 10.8%, while that in the study of D'Souza *et al* was 0.7% of those in the 18–21 years age group. We suspect this difference is due to how alcohol involvement was identified; we identified alcohol involvement by an exhaustive search of the narrative comments, while D'Souza *et al*[4] identified alcohol involvement solely by a NEISS code. Interestingly, the 10.8% alcohol involvement in this study is between the 0.7% of D'Souza *et al*[4] and the 37% of Dedrick *et al*.[8] The injury diagnoses were very similar when comparing this study with that of D'Souza *et al*; lacerations 23.8% vs 29.7%, contusion/abrasions 19.2% vs 24.0%, fractures 19.2% vs 19.9% and strain/sprains 17.8% vs 8.8%. Similarly, the majority of the fractures occurred in the upper extremity (52.8% vs 67.8%), strains/sprains in the lower extremity (59.3% vs 46.5%) while lacerations in the head/neck were higher in this study than that of D'Souza *et al* (82.8% vs 52.0%). These differences are likely due to the fact that the study of D'Souza *et al* had a much higher percentage of younger patients than in this study, since we studied only injuries occurring at schools, while D'Souza *et al* included all injury locations, with 93.5% occurring at home in their study.

Several prevention strategies can be proposed to reduce these injuries. The first is student education, for only college-level students and for boarding schools/military academy students. This could include education regarding proper methods of climbing into the bed, that they should not be jumped on (trampoline concept) and the appropriate use of rails and other guards to prevent falling off the upper bunk. College students should similarly be warned about the dangerous combination of alcohol and bunk beds. To further investigate this issue, we analysed the patients with bunk bed injuries occurring at schools by age categories. All of those having alcohol involvement occurred in those aged 15–24 years (figure 4), with 20.7% of the injuries in the patients aged 20–24 years (278 of 1341) involving alcohol. Although better enforcement of the legal drinking age of 21 years could reduce the number of alcohol-associated injuries in the 15–19 years age group, it would have no effect on the 20–24 years age group, the group with the highest proportion of alcohol-associated injuries. This likely reflects the legal drinking age being 21 years in nearly all of the USA. It is best to reduce college drinking for bunk bed injuries, and fatalities due to driving while intoxicated.[16 17] In the very young children, the injuries typically occurred in day care centres. Day care providers should be informed of the dangers of bunk beds and young children should not be placed onto upper bunks.[1 4] The official recommendation of the American Academy of Pediatrics[18] is that no child younger than 6 years of age be on an upper bunk.

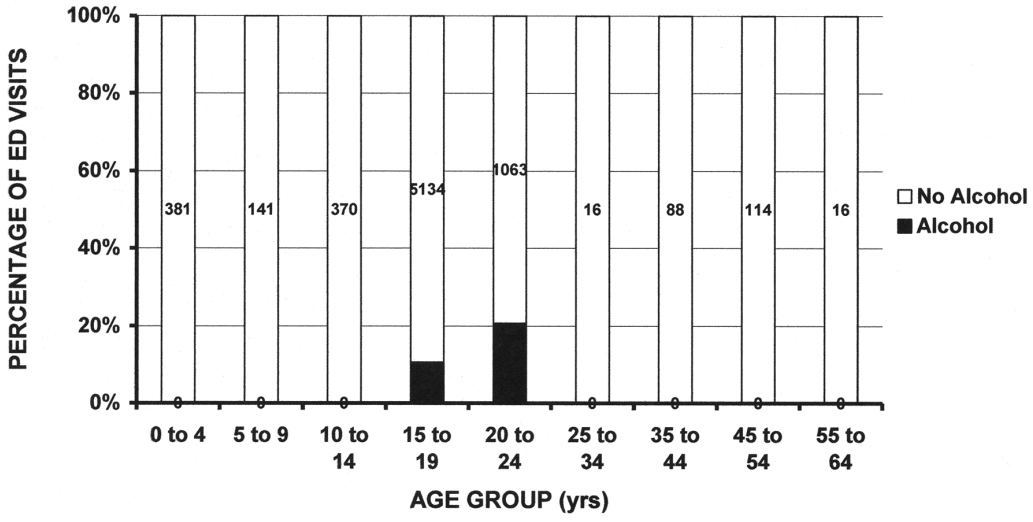

Figure 4 Injuries associated with bunk beds occurring at school by age group and alcohol involvement (the actual numbers are shown in the columns). ED, emergency department.

The month of injury demonstrated a bimodal peak, with the highest peak August–October, and a smaller peak in April. The late summer/early autumn peak is likely when new students are becoming accustomed to their new living arrangements with bunk beds, likely reflecting the fact that many of them have had no previous experience with bunk bed sleeping. Dedrick *et al*[8] noted that only 17% of college students had used bunk beds at home. Thus, student-directed education should be given at the beginning of school terms.

Other prevention strategies are of a passive nature. This includes having the bunks as low to the floor as possible, having padded surfaces in areas where a fall might occur, appropriate use of guard rails and removing hazardous objects from around the bed. Household bunk beds must comply with the safety standards of the CPSC, which are outlined in the Code of Federal Regulations, sections 1513 and 1213[19] (https://www.gpo.gov/fdsys/pkg/cfr-2017-title 16-vol2/pdf/CFR-2017-title16-vol2.pdf). These standards dictate guard rail design and location, size of guard rail gaps, mattress thickness and other passive design variables to minimise falls or entrapments. However, these standards are specifically excluded for bunk beds manufactured for institutional use (Code of Federal Regulations, section 1213.1 (b)—'The standard in this part applies to all bunk beds, except those manufactured only for institutional use'. This likely excludes bunk beds in colleges, dormitories and other institutions. Within prisons, immunity from the Code of Federal Regulations requirements has been upheld by the US Federal Courts.[20]

In conclusion, 1.3% of all ED visits due to bunk bed injuries occurred in places of education. The majority of these were in the 15–19 years age group, most likely early college years. The next most frequent group was in the precollege age children, such as preparatory schools and military academies. There were also some injuries that occurred in day care centres. Appropriate education directed at both educational institutions and students, as well as proper bunk bed equipment are avenues to reduce these injuries. Finally, education regarding alcohol risks might assist the college age students.

What is already known on the subject

- There has only been one study of injuries due to bunk beds occurring at schools, and it is 30 years old and was a self-reporting study of only college students.
- Alcohol was often involved and the students were predominantly in their early college years.

What this study adds

- Injuries due to bunk beds occur at schools of all levels, and in college, and account for 1.3% of all emergency department visits associated with bunk bed injuries.
- The demographics of bunk bed injuries occurring at school can guide education regarding bunk bed use and other prevention strategies.

Contributors RTL conceived and developed the study, collected data, performed statistical analysis and drafted and edited the paper. LM collected data, assisted in statistical analysis and contributed to drafting and editing the paper.

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