Foreword to The Costs of Motor Vehicle Related Spinal Cord Injuries
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Foreword

Our brains maintain most of their communications with the rest of our bodies through the thousands of tiny circuits contained in our spinal cords. Many of these circuits carry incoming sensory information that lets us know how our bodies feel, what postures they are in, and whether they are operating properly: Many other circuits carry outgoing, “motor” information by which we signal our bodies what to do, such as which muscles to relax, and which to contract. It is small wonder that injuries to this remarkable communications pathway are among the most devastating that we can sustain, especially since most are permanent, being repairable neither by our bodies themselves, nor by the most advanced medical science of our day.

Physicians and others who care for persons with paraplegias and similar results of damage to the spinal cord have known for decades that large proportions of such injuries are produced in motor vehicle crashes, a fact which has not, however, been widely appreciated outside the medical community. Moreover, although improving greatly in recent decades, statistical information concerning many aspects of this field has remained inadequate, especially from the standpoint of its suitability for use as the basis of governmental and private decisions related both to the allocation of relevant resources and to the actions, such as requiring better vehicle “crashworthiness,” which would decrease the number of new cases.

Since we in the Insurance Institute for Highway Safety work to identify the kinds-of-losses that burden the public as a result of motor vehicle use, and the steps that can be taken to reduce their frequency, severity and cost, it was logical for us to address the spinal cord injury problem, and in ways that would build on and augment the extensive work already done in the United States and other countries. Consequently, in 1971, we first arranged with the Departments of Community Health and Orthopaedic Surgery, School of Medicine, University of California, Davis, to marshal all practical resources to determine the incidence, sources, and many other characteristics of new spinal cord cases in 18 contiguous but highly diverse northern California counties with a combined population of nearly six million people.

This has resulted in an increasing number of important additions to knowledge in this field, the reports of which are identified in the Selected Bibliography of this volume. Especially noteworthy are rates of occurrence of spinal cord injuries per capita by age and sex, counting both those who reach hospital care alive and the many who die before such care is reached. The California work also confirmed that the spinal cord injuries produced in motor vehicle crashes do indeed far outnumber those produced in any other way, a pattern that holds among both males and females of all ages.
Among the many additional results of this work to date are detailed data on survival. These confirm that spinal cord injury patients who survive the early post-injury period may be expected, typically, to survive for many years. As is well known to specialists, this reflects the great advances made in recent decades in the care of persons with such injuries, and especially in the prevention and treatment of infection.

When the results of the work in California were sufficiently available, we next contracted with Policy Analysis, Incorporated, an organization specializing in health economics, to estimate the losses our society sustains each year from the spinal cord injuries produced in motor vehicle crashes, both in relation to individual cases and in relation to all cases combined. The resultant estimates have used both conservatively modified data from the California work and the best information that could be obtained from the many other specialized sources.

The conclusions are staggering.

Each year the spinal cords of some five thousand three hundred Americans are severed, crushed, or otherwise seriously injured in motor vehicle crashes. Of these damaged people, two-thirds are less than thirty-six years of age, and more than two-thirds are male. A large majority, more than six out of ten, do not die, but only a small minority of these ever functionally recover. Most, some two thousand six hundred each year, further increase the already huge number of other Americans with similar injuries. The process continues year after year.

Yet from an economic standpoint, it is noteworthy that the costs of this damage to people remain largely external to the balance sheets of many whose actions, of both commission and omission, substantially influence the numbers of Americans whose spinal cords will be injured in some of the millions of motor vehicle crashes that occur for all sorts of reasons, in the United States each year. Such costs cannot, therefore, be expected to directly produce, through the medium of balance sheets, much corrective, dampening influence on the occurrence of such injuries.

In illustration, when an intersection or curve is designed and built in such a way that serious crashes are produced, those responsible only rarely suffer an economic penalty. The situation is the same in the case of organizations and individuals that line roads with utility poles (which would be recognized instantly as likely to produce very serious injuries if placed closely along runways for aircraft) that each year convert thousands of off-the-road mishaps from minor events into disasters. Similarly, manufacturers of motor vehicles suffer no substantial penalty from an economic standpoint when they do not provide the greatly improved levels of automatic crash injury protection that have long been practical. Analogous points can be made concerning many others whose actions either needlessly augment, or fail to help reduce, such injuries among vehicle occupants, pedestrians, cyclists and other travelers.

Among its many analyses and conclusions, this work very strongly supports the longstanding emphasis of specialists on bringing persons with spinal cord injuries very early into thoroughly modern centers specializing in the expert care and rehabilitation of such cases. It is well known that patients in these centers do
far better, and are more likely to receive and profit from suitable rehabilitative therapy. Moreover, since the authors believe that such care is probably less costly in the long run, and find that a substantial fraction of the societal cost is in foregone productivity, such handling has very strong economic as well as humanitarian justification.

The authors of this report have made a major contribution to knowledge of the human tragedy of spinal cord injuries. Let us hope that it will aid in bringing the forces to bear that will both greatly reduce the incidence of such injuries and improve the care and rehabilitation of those that still cannot be prevented.

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