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In the US, injuries kill more people age 1-34 than all diseases combined and are the leading cause of death up to the age of 44. Injuries also result in more lost working years of life than all forms of cancer and heart disease combined. In the US Army, injuries are the leading cause of hospitalization and outpatient visits. Injured soldiers are a tremendous drain on limited health care resources and have negative impact on combat readiness. For example, during Operation Just Cause, 11% of soldiers parachuting into Panama sustained disabling jump injuries. Twice as many more soldiers were rendered ineffective due to the need to care for these injured soldiers. Injury control programs are by necessity multidisciplinary, drawing together the talents of specialists from many scientific fields including medicine, public health, safety, engineering, psychology, physics, sociology, and law. One area which has benefitted tremendously from this approach has been the field of transportation safety. The purpose of this presentation is to show how the same methodology can be applied to militarily relevant hazards.
The late Dr. William Haddon, Jr. was a pioneer in the field of transportation safety. (truncated after 200 words)

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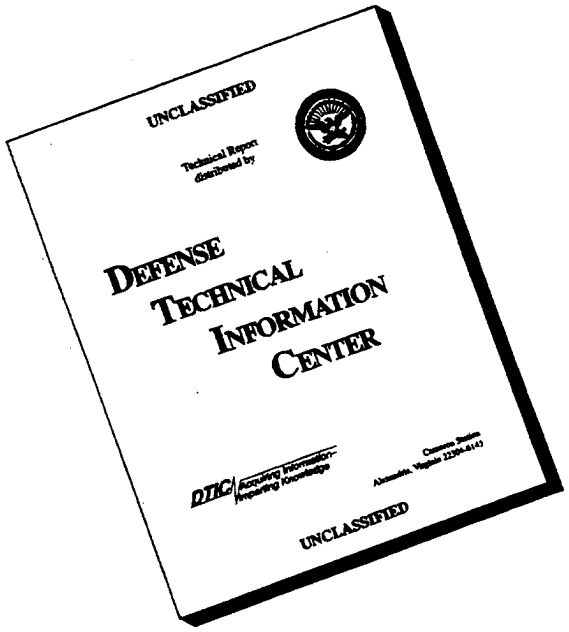

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Nicole S. Bell
Second Author

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25-30 JANUARY 1995

THE HADDON MATRIX: APPLICATION TO THE PREVENTION OF AIRBORNE INJURIES.

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The mission of the Occupational Medicine Division at the U S Army Research Institute for Environmental Medicine is to: 1) evaluate mechanisms of musculoskeletal injuries, 2) conduct epidemiological investigations to determine risk factors for injury, and 3) devise intervention/prevention stategies to control the human and monitary costs of injuries among Army personnel.

In the US, injuries kill more people age 1-34 than all diseases combined and are the leading cause of death up to the age of 44. Injuries also result in more lost working years of life than all forms of cancer and heart disease combined. In the US Army, injuries are the leading cause of hospitalization and outpatient visits. Injured soldiers are a tremendous drain on limited health care resources and have a negative impact on combat readiness. For example, during Operation Just Cause, 11% of soldiers parachuting into Panama sustained disabling jump injuries. Twice as many more soldiers were rendered ineffective due to the need to care for these injured soldiers.

Injury control programs are by necessity multidisciplinary, drawing together the talents of specialists from many scientific fields including medicine, public health, safety, engineering, psychology, physics, sociology, and law. One area which has benefitted tremendously from this approach has been the field of transportation safety. The purpose of this presentation is to show how the same methodology can be applied to militarily relevant hazards.

The late Dr. William Haddon, Jr. was a pioneer in the field of transportation safety, and has been credited with numerous important contributions to the field of injury prevention and control. Perhaps one of his most significant contributions has come to be known as the "Haddon Matrix." Disarmingly simple in approach, the Haddon matrix provides an elegant framework for evaluating accidents and for the development of strategies for the prevention of personnel injuries as well as damage to property.

Several years ago, we identified military tactical parachuting to be one particularly hazardous activity. The Haddon Matrix is used as a model for identifying intervention stategies for the prevention of injuries during airborne operations. One such strategy has been the use of an out-side-the-boot ankle brace for the prevention of ankle injuries. In a recent study, ankle sprains were reduced 7:1 by the use of such a brace. Since ankle injuries are the most common airborne injury, braces are expected to have significant benefit.

Phases	FACTORS		
	Human	Vehicles and Equipment	Physical and Socioeconomic environment
Pre-event	rest, nutrition	low porocity parachute	drop zone selection
Event	physical fitness experience	reserve chute, ankle braces	winds/weather
Post-event	training	ambulance access	trauma center
Losses	Injury to people	Damage to vehicles and equipment	Damage to physical and socioeconoic environment

The Haddon Matrix is a useful tool for identifying and analyzing risk factors for injuries. It is very useful in the early development of intervention strategies.