

OREGON DEPARTMENT OF HUMAN SERVICES  
OFFICE OF COMMUNITY HEALTH AND HEALTH PLANNING  
EMERGENCY MEDICAL SERVICES & TRAUMA SYSTEMS

**OREGON TRAUMA SYSTEM**  
**BIENNIAL REPORT**  
**2002 - 2003**



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## Dedication

*This report is dedicated to all of the outstanding members of Oregon's prehospital and trauma care communities, without whom the achievements described would not have been possible.*

*Special appreciation is extended to the hospitals participating in the Oregon Trauma System, members of the State Trauma Advisory Board (STAB), the Area Trauma Advisory Boards (ATABs), State Emergency Medical Services Committee (SEMSC), State Emergency Medical Services for Children Advisory Committee, and the various county EMS planning and advisory boards, whose service to the emergency medical system has been invaluable.*

*To those dedicated professionals and zealous advocates for excellence in trauma care, all Oregonians owe a debt of gratitude.*

**Figure 1: Trauma Registry Patients  
1992 - 2003**

**N = 73,295**

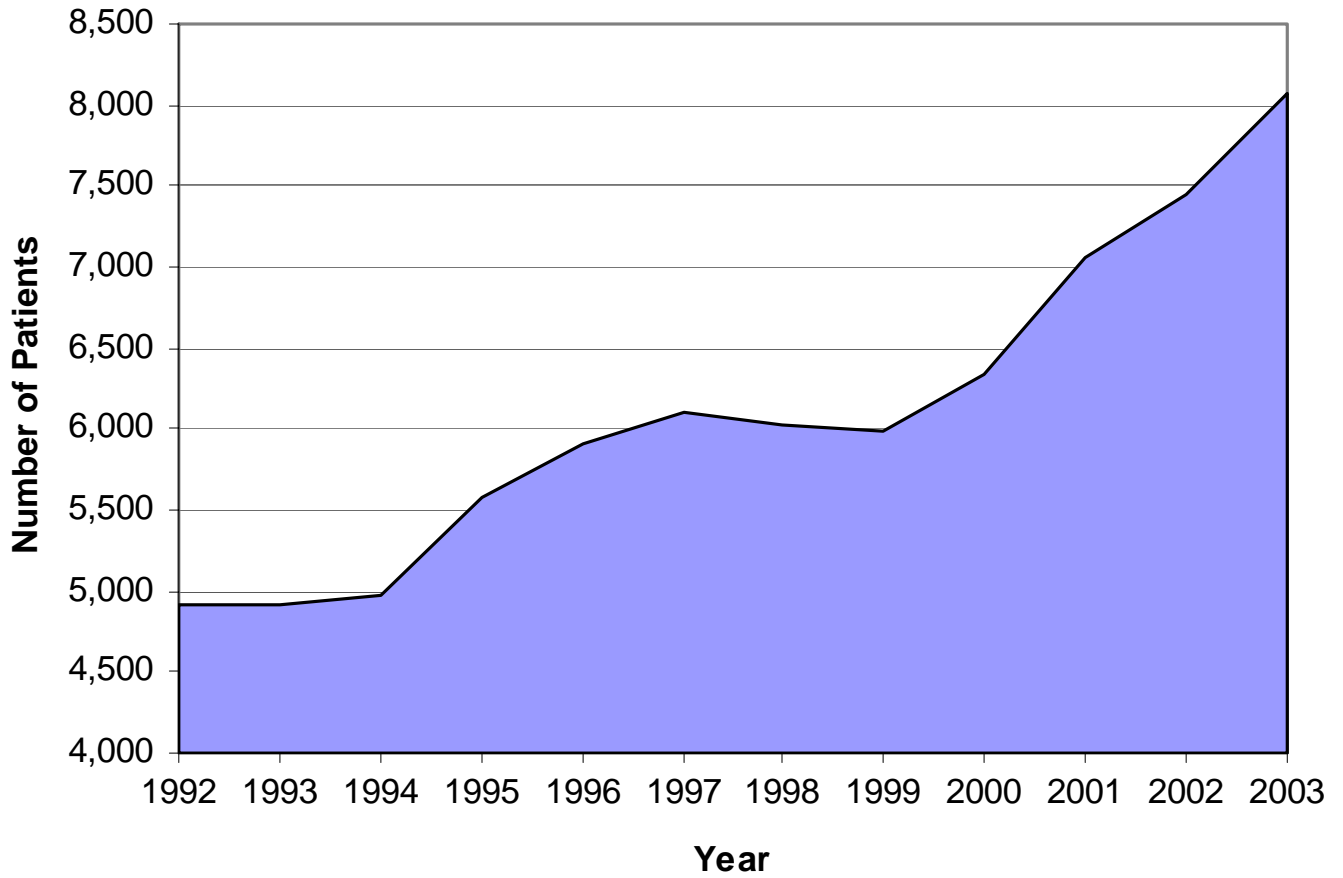


Figure 1 presents the cumulative trauma patient volume over the 12-year history of the Oregon Trauma Registry. From 1992 to 2003, trauma patient volume has increased by 60.9%.

## EXECUTIVE SUMMARY

This report summarizes the events that led to the development of the Oregon Trauma System, and the components that characterize it today. Oregon Trauma Registry data are used to describe Oregon's trauma system, its patient population, and to analyze if changes in practice and outcome have occurred over the past several years.

- There are 50 acute care facilities participating in the Oregon Trauma System: forty-four in Oregon, four in Washington, one in Idaho, and one in California.
- Motor vehicle crashes accounted for nearly half of all patients reported to the Oregon Trauma Registry.
- Sixty-nine percent of all trauma registry patient deaths occurred after motor vehicle crashes (32%), falls (20%), and firearm incidents (17%).
- Of the patients tested for blood alcohol, 40% tested positive: 10.5% with a level of less than .08 gm/100cc, and 29.6% above the legal limit of .08 gm/100cc.
- Of all patients transported from the injury scene, 52% were taken directly to a Level I trauma facility, 21.2% to a Level II, 19% to a Level III, and 7.8% to a Level IV facility.
- July and August are the months with the highest trauma volume across the state.
- Eighty-two percent of patients identified for trauma system care required hospitalization; 11.2% underwent immediate surgery; and 20.9% were admitted to an intensive care unit from the emergency department.
- 16,773 operative procedures were performed on injured patients.
- While adult trauma injuries have been rising, the number of pediatric trauma injuries has remained fairly steady over the past ten years.
- The most frequent causes of pediatric trauma are motor vehicle crashes (40%) and falls (17%).
- The geriatric age group, although small in number, evidences a greater incidence of severe traumatic injury than other age groups.
- Motor vehicle crashes (39%) and falls (36%) are the most common causes of injury for geriatric trauma patients.
- Injuries from firearms resulted in the highest mortality rate for both the pediatric (17%) and geriatric (40%) populations.



## INTRODUCTION

This report is intended for use by health professionals as an adjunct to public education; for local and state leaders working to reduce the impact of injury in individual regions and throughout the state; and for interested individuals wishing to learn more about one of the most serious public health problems in the State of Oregon. The first Oregon Trauma System Biennial Report, highlighting prehospital care, trauma hospital care, and specific population groups at high risk for injury, was published in 1991-1992.

In 2002-2003, traumatic injuries from both intentional and unintentional means accounted for the deaths of 3,220 Oregonians. Approximately 10 times the number of people killed each year in Oregon are seriously injured enough to require hospitalization; many are permanently disabled. In 2003, the National Safety Council estimated the cost of hospitalization for injured patients in Oregon at \$2,100 per capita - an estimated 7.4 billion dollars.

A systematic approach to trauma care provides the best means to protect the public from premature death and prolonged disability. A trauma care system reduces death and disability by identifying the causes of injury and promoting activities to prevent injury from occurring. A system also assures that the required emergency medical resources are available, that the necessary infrastructure is in place to deliver the "right" patient to the "right" hospital, and that the hospital coordinates the resources necessary to return the patient to the highest level of function possible.

Oregon is recognized throughout the nation as a leader in trauma systems development. The second state to develop any sort of statewide trauma system (Maryland is recognized as the first), Oregon was the first state to develop a system which included small rural hospitals as well as large urban facilities. Today, this organized system continues to operate with 50 voluntarily participating hospitals, coordinated by state and regional boards that plan, implement, and monitor the system's activities in collaboration with the state's Department of Human Services.



## OREGON TRAUMA REGISTRY

The 2002-2003 Biennial Trauma Report describes the trauma patient population treated in the Oregon Trauma System in the years 2002 and 2003. The data was compiled from forty-six designated trauma care facilities that submitted specific information about the causes of injury, emergency response, hospital management, and outcome of the injured patients meeting trauma system entry criteria.

Oregon trauma system hospitals are required to report specific data to the Oregon Trauma Registry (OTR) within 90 days of death or discharge of a trauma system patient. Facilities submit data either electronically or hard copy to the Department of Human Services. Each facility retains a copy of the data submitted for their own use in quality improvement and program management activities.

The OTR compiles data for patients who meet criteria for trauma system entry in one of four ways:

Field Entry: patients who are entered into the Trauma System by field personnel based on identified prehospital triage criteria.

Emergency Department (ED) Entry: any patient for whom the trauma team is activated at the receiving hospital; any patient whose injuries require a surgeon's evaluation and treatment.

Entry at Transfer: any patient transferred to a trauma center for trauma care not available at their facility; patients who met triage criteria or interhospital transfer guidelines at the transferring facility.

Retrospective Entry: patients who did not receive a trauma team response but retrospectively, at either the transferring or receiving facility, have either an Injury Severity Score greater than 8; death; a major operative procedure to head, chest or abdomen within 6 hours of hospital arrival; or admission to the Intensive Care Unit within 24 hours of arrival.

Also included is any patient previously treated within the trauma system (at any trauma hospital) that required unplanned readmission for treatment of injuries or complications resulting from the initial injuries.

In the 2002-2003 Biennial Trauma Report, the following parameters apply:

- The population includes patients meeting Oregon Trauma Registry entry criteria in the field or at the hospital. Patients not meeting criteria are not included. Conclusions from this report are not appropriate to extrapolate to all injured patients.
- The population is confined to trauma patients who arrive for care at an Oregon-designated trauma center. Injured patients who are not transported to the hospital, including those who are declared dead at the injury site or who refuse or do not seek hospital care, are not included.

- The population includes both Oregon residents and non-residents who were treated in an Oregon-designated trauma center.
- Injured persons receiving care at a non-trauma hospital in Oregon are not included.
- While 50 hospitals participate in the Oregon Trauma System, four hospitals that are located in Washington and Idaho do not submit patient data to the Oregon Trauma Registry, resulting in data from 46 hospitals contributing to this report.

The following statements apply to data analysis found in this report:

- Patient records with missing variable data are not included in the tabulation when that particular variable is being examined. This phenomenon may result in a variation in total patient counts depending on the variables being examined in each chart.
- **Major Trauma** is defined as injuries that result in death, intensive care admission, a major operation of the head, chest or abdomen, a hospital stay of three or more days, or an Injury Severity Score (ISS) of greater than 15.
- **Minor Trauma** is defined as patient who is entered into the trauma system, has an ISS of less than or equal to 15, and survives to hospital discharge.
- **Pediatric** patients are ages 0 to and including 18 years of age.
- **Geriatric** patients are age 55 years or older.
- **Response Time** is calculated from dispatch time to the time the transporting EMS unit arrives at the scene.
- **Scene Time** is the calculated time from the time the transporting EMS unit arrives at the scene to the time of their departure with the patient.
- **Transport Time** is calculated from the time of scene departure to the time of arrival at the trauma center.

Additional data presented in this report was obtained from the Oregon Department of Human Services, The Office for Oregon Health Plan Policy & Research; the Department of Human Services, Center for Disease Prevention and Epidemiology, Health Statistics Section; the Oregon Department of Transportation, Transportation Safety Division; and the Oregon State Police. We thank them for their contributions to this Oregon Trauma Registry report.

## MEMBERS OF THE OREGON STATE ADVISORY BOARDS

The following are lists of the talented professionals and citizens who served the state of Oregon on trauma-related advisory boards during 2002 and 2003, giving of their time and knowledge and providing invaluable guidance for the Oregon Trauma System. We thank them for their many contributions to the Department of Human Services, and their efforts on behalf of their fellow Oregonians.

**\*\* Denotes active board members as of January 2006**

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