

Trauma Cost Study
for the
Washington State Department of Health



December 21, 2007

Navigant Consulting, Inc.
1201 Third Avenue, Suite 3320
Seattle, WA 98101
206-442-3000
www.navigantconsulting.com



TAB CONTENTS

A Trauma Cost Study Executive Summary

B Trauma Cost Study Report

1. Introduction
2. Trauma Hospitals and Trauma Rehabilitation Service Provider Analysis
3. Trauma Physician Analysis
4. Prehospital EMS Provider Analysis
5. Projecting Trauma Costs Into the Future
6. Trauma System Financing Options

C Appendices

Stakeholder Group Rosters:

- 1.1: Emergency Medical Services and Trauma Steering Committee
- 1.2: Cost Reimbursement Technical Advisory Committee
- 1.3: Hospital Technical Advisory Committee

Trauma Hospitals:

- 2.1: Trauma Hospital Capacity Maps
- 2.2: Trauma Hospital Capacity and Participation
- 2.3: Trauma Rehabilitation Provider Capacity and Participation
- 2.4: Trauma Hospital Estimated Cost Coverage
- 2.5: Trauma Rehabilitation Provider Estimated Cost Coverage
- 2.6: List of State of Washington Trauma Designated Hospitals

TAB CONTENTS

A Trauma Cost Study Executive Summary

B Trauma Cost Study Report

1. Introduction
2. Trauma Hospitals and Trauma Rehabilitation Service Provider Analysis
3. Trauma Physician Analysis
4. Prehospital EMS Provider Analysis
5. Projecting Trauma Costs Into the Future
6. Trauma System Financing Options

C Appendices

Stakeholder Group Rosters:

- 1.1: Emergency Medical Services and Trauma Steering Committee
- 1.2: Cost Reimbursement Technical Advisory Committee
- 1.3: Hospital Technical Advisory Committee

Trauma Hospitals:

- 2.1: Trauma Hospital Capacity Maps
- 2.2: Trauma Hospital Capacity and Participation
- 2.3: Trauma Rehabilitation Provider Capacity and Participation
- 2.4: Trauma Hospital Estimated Cost Coverage
- 2.5: Trauma Rehabilitation Provider Estimated Cost Coverage
- 2.6: List of State of Washington Trauma Designated Hospitals

EXECUTIVE SUMMARY

Introduction

In response to the rising costs of trauma care in the State of Washington and the need to support a coordinated and dedicated trauma system, the State Legislature passed the Trauma Care Fund Reimbursement Act of 1997. The Act funded a Trauma Care Fund account to support trauma patient care by designated trauma hospital and rehabilitation service providers, verified prehospital emergency medical services (EMS) providers, and trauma physicians and clinicians.

The Trauma Care Fund revenue and appropriation have remained relatively static since 1997. No comprehensive financial study of the State's Trauma System had been done since an Arthur Andersen and Co. report released in October 1991 and it was not clearly demonstrated whether Trauma Care Fund payments were adequate relative to the rising costs of trauma services since the initiation of the Fund. As such, the Emergency Medical Services and Trauma Care Steering Committee (the Steering Committee) requested in 2006 an independent study of the costs and funding of the State's Trauma System. The purpose of the study was to provide a comprehensive financial analysis of the past and current Trauma System and recommendations for the future of the Washington State Trauma System. The study would also be used to develop the next biennial spending plan for the Trauma Fund program.

In February 2007, the Department engaged Navigant Consulting, Inc. (Navigant Consulting) to conduct a comprehensive financial study of the State's Trauma System. For this project, Navigant Consulting completed the following tasks:

- *Identified Costs and Funding of Services Provided by Designated Trauma Hospitals and Rehabilitation Service Providers:* In this task, we collected the data needed for estimating the costs of trauma services for designated trauma hospital and rehabilitation providers, used the collected data to calculate estimates of costs, collected payment data from providers through a survey process and other sources, and compared payments for trauma services to the estimated costs.
- *Identified Costs and Funding for Trauma Physicians:* In this task, we researched and analyzed the barriers to participating in the Trauma System faced by physicians. We also collected physician group practice information, including financial and other data through a survey process. Using survey results and other data sources, we examined funding levels for trauma-related services, and related those funding levels to the estimated costs of physician services.

- *Identified Costs and Funding for Prehospital Trauma Services:* In this task, we conducted a survey of prehospital trauma providers to understand the costs of and funding for these services. We developed a cost and reimbursement survey and collected cost and funding data through the survey process for a sample of providers.
- *Delineated Current State Trauma Services, Provider Participation, Capacity and Resources:* In this task, we identified the providers participating in Washington's Trauma System and collected data related to provider capacity, using the most current data sources available at the time of this study. We also compared Trauma System provider capacity to regional population figures to determine if there were significant differences in the relationship between capacity and population in certain parts of the State.
- *Identified Funding, Cost, Capacity and Resources Drivers, and Projected Trauma System Costs and Funding 10 Years into the Future:* In this task, we attempted to determine what internal and external factors potentially influence changes in costs within the Trauma System, and what internal and external factors will influence providers to participate in the system in the future. We conducted Internet and other literature research and conducted discussions with various stakeholder and work groups. Also as part of this task, using utilization and cost trend information gathered as part of previous tasks, we developed trend factors that may be used to project cost and funding increases for future periods.
- *Identified Financing Options to Maximize System Access and Participation Now and In the Future:* For this Task, we conducted research to identify potential options for modifying the financing approach for the Trauma System in Washington now and into the future. This research focused on financing options for the State's Trauma Care Fund and its related provider payments to prehospital providers, hospitals, physicians and rehabilitation facilities.

Stakeholder Input

During the project, we received invaluable support from various stakeholder groups. In particular, we would like to thank the members of the Trauma Cost Study Workgroup for their significant time and effort related to this study, and their contributions to this study report. Workgroup members, in alphabetical order, are as follows:

Washington State Trauma Cost Study

- Robert G. Berschauer, General Manager, American Medical Response
- Cynthia Markus, M.D., North Sound Emergency Medicine
- Lori J. Morgan, M.D., Medical Director, Tacoma Trauma Trust
- Robb Menaul, Washington State Hospital Association
- Linda Thomson, Director of Rehabilitation Services, St. Joseph Hospital, Bellingham
- Mike Vanderlinde, Director, Government Financial Relations and Reimbursement, Harborview Medical Center, Seattle
- Representatives from the Washington State Department of Health, Office of Emergency Medical Services and Trauma System and the Washington State Department of Social and Health Services, Health and Recovery Services Administration

We would also like to thank the members of the following groups who provided significant contributions to this study:

- Emergency Medical Services and Trauma Care Steering Committee
- Cost Reimbursement Technical Advisory Committee (TAC)
- Trauma Medical Directors TAC and Hospital TAC

See Appendix 1.1, 1.2 and 1.3 for a listing of the members of the Emergency Medical Services and Trauma Care Steering Committee, Cost Reimbursement TAC and Hospital TAC, respectively.

Trauma Hospital and Trauma Rehabilitation Services Study Findings

Our study of designated trauma hospital services and designated trauma rehabilitation services focused on the current costs of providing trauma services by trauma hospitals and trauma rehabilitation providers. We also analyzed hospital participation and capacity to identify underserved regions in the State for trauma services.

Trauma Hospitals

The extent to which funding covers the costs of the State's trauma hospital services differs depending on how trauma services are defined. We found that for trauma claims with an Injury Severity Score (ISS) meeting the Trauma Care Fund criteria from trauma hospitals responding to our survey, 2005 payments (including Trauma Care Fund payments) exceeded calendar year (CY) 2005 estimated costs by \$19.1 million, or 16.7 percent.

Cost coverage percentages are less when expanding the trauma claim ISS criteria. We found that for trauma claims with an ISS of 1 and greater from trauma hospitals responding to our survey, 2005 aggregate hospital payments (including Trauma Care Fund payments) exceeded CY 2005 estimated costs by \$5.5 million, or 2.2 percent.

In addition, all responding hospitals reported providing trauma services in CY 2005 for which they received no payment. In the survey population, 1,731 out of 15,515 CY 2005 claims with an ISS of 1 and greater were "zero-paid", with a total estimated cost of \$20.5 million. In the aggregate, the losses from these claims were offset by all of the other payment sources available to the trauma providers, including enhanced Trauma Care Fund payments.

In its 1991 trauma cost study, Arthur Andersen calculated cost coverage for CY 1989 trauma claims with an ISS of 1 and greater. Arthur Andersen estimated that CY 1989 aggregate hospital cost coverage for trauma cases was 87.2 percent and the total statewide hospital uncompensated trauma care cost was \$6.1 million. As such, our 2005 estimate for the same ISS range marks a substantial improvement since 1989. Contributing to this improvement since the time of the Arthur Andersen study, hospitals have received significantly increased reimbursement from commercial payers for trauma services. Increased commercial payments have helped hospitals offset the costs of uninsured and lower reimbursement levels from government payers for these services.

The amount of additional funding needed for trauma hospital services depends on whether the Trauma Care Fund is intended to help maintain positive hospital contribution margins related to trauma services and whether enhanced funding is necessary to help cover the costs of lower ISS trauma cases. From our research, and based on feedback from the various stakeholder groups supporting this project, we understand that positive contribution margins are critical in the industry to reinvest in new technology, and improve physical plant and capacity, particularly for resource-intensive trauma services. Hospital margins have been, on average, between four and five percent nationally based on recent studies.

