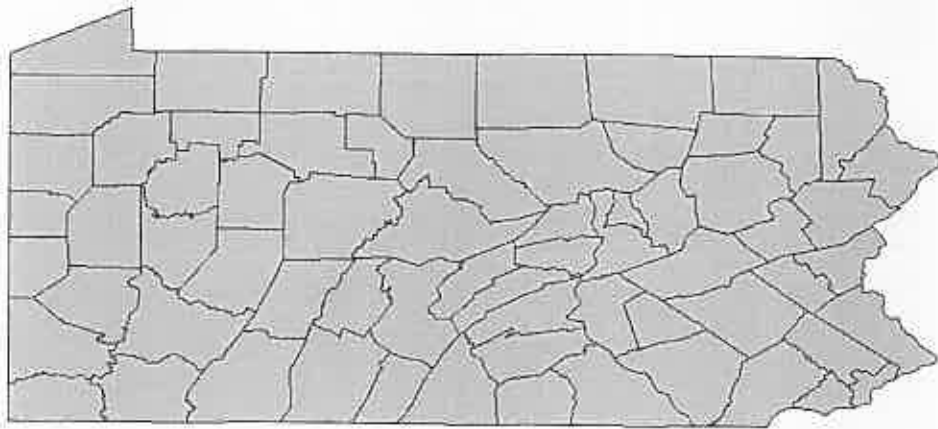


# Pediatric Trauma in Pennsylvania 1996 - 2001



Prepared for  
The PENNSYLVANIA TRAUMA SYSTEMS FOUNDATION  
June 2003

**Prepared by: Jim Madara  
HealthcareData.com, LLC  
Phone: (717) 730-3770  
[www.HealthcareDataHelp.com](http://www.HealthcareDataHelp.com)**

## Table of Contents

EXECUTIVE SUMMARY .....	3
PURPOSE .....	4
DATA DESCRIPTION.....	4
DEFINITIONS .....	6
AVERAGE ELAPSED TIME FROM INJURY TO ARRIVAL AT HOSPITAL .....	7
FREQUENCY AND SEVERITY OF INJURY BY ISS RANGE .....	12
FREQUENCY AND SEVERITY OF INJURY BY YEAR .....	20
LENGTH OF STAY .....	24
MORTALITY OF PATIENTS NOT TRANSFERRED VS. TRANSFERRED .....	29
UNEXPECTED SURVIVORS.....	31
AVERAGE ELAPSED TIME FROM INJURY TO ARRIVAL AT TRAUMA CENTER.....	32
MORTALITY OF PATIENTS IN TRAUMA CENTERS .....	35
TIME OF INJURY TO TIME OF DEATH IN TRAUMA CENTERS.....	37
RECOMMENDATIONS FOR FURTHER INVESTIGATION.....	39
LIMITATIONS OF STUDY .....	39
APPENDIX A – HOUSE BILL 100 .....	40
APPENDIX B – EMS DATA .....	45
APPENDIX C – PTOS DATA.....	54
APPENDIX D – PTOS PATIENT CRITERIA.....	64
APPENDIX E – PHC4 DATA .....	65

## Executive Summary

This report describes the extent of trauma and severity of trauma cases for pediatric patients (age 14 and under) in Pennsylvania during the period 1996 through 2001. Outcomes are tracked and the frequency and severity of cases treated and transferred from rural hospitals is analyzed. Hospitals located in rural counties were compared to trauma center hospitals, level III status hospitals and hospitals located in non-rural counties. Three databases were used in this study: (1) the Pennsylvania Trauma Outcomes Study (PTOS) data, (2) the Pennsylvania Pre-hospital Care Report data (PCR), and (3) the Pennsylvania Health Care Cost Containment Council Hospital Discharge data (PHC4). To assist in the measure of severity, an ISS score was determined for PHC4 hospital discharges through the use of the computer software "ICDMAP" that converts ICD-9CM discharge diagnoses into Abbreviated Injury Scale (AIS) scores and then computes Injury Severity Scores (ISS). The ICDMAP software was developed by Johns Hopkins University and Tri-Analytics, Inc.

Facility type "Level III Status" refers to those hospitals which could apply to be potential Level III centers should HB 100 be passed into legislation (See Appendix A). These hospitals are located in a county without an already existing trauma center, are at least 25 miles from the closest trauma center, and have a comprehensive emergency department according to the Department of Health's annual licensure survey as of June 30, 2002.

Based on Pre-hospital Care Reports submitted by EMS Services for 2001, there were 8,208 trauma incidences were pediatric cases were transported in an emergency mode to an acute care hospital - 46.7% of those cases went to a non-trauma center while 53.3% went to a trauma center hospital. The top three mechanisms of injury reported by the EMS services were vehicle accidents (1,899 cases), falls (1,629 cases) and pedestrian (586 cases); 75.5% of these incidences occurred in non-rural counties and 24.5% in rural counties. Because we did not have access to ER data, we could not determine how many people were DOA or how many died in the ER; but from inpatient data submitted to PHC4 for 2001, we determined that of the 141 deaths that occurred while the patient was in the hospital, 5.7% occurred in a non-trauma center and 94.3% occurred in a trauma center.

The following notable differences were observed in comparing pediatric patients treated in various facility types:

- The pediatric trauma case total average time to arrive at a rural hospital was consistently higher than the total average time to arrive at a hospital for each of the other facility types. Even though the total average for all rural facilities was higher, there was a great deal of variance among individual rural counties. This was also true for non-rural facilities. (PCR database)
- As the age of the patient increases, the severity of injuries incurred increases. The more severely injured pediatric patients appear to be receiving their treatment in a trauma center or non-rural hospital rather than in a rural hospital. (PHC4 database)
- Rural hospital length of stay is shorter for pediatric patients when compared to non-rural and trauma center hospitals. This is due in part because rural hospitals are transferring more critical cases to trauma centers. Also, if the EMS System is getting the most severe cases to the trauma centers, the rural hospital length of stays should be shorter. (PHC4 database)
- The mortality rates for pediatric patients in rural hospitals are lower than the mortality rates of other facility types. (PHC4 database)
- Mortality rates for pediatric PTOS patients transferred-in to the trauma center are less than the mortality rates of PTOS patients who are directly taken to a trauma center from the point of injury. (PTOS database)

## **Purpose**

This report describes the frequency and severity of trauma cases for pediatric patients (age 14 and under) treated in hospitals located in rural counties, hospitals located in non-rural counties and in trauma center hospitals in Pennsylvania during the period 1996 through 2001. The purposes of the report are: (a) to quantify the severity of trauma being treated; (b) to analyze the mortality of patients taken to hospitals; and (c) to compare mortality rates of cases transferred vs. not transferred out of hospitals in Pennsylvania.

## **Data Description**

This study is based on analysis of three databases that provide information about injured people in Pennsylvania. These are:

- the Pennsylvania Pre-hospital Care Report data (PCR),
- the Pennsylvania Trauma Outcomes Study data (PTOS), and
- the Pennsylvania Health Care Cost Containment Council Hospital Discharge data (PHC4).

Each of these databases provides information about trauma cases, but each is limited in the detail provided. The PCR database contains information about emergency medical services provided before a patient arrives at the hospital emergency department and provides time of arrival at the scene of an accident, at scene time and time to transport patient to destination hospital (see Appendix B for complete list of data elements). The PCR database has limited information about injury severity and outcome.

The PTOS data is collected from accredited trauma centers and includes information starting with the pre-hospital encounter with the Emergency Medical staff through discharge at the trauma center. Data collected includes detailed information about injury severity, injury type, procedures, and mechanism of injury (see Appendix C for complete list of data elements). Data identify patients taken directly from the accident to a trauma center or non-trauma center. If taken to a non-trauma center hospital and subsequently transferred into a trauma center, the database can identify the elapsed time and hospital of origin. This data, however, is only collected from hospitals that have been accredited as trauma centers and where the patient meets the specific criteria to be tracked in the trauma registry (see Appendix D).

The PHC4 database provides detailed information about length of stay, diagnoses, procedures, and discharge status as well as information about injury outcomes (see Appendix E for complete list of data elements). The PHC4 database does not provide specific information about where and when the patient was injured. This database only contains information about patients who were injured severely enough to be hospitalized. No information is provided on patients who were taken to the emergency department and released or for patients who died in the emergency department. If the patient is transferred, this database does not indicate if the receiving hospital or sending hospital is a rural, non-rural, Level III Status or a trauma center hospital.

Despite the limitations of each database individually, taken together they provide a picture of injury and clinical care across the Commonwealth. The analysis which follows is based on data for injured people who were (a) treated at accredited trauma centers during the period 1996 through 2001, (b)

transported as emergency cases by EMS during this same time period, or (c) discharged during this period from a general acute care hospital in Pennsylvania. The study recognizes that certain segments of the injured population were not part of this analysis, including (a) people who were injured so severely they died before any pre-hospital or emergency department care was rendered, (b) those who are treated and discharged alive (without inpatient hospitalization) from non-trauma center emergency departments, or (c) those who died in a non-trauma center emergency department or (d) trauma patients admitted to a trauma center less than 48 hours who are not transferred in or who have died.

## **Case Selection Criteria**

Case selection criteria for each database used in this study is described briefly below.

### **PCR Data**

Each record in the PCR database represents a single ambulance run. More than 1.3 million runs are reported to the Pennsylvania Department of Health each year, with more than 8 million ambulance runs reported between 1996 and 2001. Approximately 0.6% of the records were for injured children age 14 and under who were transported from an injury scene to a hospital in an emergency mode. Records that specifically indicated medical incidents, non-transports, inter-hospital transports, and incidents that did not occur in Pennsylvania were excluded, leaving 43,052 records for analysis.

### **PTOS Data**

The PTOS database has one record for each trauma case treated at an accredited trauma center in Pennsylvania. If a trauma case patient is transferred from one accredited trauma center to another, the PTOS database would have one record from each accredited trauma center for that case. In order to be entered into this database, patients must have specific injury diagnoses and meet specific criteria that identify serious injuries (see Appendix D). During the period 1996 through 2001, 123,384 cases were entered in the trauma registry. Approximately 12.6% of the records were for injured children age 14 and under. Records for patients who were injured outside of Pennsylvania (733 or 4.7%) and records for patients whose transferring hospital could not be determined (302 or 1.9%) were excluded from the analysis. The remaining 14,461 (93.3%) records were included in our analysis. Also excluded from certain analysis were cases with incomplete counties, dates and times; 1,009 records (6.5%) had an invalid county, 5,728 records (37.0%) had a missing date and/or time in the date/time of injury or date/time in emergency department field. In addition, if the patient was transferred to a trauma center, approximately 1,999 records (12.9%) had a missing referral hospital admit or discharge time.

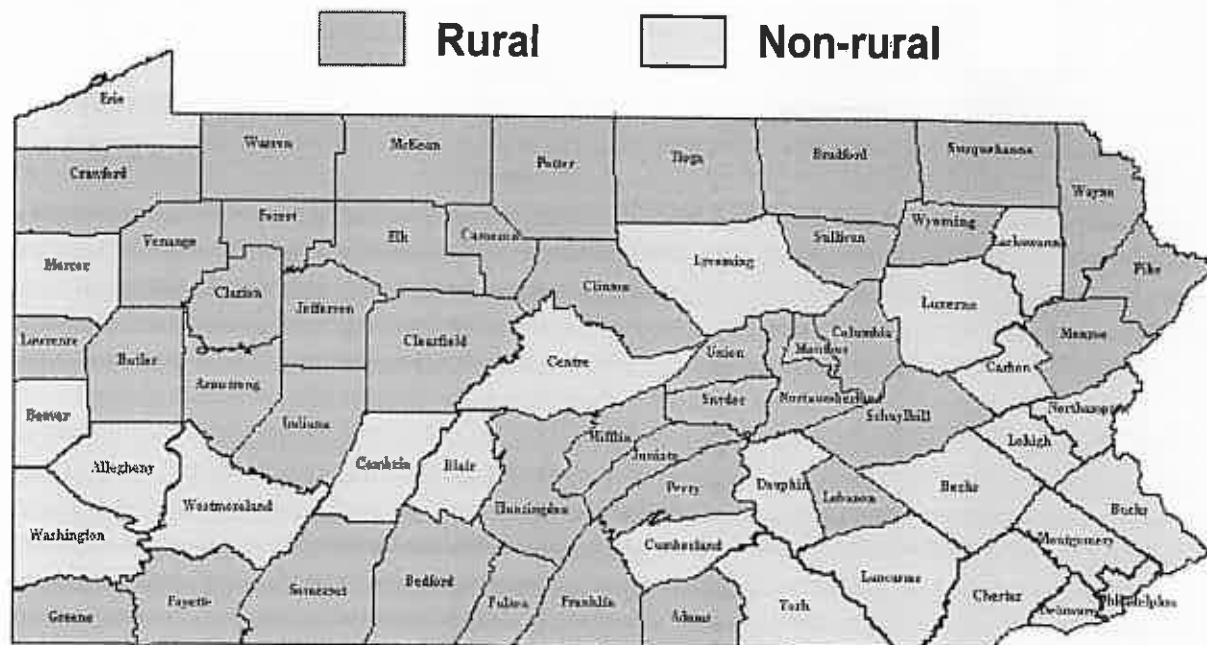
### **PHC4 Data**

Each record in the PHC4 data represents a single hospital discharge. During the period 1996 through 2001, approximately 1.85 million people were discharged each year or more than 11.1 million people during the six-year period. Approximately 1.1 million of the records in the PHC4 data (1,092,886 records) were for cases with evidence of injury. Injury was defined as any ICD-9 CM injury diagnosis code in the range of 800 through 959, or any External Cause of Injury (E-code) in the ranges of E800 through E848, E870 to E928, E960 to E968, E970 to E979, E983 to E988, and E990 to E998. Selection criteria were chosen so as to exclude records for patients whose injuries appeared to be caused only by poisoning and overdoses, who were hospitalized for late effects of trauma. Records for patients over 14 year of age, whose residence county were either unknown or outside of Pennsylvania were also excluded, leaving 59,821 records. To determine an ISS injury severity score for each hospital discharge, PHC4 records were processed through ICDMAP-90 software developed by Johns Hopkins University and Tri-Analytics, Inc

## Definition of Rural Counties

For the analysis presented in this document, predominantly rural counties are defined as counties in which 50% or more of the population was identified as “rural” in the 1990 Census data.

**Figure 1: County Designation**



## Definition of Facility Type

For the analysis presented in this document, facility type “Trauma Center” is based on a hospital being an accredited Trauma Center during the study period; one hospital which experienced a change in status to a potential Level III was excluded from the “Trauma Center” category. Facility type “Level III Status” is defined by HB 100 (see Appendix A). A hospital was considered to be a “Rural” facility type if the county it was located in was a predominantly rural county and it was not a Trauma Center or Level III Status hospital. Likewise, a hospital was considered to be a “Non-rural” facility type if the county it was located in was a non-rural county and it was not a Trauma Center or Level III Status hospital.

## Definition of ISS Score

Injury Severity Score (ISS) is a measure of the combined effect of multiple injuries. ISS scores range from 1 to 75 (maximum injury). ISS is calculated by summing the squares of the three highest Abbreviated Injury Scale (AIS) scores by body region. For example, if a patient had a highest AIS in the head/neck body region of 4, in the chest of 3 and in the extremities and pelvic girdle region of 2, the ISS for this patient would be 29 ( $4^2 + 3^2 + 2^2 = 29$ ). Any injury coded AIS 6 is automatically assigned an ISS of 75.

### Average Elapsed Time from Injury to Arrival at Hospital

Table 1 displays (by year and facility type) the average total elapsed time from the time a call was made for an ambulance service to the time of arrival at a hospital. Total average time was under 45 minutes for all six years within each facility type. Total average time to arrive at a rural hospital was consistently higher than the total average time to arrive at a hospital for each of the other facility types. Even though the total average for all rural facilities was higher, there was a great deal of variance among individual rural counties; also, there was a significant variance among counties in the other facility types (see Table 2). Figure 2 shows the trend in total average time by year and facility type. For Rural, Non-rural and Trauma Center facility types, the linear trend was slightly downward while the Level III Status group showed an upward trend. Based on an analysis of variance (ANOVA), there was a significant difference between mean values by county within a facility type ( $p < .0001$ ). Figure 3 depicts total average time by county regardless of facility type.

**Table 1: Average Elapsed Time from Emergency Service Receiving Call to Arrival at Hospital by Year and Facility Type [PCR database]**

Facility Type	Year	Transports 1996 through 2001	Average Minutes				Total Elapsed Time
			EMS Received Call to EMS Unit Dispatched	EMS Dispatched to Arrival at Scene of Incident	EMS on Scene of Incident	EMS Transports Patient to Hospital	
Level III Status	1996	373	2.50	5.49	12.58	13.22	33.79
Level III Status	1997	389	2.46	5.57	12.24	14.48	37.59
Level III Status	1998	294	1.93	5.90	12.67	15.41	38.32
Level III Status	1999	463	2.59	6.15	12.66	16.32	40.22
Level III Status	2000	498	2.86	6.09	12.53	15.09	39.56
Level III Status	2001	193	2.06	6.66	13.05	16.98	40.02
Non-rural	1996	2,110	2.22	5.76	12.84	12.83	34.80
Non-rural	1997	1,896	2.12	5.12	12.80	12.77	34.42
Non-rural	1998	1,797	2.08	5.37	12.96	12.98	34.66
Non-rural	1999	2,216	2.31	5.89	13.13	14.15	35.13
Non-rural	2000	2,600	1.74	5.48	12.68	12.70	32.65
Non-rural	2001	2,296	1.70	5.23	12.39	11.70	31.61
Rural	1996	1,392	3.40	7.15	13.36	16.35	41.47
Rural	1997	939	3.08	7.37	13.30	17.34	42.14
Rural	1998	1,217	3.19	6.58	13.39	16.82	41.27
Rural	1999	1,431	2.99	6.77	12.77	16.90	41.61
Rural	2000	1,383	3.07	7.49	12.73	17.32	42.26
Rural	2001	1,343	2.92	7.69	12.80	16.93	40.72
Trauma Center	1996	3,104	1.30	6.52	12.37	13.56	36.37
Trauma Center	1997	2,427	1.35	6.31	12.58	13.78	36.59
Trauma Center	1998	2,907	1.45	6.42	12.50	14.14	36.81
Trauma Center	1999	3,056	1.55	6.59	12.93	14.56	37.49
Trauma Center	2000	4,074	1.33	5.99	11.92	13.25	35.54
Trauma Center	2001	4,376	1.34	5.77	12.17	13.15	34.25

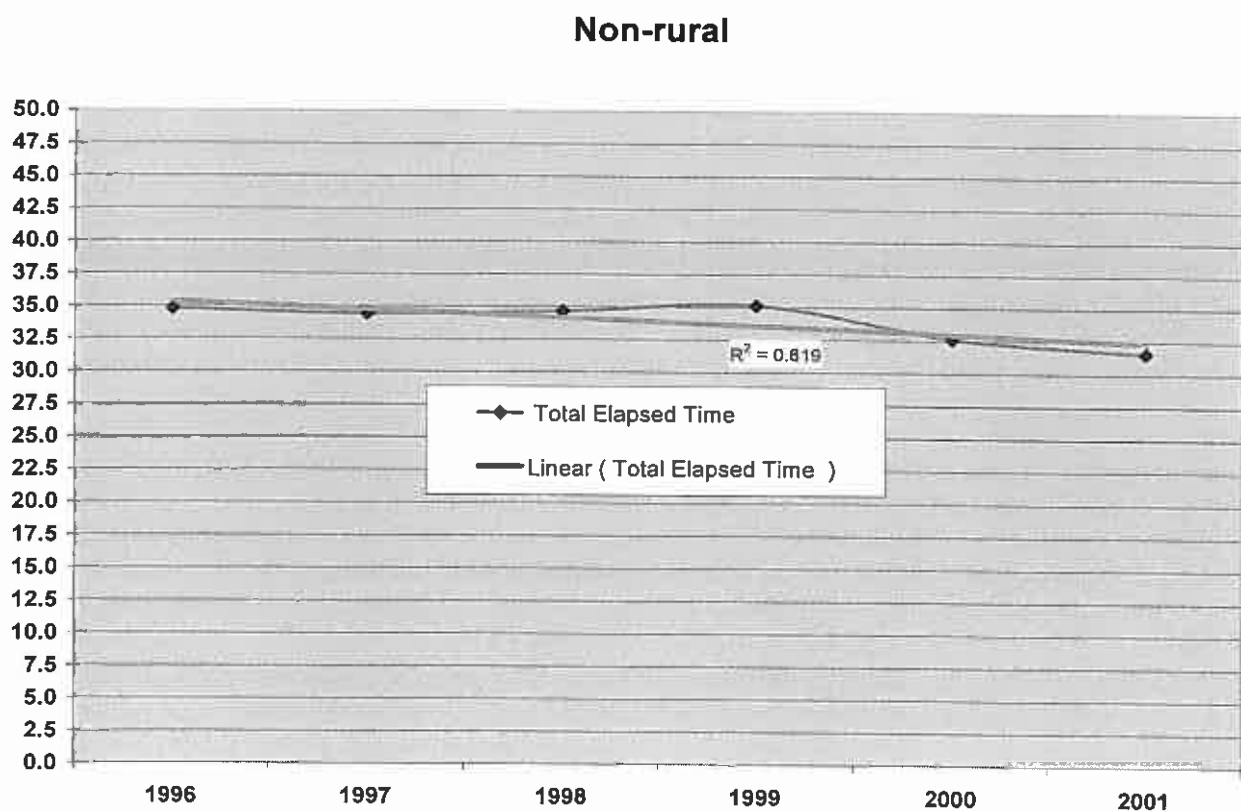
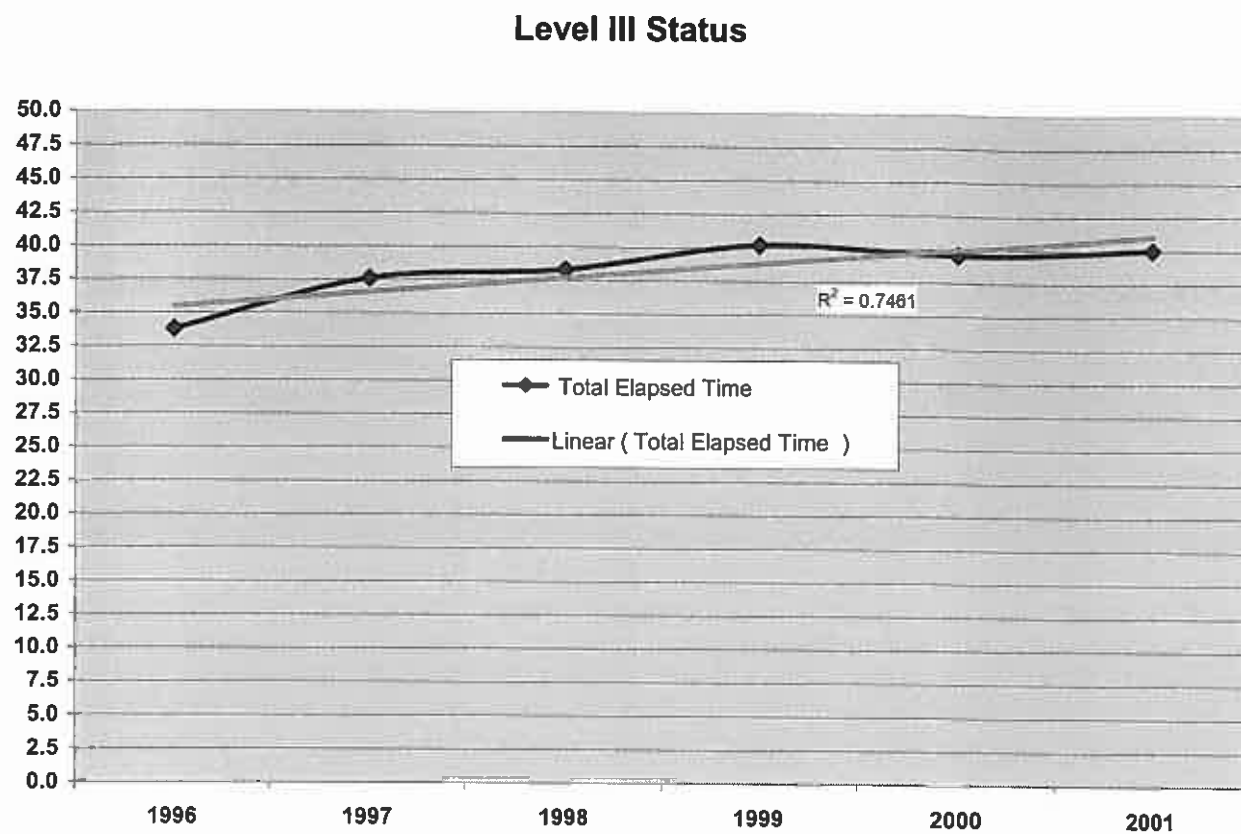
**Table 2: Average Elapsed Time from Emergency Service Receiving Call to Arrival at Hospital by County of Hospital and Facility Type for Transports [PCR database]**

Facility Type	County of Facility	Transports 1996 through 2001	Average Minutes				
			EMS Received Call to EMS Unit Dispatched	EMS Dispatched to Arrival at Scene of Incident	EMS On Scene of Incident	EMS Transports Patient to Hospital	Total Elapsed Time
Level III Status	Berks	399	1.42	5.98	12.19	15.06	34.65
Level III Status	Chester	799	2.84	5.47	12.17	12.57	33.05
Level III Status	Clearfield	169	2.34	5.49	11.73	14.20	33.76
Level III Status	Cumberland	125	2.96	6.51	13.69	21.88	45.04
Level III Status	Lycoming	498	2.25	6.51	14.19	14.47	37.42
Level III Status	Schuylkill	187	3.69	5.94	11.07	24.36	45.06
Level III Status	Venango	33	1.91	8.09	11.52	15.12	36.64
<b>Average for All Level III Status Counties</b>			<b>2.48</b>	<b>5.93</b>	<b>12.58</b>	<b>15.13</b>	<b>36.12</b>
Non-rural	Allegheny	1,293	1.59	5.78	14.76	13.34	35.47
Non-rural	Beaver	191	0.77	7.37	17.41	15.41	40.96
Non-rural	Berks	222	1.23	5.03	11.52	12.04	29.82
Non-rural	Blair	346	1.84	5.73	12.56	13.18	33.31
Non-rural	Bucks	581	1.99	5.39	12.34	10.96	30.68
Non-rural	Cambria	307	2.07	4.61	11.44	13.12	31.24
Non-rural	Carbon	349	3.41	8.06	13.36	20.34	45.17
Non-rural	Centre	241	3.14	8.22	11.69	18.10	41.15
Non-rural	Chester	602	2.91	4.97	13.11	11.65	32.64
Non-rural	Cumberland	67	2.78	5.82	15.18	23.48	47.26
Non-rural	Dauphin	307	2.64	6.51	13.92	20.69	43.76
Non-rural	Delaware	931	1.96	3.92	11.46	8.04	25.38
Non-rural	Erie	1,343	2.58	4.91	12.17	13.91	33.57
Non-rural	Lackawanna	542	2.64	5.79	13.11	13.51	35.05
Non-rural	Lancaster	127	2.75	6.23	13.36	16.09	38.43
Non-rural	Lehigh	121	2.00	6.42	13.21	15.49	37.12
Non-rural	Luzerne	1,724	2.46	5.41	12.77	14.34	34.98
Non-rural	Lycoming	274	3.28	6.64	13.38	11.99	35.29
Non-rural	Mercer	149	1.98	6.74	13.61	14.17	36.50
Non-rural	Montgomery	824	1.86	4.69	13.21	10.75	30.51
Non-rural	Northampton	237	1.77	5.41	12.12	14.54	33.84
Non-rural	Philadelphia	1,168	0.28	5.19	10.50	7.52	23.49
Non-rural	Washington	488	0.99	6.77	13.20	13.40	34.36
Non-rural	Westmoreland	407	1.57	5.03	14.70	13.48	34.78
Non-rural	York	74	2.80	6.08	12.64	13.69	35.21
<b>Average for All Non-Rural Counties</b>			<b>2.01</b>	<b>5.48</b>	<b>12.79</b>	<b>12.84</b>	<b>33.12</b>
Rural	Adams	230	3.32	5.45	11.13	13.02	32.92
Rural	Armstrong	94	2.31	5.44	13.49	17.99	39.23
Rural	Bedford	327	4.63	7.87	15.54	17.15	45.19
Rural	Bradford	291	2.76	8.98	11.21	20.57	43.52
Rural	Butler	285	2.81	6.26	14.86	16.86	40.79
Rural	Clarion	79	4.65	5.75	15.66	21.90	47.96
Rural	Clearfield	39	3.90	10.23	14.97	24.54	53.64

**Table 2 (continued): Average Elapsed Time from Emergency Service Receiving Call to Arrival at Hospital by County of Hospital and Facility Type for Transports [PCR database]**

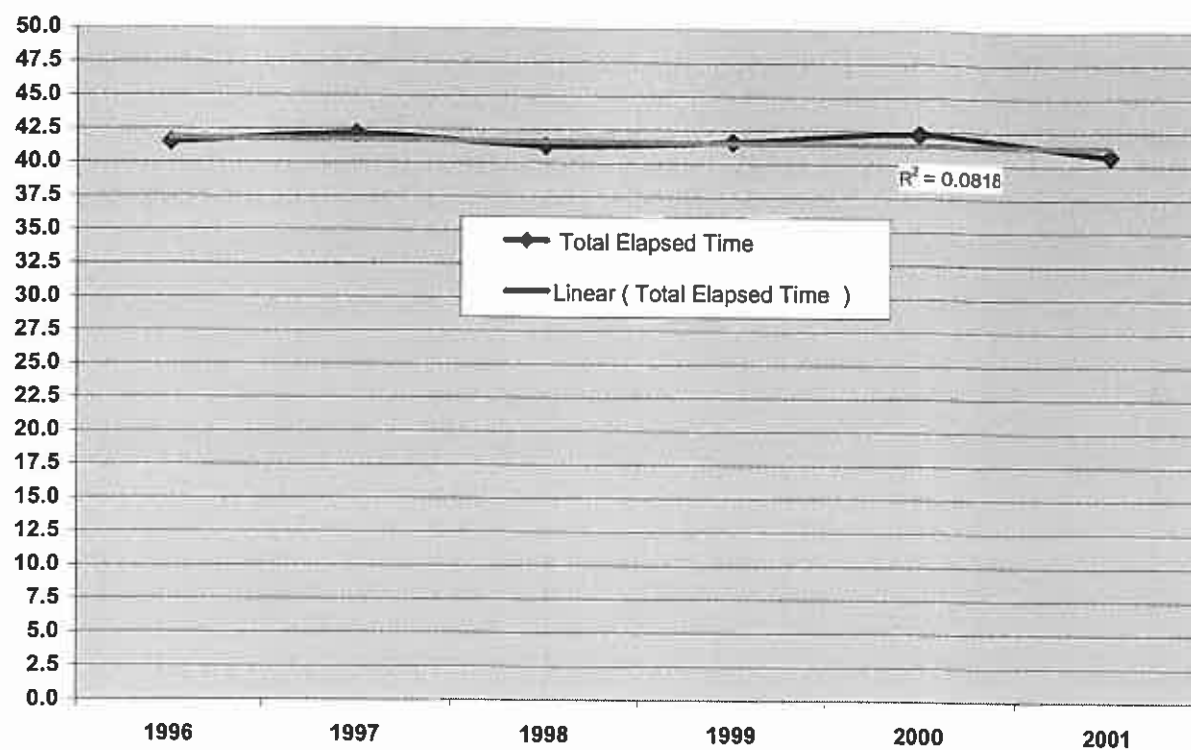
Facility Type	County of Facility	Transports 1996 through 2001	Average Minutes				Total Elapsed Time
			EMS Received Call to EMS Unit Dispatched	EMS Dispatched to Arrival at Scene of Incident	EMS On Scene of Incident	EMS Transports Patient to Hospital	
Rural	Clinton	228	2.50	7.72	15.01	10.79	36.02
Rural	Columbia	280	3.96	6.34	13.67	11.49	35.46
Rural	Crawford	258	2.94	6.83	13.60	20.26	43.63
Rural	Elk	263	3.18	6.31	11.84	17.56	38.89
Rural	Fayette	498	1.35	5.21	14.10	12.24	32.90
Rural	Franklin	369	1.70	6.64	13.17	15.83	37.34
Rural	Fulton	112	2.04	7.21	11.15	12.33	32.73
Rural	Greene	214	2.69	5.75	15.84	13.95	38.23
Rural	Huntingdon	326	4.20	7.43	11.64	18.08	41.35
Rural	Indiana	38	1.66	9.03	15.26	16.42	42.37
Rural	Jefferson	21	3.86	9.76	15.57	17.52	46.71
Rural	Lawrence	72	1.53	5.21	14.74	11.21	32.69
Rural	Lebanon	65	2.15	5.63	12.49	15.52	35.79
Rural	McKean	52	2.85	6.65	12.35	21.29	43.14
Rural	Mifflin	183	3.23	5.84	12.04	17.98	39.09
Rural	Monroe	1,043	2.56	9.17	13.44	20.49	45.66
Rural	Northumberland	174	2.98	4.50	11.19	10.83	29.50
Rural	Potter	151	4.50	8.21	12.44	21.28	46.43
Rural	Schuylkill	217	3.26	4.20	11.82	13.02	32.30
Rural	Somerset	160	2.27	6.58	9.63	14.56	33.04
Rural	Susquehanna	133	3.05	8.23	10.96	14.15	36.39
Rural	Tioga	368	4.39	7.74	11.39	20.83	44.35
Rural	Union	212	3.18	6.46	13.05	18.82	41.51
Rural	Warren	156	2.52	6.27	12.56	13.51	34.86
Rural	Wayne	603	4.77	8.95	12.78	20.27	46.77
Rural	Wyoming	163	3.56	7.83	14.54	13.12	39.05
<b>Average for All Rural Counties</b>			<b>3.11</b>	<b>7.17</b>	<b>13.04</b>	<b>16.92</b>	<b>40.24</b>
Trauma Center	Allegheny	4,205	1.32	7.03	14.56	17.26	40.17
Trauma Center	Blair	362	1.49	5.59	12.65	17.35	37.08
Trauma Center	Bradford	343	2.42	10.65	13.02	17.73	43.82
Trauma Center	Bucks	401	1.78	5.23	12.85	12.83	32.69
Trauma Center	Cambria	641	2.67	7.23	13.90	19.83	43.63
Trauma Center	Dauphin	588	3.51	9.36	14.12	20.53	47.52
Trauma Center	Delaware	1,207	2.04	3.95	11.87	8.47	26.33
Trauma Center	Erie	871	2.56	5.31	12.49	15.02	35.38
Trauma Center	Lackawanna	891	2.23	6.59	14.36	18.41	41.59
Trauma Center	Lancaster	514	1.97	6.83	13.45	18.20	40.45
Trauma Center	Lehigh	1,584	2.20	7.85	13.71	16.41	40.17
Trauma Center	Montgomery	570	1.46	4.55	13.60	12.92	32.53
Trauma Center	Montour	442	4.76	9.93	17.60	23.11	55.40
Trauma Center	Philadelphia	7,051	0.19	5.10	9.69	8.54	23.52
Trauma Center	York	274	2.47	8.67	12.57	18.09	41.80
<b>Average for All Trauma Center Counties</b>			<b>1.38</b>	<b>6.22</b>	<b>12.36</b>	<b>13.67</b>	<b>33.63</b>

**Figure 2: Trend in Average Total Elapsed Time from Time Call Made for Ambulance Service to Time of Arrival at Hospital [PCR database]**

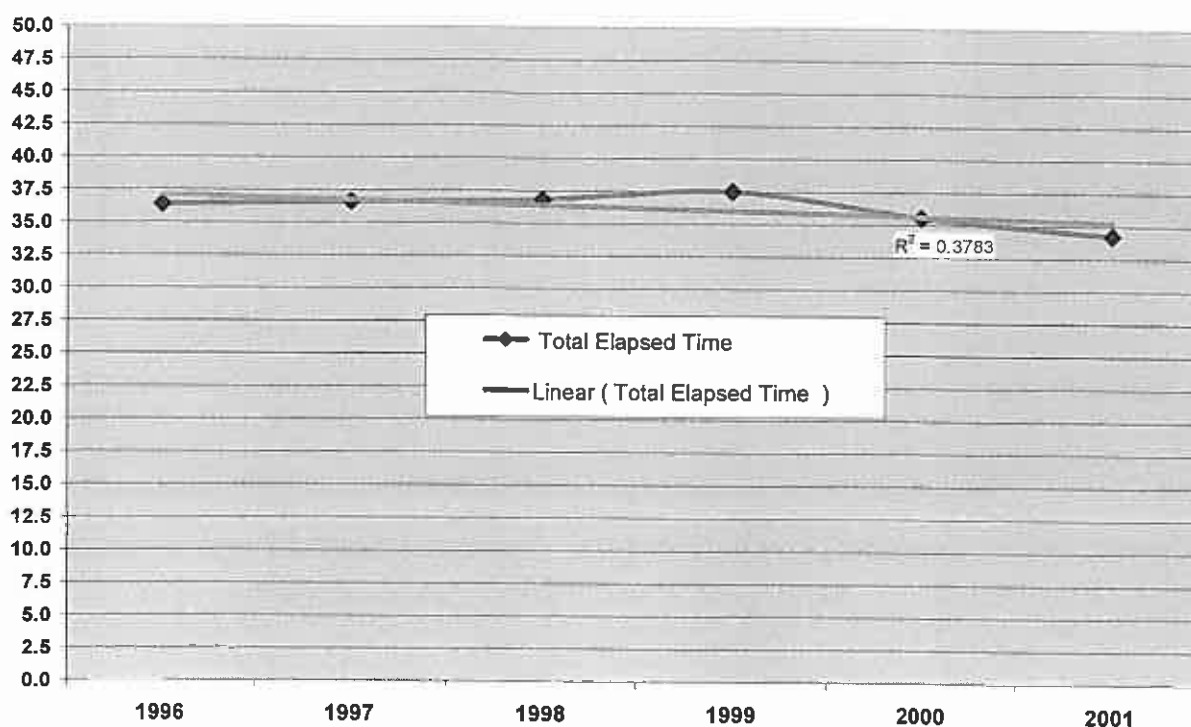


**Figure 2 (continued): Trend in Average Total Elapsed Time from Time Call Made for Ambulance Service to Time of Arrival at Hospital [PCR database]**

### Rural



### Trauma Center



(Average total elapsed time by county is based on hospital location not accident location for transports made in 1996 through 2001. There are no acute care hospitals in Perry, Juniata, Snyder, Sullivan, Pike or Cameron counties)

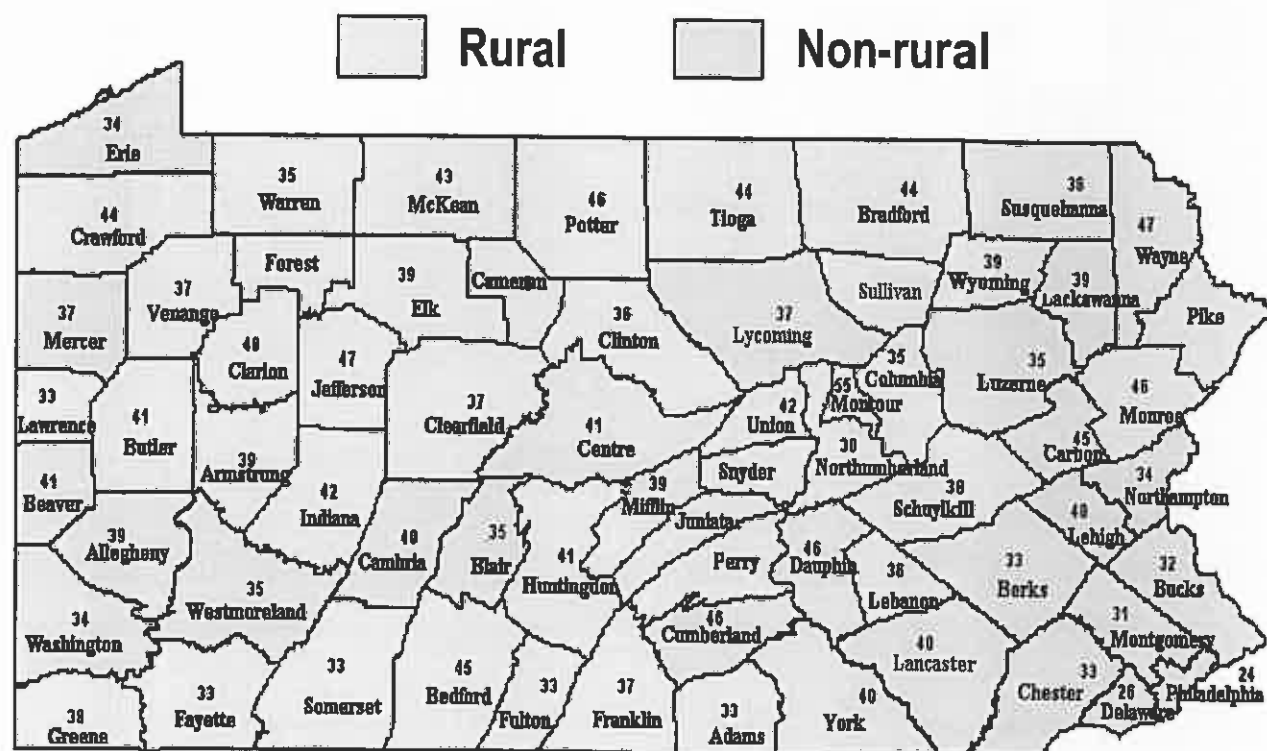


Table 3 displays the number of hospital discharges by ISS range and transfer type in Rural, Non-rural, Level III Status and Trauma Center hospitals for the period 1996 through 2001. Table 4 shows the percent of each cell in Table 3 to the total hospital discharges for the applicable hospital type. Table 5 shows a cumulative percent, in reverse order, for the hospital discharge percentages shown in Table 4. As demonstrated by these tables, rural hospitals appear to have a less severe case mix than other facility types, having less than 3% of cases with an ISS score greater than 15. If a normal distribution of severe injury cases across the state is assumed, it could be concluded that the EMS System is getting the most severely injured (greater than 15 ISS score) in rural counties to Trauma Center or Level III Status hospitals instead of taking them to the closest community hospital.

12

1996 through 2001 with an ISS score greater than 15 and not transferred-in or transferred out of a hospital were treated in a Trauma Center hospital.

As demonstrated by Figure 5, there is a direct correlation between age and average ISS score. In all facility types, as the age of the patient increased the average of their severity scores also increased.

**Table 3: Number of Cases for Hospital Discharges, 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Total Injury Cases
Level III Status	Unknown				2	2
Level III Status	0	5		11	191	207
Level III Status	01 to 08	11		18	1,244	1,273
Level III Status	09 to 12	4		9	161	174
Level III Status	13 to 15			1	26	27
Level III Status	16 to 24	1		11	71	83
Level III Status	25 to 40			6	28	34
Level III Status	41 to 49			1		1
Level III Status	50 to 74					
Level III Status	75					
Total		21	-	57	1,723	1,801
Non-rural	Unknown	16	1	5	30	52
Non-rural	0	74	4	106	2,405	2,589
Non-rural	01 to 08	424	10	127	9,016	9,577
Non-rural	09 to 12	67	6	23	862	958
Non-rural	13 to 15	10		3	61	74
Non-rural	16 to 24	76	7	50	314	447
Non-rural	25 to 40	24	5	4	105	138
Non-rural	41 to 49	1				1
Non-rural	50 to 74	1				1
Non-rural	75	1			2	3
Total		694	33	318	12,795	13,840
Rural	Unknown				7	7
Rural	0	1		24	612	637
Rural	01 to 08	6		54	2,607	2,667
Rural	09 to 12	2		15	268	285
Rural	13 to 15	1		5	29	35
Rural	16 to 24	1		9	50	60
Rural	25 to 40			4	40	44
Rural	41 to 49					-
Rural	50 to 74					-
Rural	75				1	1
Total		11	-	111	3,614	3,736

**Table 3 (continued): Number of Cases for Hospital Discharges, 1996 through 2001  
[PHC4 database]**

Facility Type	ISS Range	Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Total Injury Cases
Trauma Center	Unknown	9			56	65
Trauma Center	0	1,192	73	165	11,403	12,833
Trauma Center	01 to 08	1,363	25	102	18,997	20,487
Trauma Center	09 to 12	224	5	40	2,790	3,059
Trauma Center	13 to 15	18	1	18	454	491
Trauma Center	16 to 24	222	7	36	2,402	2,667
Trauma Center	25 to 40	69	3	35	652	759
Trauma Center	41 to 49			1	37	38
Trauma Center	50 to 74	1			23	24
Trauma Center	75	3			18	21
Total		3,101	114	397	36,832	40,444

**Table 4: Percent of Total Severity Scores by Facility Type and ISS Range for Hospital Discharges, 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Total Injury Cases
Level III Status	Unknown	0.00%	0.00%	0.00%	0.11%	0.11%
Level III Status	0	0.29%	0.00%	0.61%	10.61%	11.51%
Level III Status	01 to 08	0.64%	0.00%	1.00%	69.02%	70.66%
Level III Status	09 to 12	0.23%	0.00%	0.50%	8.94%	9.67%
Level III Status	13 to 15	0.00%	0.00%	0.06%	1.44%	1.50%
Level III Status	16 to 24	0.06%	0.00%	0.61%	3.94%	4.61%
Level III Status	25 to 40	0.00%	0.00%	0.33%	1.55%	1.89%
Level III Status	41 to 49	0.00%	0.00%	0.06%	0.00%	0.06%
Level III Status	50 to 74	0.00%	0.00%	0.00%	0.00%	0.00%
Level III Status	75	0.00%	0.00%	0.00%	0.00%	0.00%
Total		1.22%	0.00%	3.16%	95.62%	100.00%

**Table 4 (continued): Percent of Total Severity Scores by Facility Type and ISS Range for Hospital Discharges, 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Total Injury Cases
Non-rural	Unknown	0.12%	0.01%	0.04%	0.22%	0.38%
Non-rural	0	0.53%	0.03%	0.77%	17.38%	18.71%
Non-rural	01 to 08	3.06%	0.07%	0.92%	65.14%	69.20%
Non-rural	09 to 12	0.48%	0.04%	0.17%	6.23%	6.92%
Non-rural	13 to 15	0.07%	0.00%	0.02%	0.44%	0.53%
Non-rural	16 to 24	0.55%	0.05%	0.36%	2.27%	3.23%
Non-rural	25 to 40	0.17%	0.04%	0.03%	0.76%	1.00%
Non-rural	41 to 49	0.01%	0.00%	0.00%	0.00%	0.01%
Non-rural	50 to 74	0.01%	0.00%	0.00%	0.00%	0.01%
Non-rural	75	0.01%	0.00%	0.00%	0.01%	0.02%
Total		5.01%	0.24%	2.30%	92.45%	100.00%
Rural	Unknown	0.00%	0.00%	0.00%	0.19%	0.19%
Rural	0	0.03%	0.00%	0.64%	16.38%	17.05%
Rural	01 to 08	0.16%	0.00%	1.45%	69.78%	71.39%
Rural	09 to 12	0.05%	0.00%	0.40%	7.17%	7.63%
Rural	13 to 15	0.03%	0.00%	0.13%	0.78%	0.94%
Rural	16 to 24	0.03%	0.00%	0.24%	1.34%	1.61%
Rural	25 to 40	0.00%	0.00%	0.11%	1.07%	1.18%
Rural	41 to 49	0.00%	0.00%	0.00%	0.00%	0.00%
Rural	50 to 74	0.00%	0.00%	0.00%	0.00%	0.00%
Rural	75	0.00%	0.00%	0.00%	0.03%	0.03%
Total		0.29%	0.00%	2.97%	96.74%	100.00%
Trauma Center	Unknown	0.02%	0.00%	0.00%	0.14%	0.16%
Trauma Center	0	2.95%	0.18%	0.41%	28.19%	31.73%
Trauma Center	01 to 08	3.37%	0.06%	0.25%	46.97%	50.66%
Trauma Center	09 to 12	0.55%	0.01%	0.10%	6.90%	7.56%
Trauma Center	13 to 15	0.04%	0.00%	0.04%	1.12%	1.21%
Trauma Center	16 to 24	0.55%	0.02%	0.09%	5.94%	6.59%
Trauma Center	25 to 40	0.17%	0.01%	0.09%	1.61%	1.88%
Trauma Center	41 to 49	0.00%	0.00%	0.00%	0.09%	0.09%
Trauma Center	50 to 74	0.00%	0.00%	0.00%	0.06%	0.06%
Trauma Center	75	0.01%	0.00%	0.00%	0.04%	0.05%
Total		7.67%	0.28%	0.98%	91.07%	100.00%

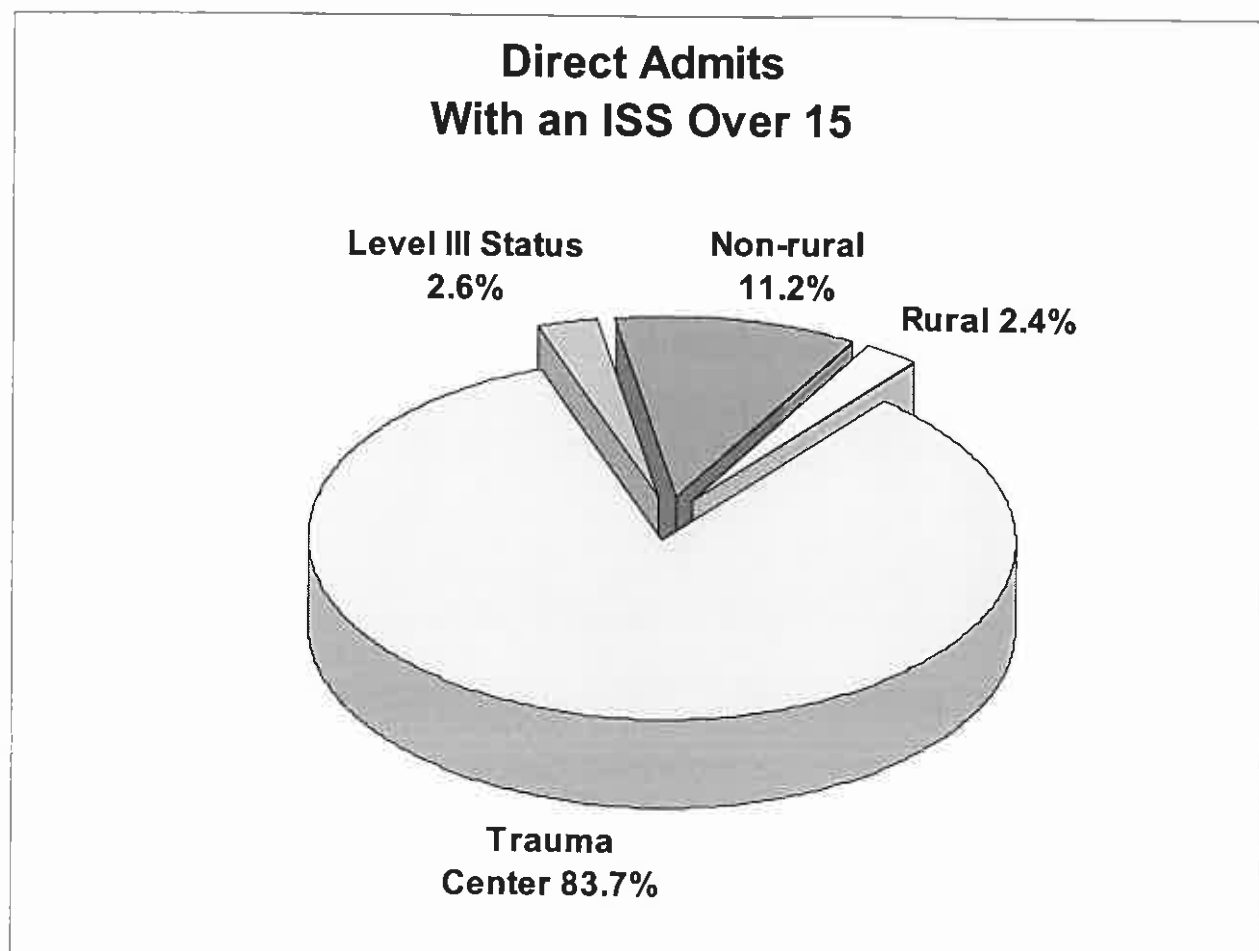
**Table 5: Cumulative Percent of Total Severity Scores by Facility Type and ISS Range for Hospital Discharges, 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Cumulative % In reverse order				Total Injury Cases
		Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	
Level III Status	Unknown	1.22%	0.00%	3.16%	95.62%	100.00%
Level III Status	0	1.22%	0.00%	3.16%	95.51%	99.89%
Level III Status	01 to 08	0.93%	0.00%	2.55%	84.90%	88.38%
Level III Status	09 to 12	0.29%	0.00%	1.55%	15.88%	17.72%
Level III Status	13 to 15	0.06%	0.00%	1.05%	6.94%	8.05%
Level III Status	16 to 24	0.05%	0.00%	1.00%	5.50%	6.55%
Level III Status	25 to 40	0.00%	0.00%	0.39%	1.55%	1.94%
Level III Status	41 to 49	0.00%	0.00%	0.06%	0.00%	0.06%
Level III Status	50 to 74	0.00%	0.00%	0.00%	0.00%	0.00%
Level III Status	75	0.00%	0.00%	0.00%	0.00%	0.00%
Non-rural	Unknown	5.01%	0.24%	2.30%	92.45%	100.00%
Non-rural	0	4.90%	0.23%	2.26%	92.23%	99.62%
Non-rural	01 to 08	4.36%	0.20%	1.50%	74.86%	80.92%
Non-rural	09 to 12	1.30%	0.13%	0.58%	9.71%	11.72%
Non-rural	13 to 15	0.82%	0.09%	0.41%	3.48%	4.80%
Non-rural	16 to 24	0.74%	0.09%	0.39%	3.04%	4.26%
Non-rural	25 to 40	0.20%	0.04%	0.03%	0.77%	1.04%
Non-rural	41 to 49	0.02%	0.00%	0.00%	0.01%	0.04%
Non-rural	50 to 74	0.01%	0.00%	0.00%	0.01%	0.03%
Non-rural	75	0.01%	0.00%	0.00%	0.01%	0.02%
Rural	Unknown	0.29%	0.00%	2.97%	96.74%	100.00%
Rural	0	0.29%	0.00%	2.97%	96.55%	99.81%
Rural	01 to 08	0.27%	0.00%	2.33%	80.17%	82.76%
Rural	09 to 12	0.11%	0.00%	0.88%	10.39%	11.38%
Rural	13 to 15	0.05%	0.00%	0.48%	3.21%	3.75%
Rural	16 to 24	0.03%	0.00%	0.35%	2.44%	2.81%
Rural	25 to 40	0.00%	0.00%	0.11%	1.10%	1.20%
Rural	41 to 49	0.00%	0.00%	0.00%	0.03%	0.03%
Rural	50 to 74	0.00%	0.00%	0.00%	0.03%	0.03%
Rural	75	0.00%	0.00%	0.00%	0.03%	0.03%
Trauma Center	Unknown	7.67%	0.28%	0.98%	91.07%	100.00%
Trauma Center	0	7.65%	0.28%	0.98%	90.93%	99.84%
Trauma Center	01 to 08	4.70%	0.10%	0.57%	62.74%	68.11%
Trauma Center	09 to 12	1.33%	0.04%	0.32%	15.77%	17.46%
Trauma Center	13 to 15	0.77%	0.03%	0.22%	8.87%	9.89%

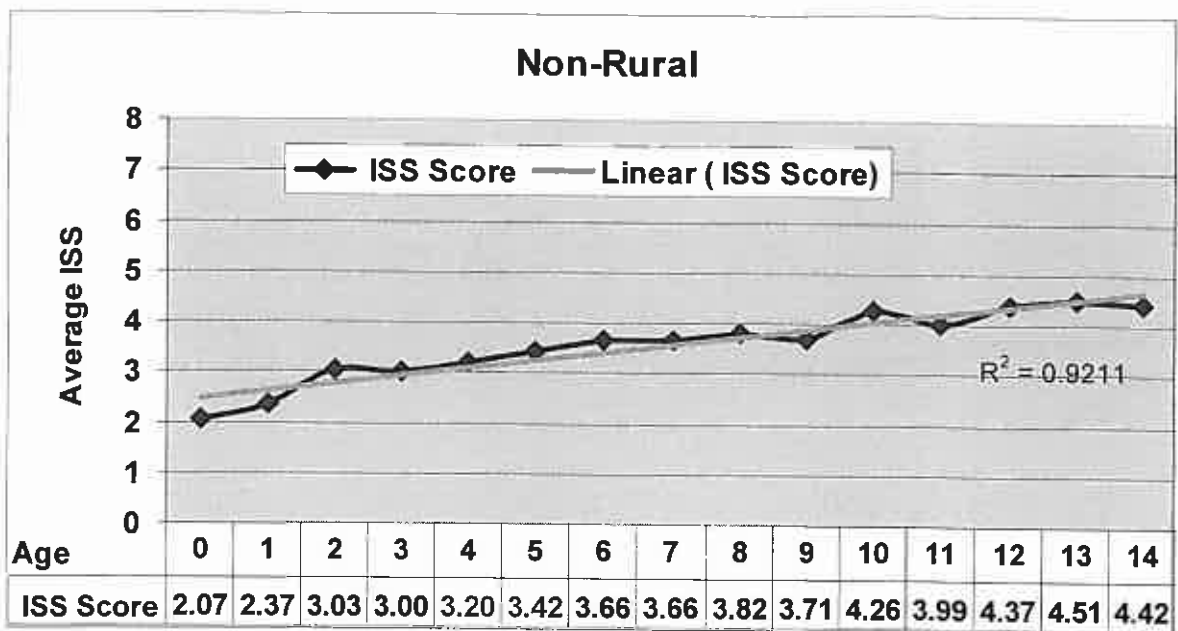
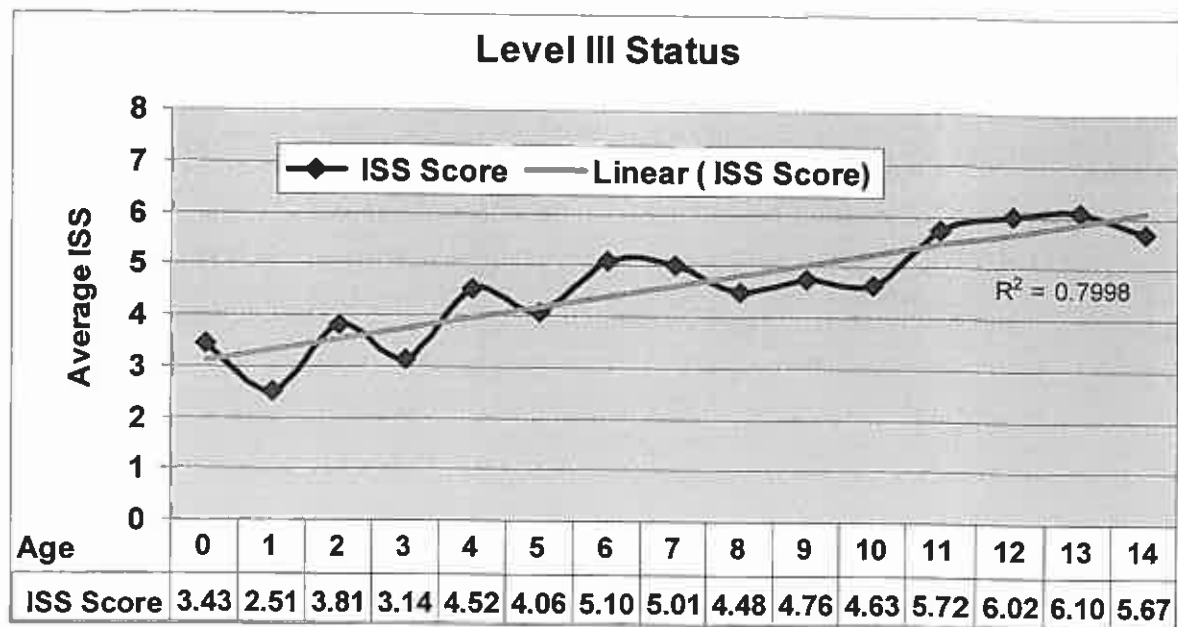
**Table 5 (continued): Cumulative Percent of Total Severity Scores by Facility Type and ISS Range for Hospital Discharges, 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Cumulative % In reverse order				Total Injury Cases
		Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	
Trauma Center	16 to 24	0.73%	0.02%	0.18%	7.74%	8.67%
Trauma Center	25 to 40	0.18%	0.01%	0.09%	1.80%	2.08%
Trauma Center	41 to 49	0.01%	0.00%	0.00%	0.19%	0.20%
Trauma Center	50 to 74	0.01%	0.00%	0.00%	0.10%	0.11%
Trauma Center	75	0.01%	0.00%	0.00%	0.04%	0.05%

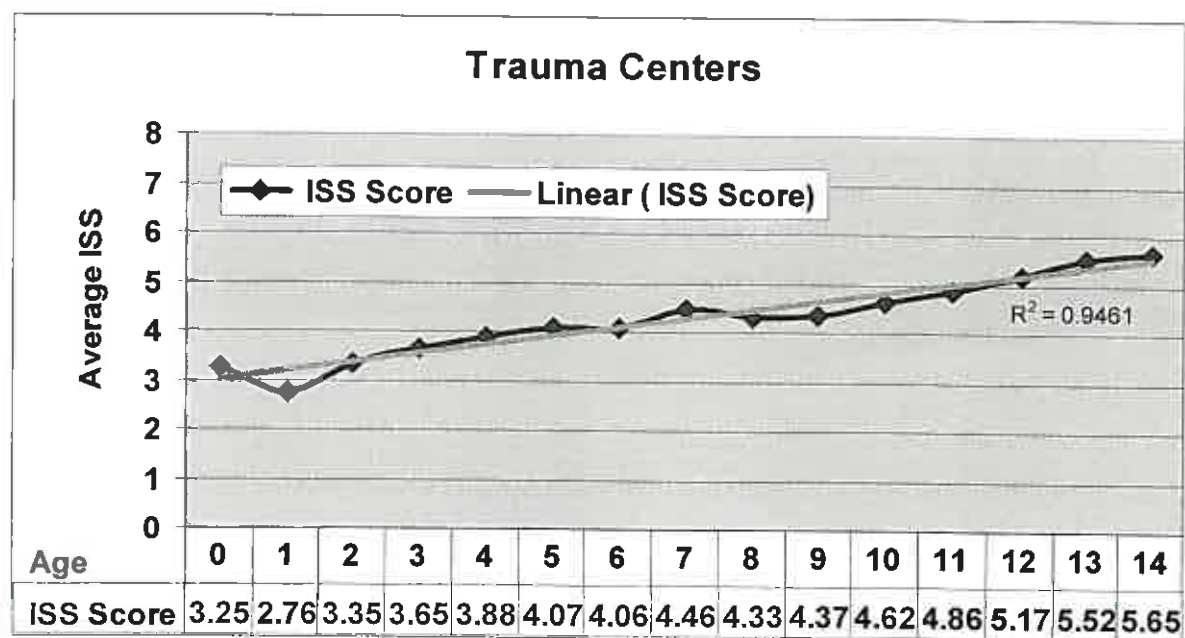
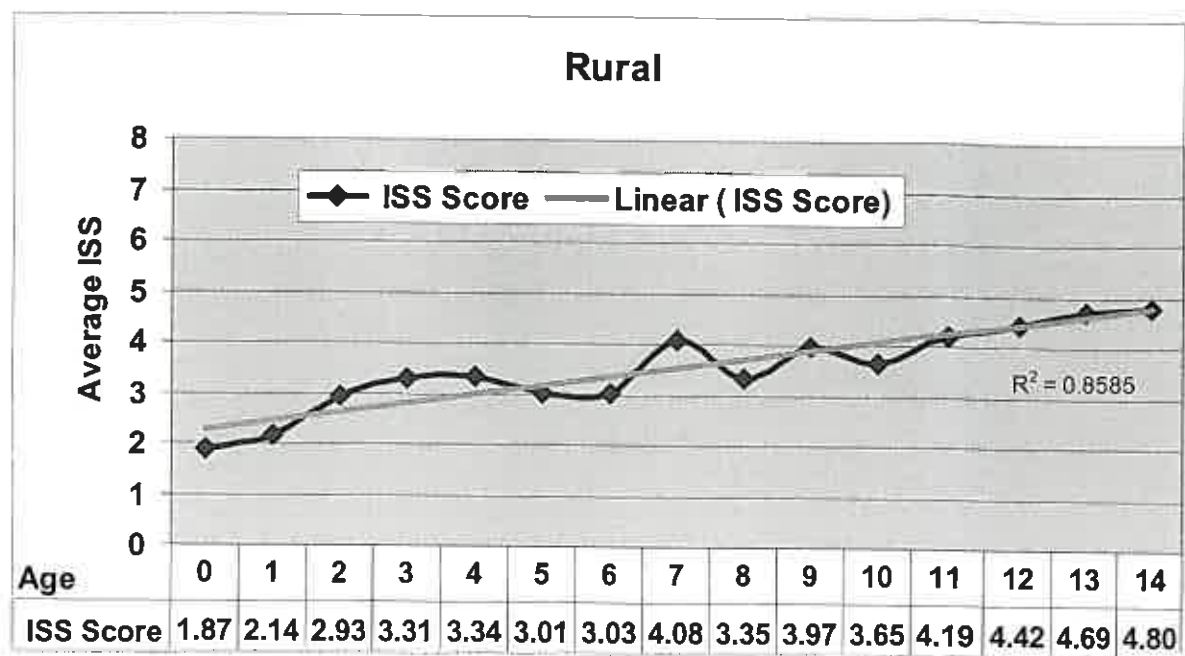
**Figure 4: Percent of Cases by Facility Type for Hospital Discharges 1996 through 2001 with an ISS Score of Over 15 [PHC4 database]**



**Figure 5: Correlation of Cases by Age and ISS Scores by Facility Type for Hospital Discharges 1996 through 2001 [PHC4 database]**



**Figure 5 (continued): Correlation of Cases by Age and ISS Scores by Facility Type for Hospital Discharges 1996 through 2001 [PHC4 database]**



## Frequency and Severity of Injury by Year

Table 6 displays the number of hospital discharges by year and transfer type within Rural, Non-rural, Level III Status and Trauma Center hospitals for the period 1996 through 2001. Cases transferred-in to non-rural hospitals with an ISS score greater than fifteen appear to be primarily to facilities with rehab in their name (e.g., Healthsouth Harmarville Rehabilitation, Magee Rehabilitation Hospital). From the name, one could conclude that the primary reason for the transfer was for rehab services rather than initial treatment of the trauma. Table 7 shows the average ISS scores for each cell in Table 6. As shown in Figure 6, the Level III Status and Rural admission trends are downward for cases that are direct admits with an ISS score of greater than 15. In contrast, the trend for direct admits to Non-rural and Trauma Centers is going up for cases with an ISS score of greater than 15.

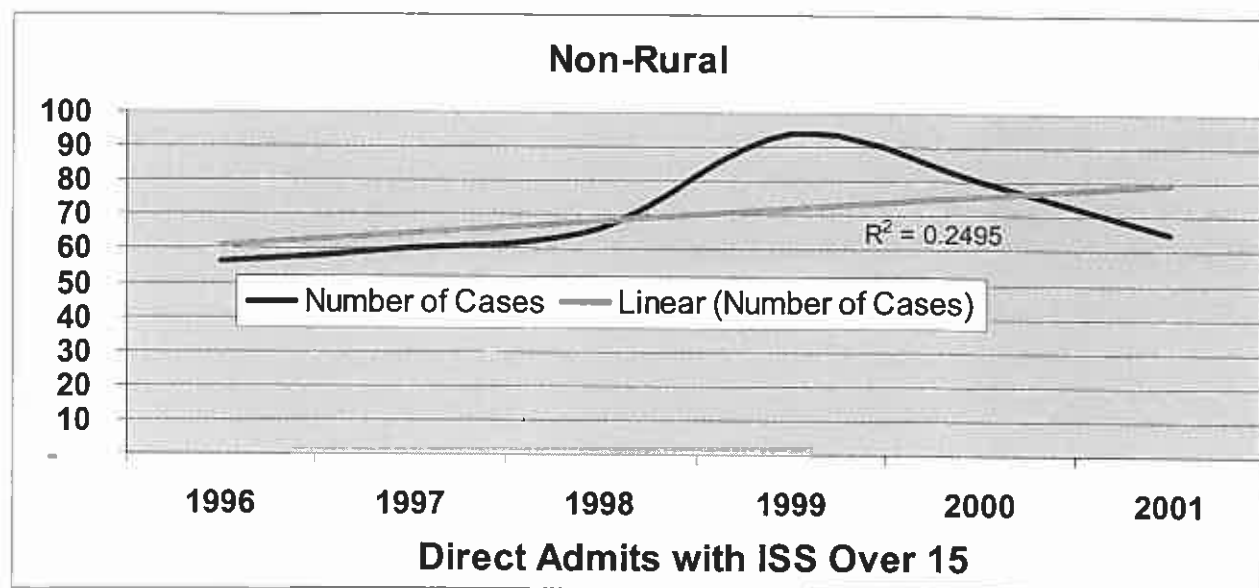
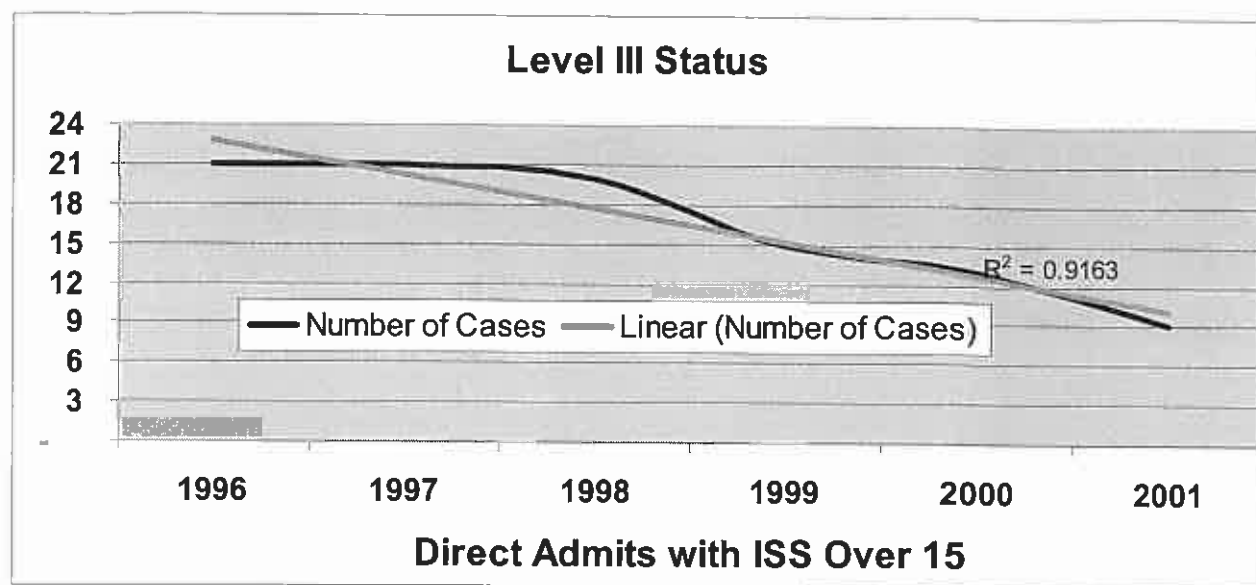
**Table 6: Year-by-Year Cases by Facility Type and Transfer Type for Hospital Discharges 1996 through 2001 [PHC4 database]**

Facility Type	Year	Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Total Injury Cases
Level III Status	1996	4		8	343	355
Level III Status	1997	3		13	269	285
Level III Status	1998	1		7	284	292
Level III Status	1999	3		12	293	308
Level III Status	2000	6		4	274	284
Level III Status	2001	4		13	260	277
Non-Rural	1996	109	4	40	2,425	2,578
Non-Rural	1997	106	8	46	2,135	2,295
Non-Rural	1998	131	8	57	2,158	2,354
Non-Rural	1999	130	7	55	2,101	2,293
Non-Rural	2000	98	6	69	2,054	2,227
Non-Rural	2001	120		51	1,922	2,093
Rural	1996	2		30	760	792
Rural	1997	2		23	656	681
Rural	1998	1		12	573	586
Rural	1999			14	526	540
Rural	2000	3		19	553	575
Rural	2001	3		13	546	562
Trauma Center	1996	360	24	57	6,436	6,877
Trauma Center	1997	601	21	52	5,790	6,464
Trauma Center	1998	537	14	66	5,775	6,392
Trauma Center	1999	515	12	67	5,691	6,285
Trauma Center	2000	548	22	70	6,157	6,797
Trauma Center	2001	540	21	85	6,983	7,629

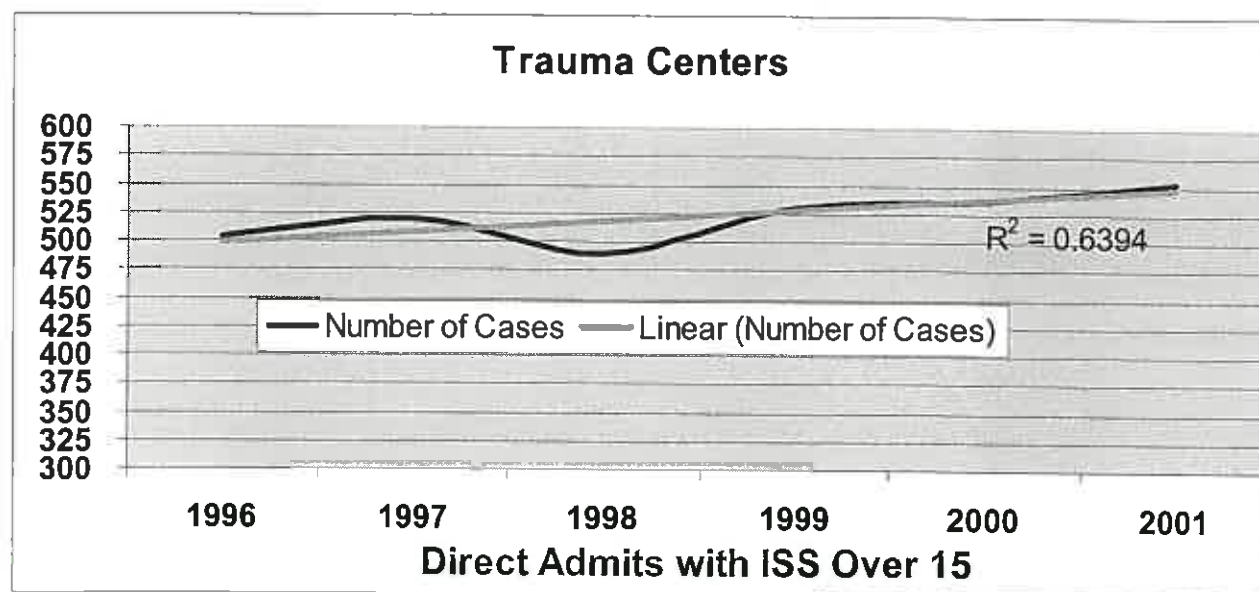
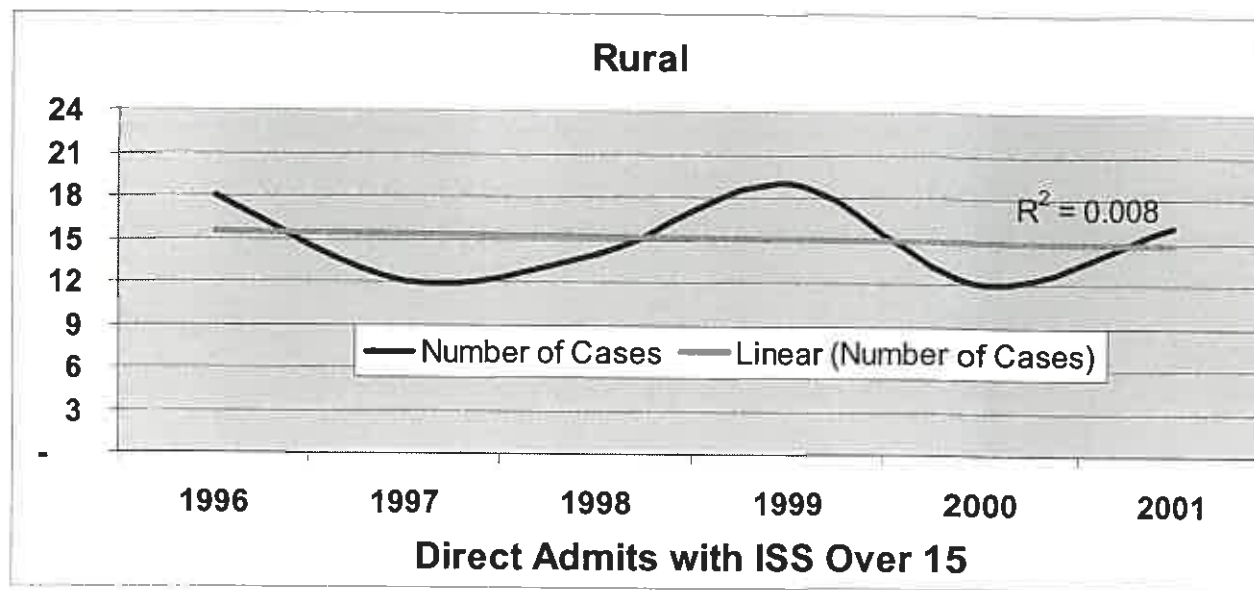
**Table 7: Average Severity Scores for the Cases in Table 6 for Hospital Discharges  
1996 through 2001 [PHC4 database]**

Facility Type	Year	Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Total Injury Cases
Level III Status	1996	2.75		11.63	4.53	4.67
Level III Status	1997	4.00		10.38	4.98	5.22
Level III Status	1998	1.00		17.00	4.99	5.26
Level III Status	1999	8.00		9.33	4.74	4.95
Level III Status	2000	4.00		11.75	4.32	4.42
Level III Status	2001	2.25		5.46	4.12	4.16
Non-Rural	1996	7.40	6.50	4.50	3.40	3.58
Non-Rural	1997	5.18	9.57	5.84	3.30	3.46
Non-Rural	1998	4.26	12.00	5.85	3.26	3.38
Non-Rural	1999	5.06	14.86	4.83	3.75	3.87
Non-Rural	2000	6.44	9.50	5.81	3.53	3.76
Non-Rural	2001	5.47		3.80	3.32	3.47
Rural	1996	2.00		7.90	3.54	3.70
Rural	1997	1.00		5.65	3.59	3.65
Rural	1998	9.00		6.00	3.50	3.56
Rural	1999			2.71	3.83	3.80
Rural	2000	5.67		4.26	3.50	3.54
Rural	2001	10.33		5.08	3.42	3.49
Trauma Center	1996	4.73	6.29	7.63	4.15	4.22
Trauma Center	1997	4.22	4.95	5.19	4.37	4.37
Trauma Center	1998	3.51	0.71	6.80	4.32	4.27
Trauma Center	1999	4.32	2.08	6.57	4.44	4.45
Trauma Center	2000	3.16	0.27	6.79	4.16	4.09
Trauma Center	2001	2.80	1.43	6.61	3.82	3.78

**Figure 6: Trend of Cases with an ISS Score Greater Than 15 by Facility Type for Hospital Discharges 1996 through 2001 Excluding Transfer-In and Transfer-Out for Inpatient Care [PHC4 database]**



**Figure 6 (continued): Trend of Cases with an ISS Score Greater Than 15 by Facility Type for Hospital Discharges 1996 through 2001 Excluding Transfer-In and Transfer-Out for Inpatient Care [PHC4 database]**



## Length of Stay in Hospital

Table 8 shows the average length of stay in a hospital by facility type, ISS range and transfer status. The number of cases for each cell is shown in Table 3. Figure 7 shows the relationship between ISS severity score and average length of stay for all injury cases by facility type. Figure 8 shows the average length of stay for patients with an ISS score greater than 15 who were transferred-out to another acute care hospital

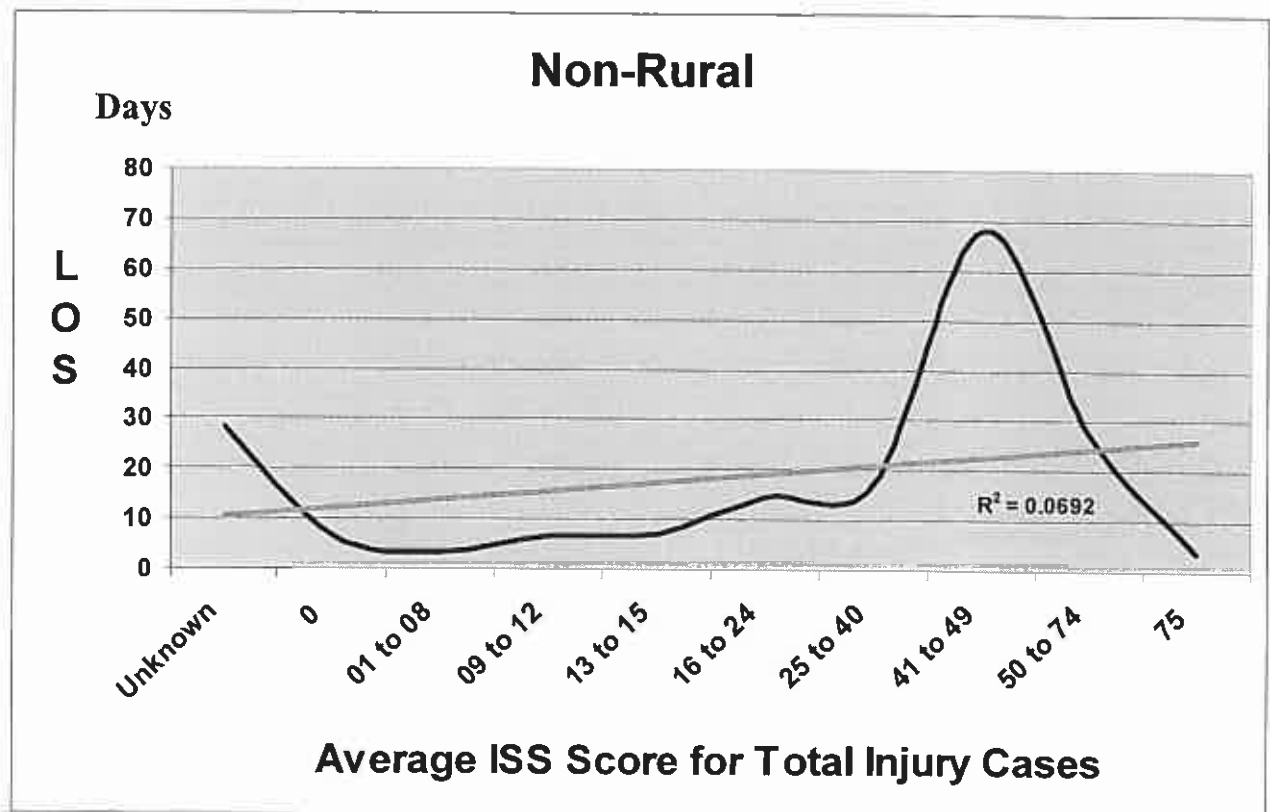
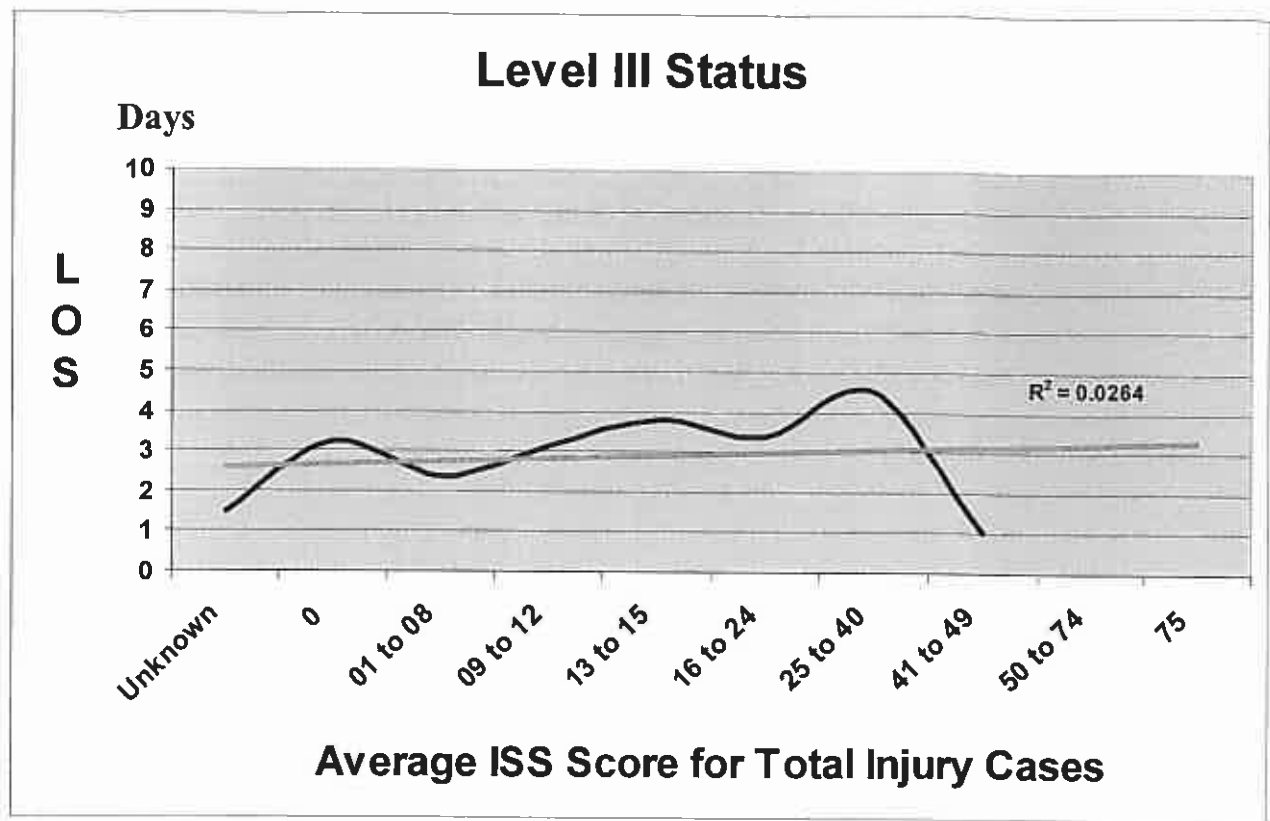
**Table 8: Hospital Length of Stay by Type Facility and ISS Score Range, 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Average Length of Stay				Total Injury Cases
		Transferred In	Transferred In, Then Transferred Out to Other Inpatient Acute Care	Transferred Out to Other Inpatient Acute Care	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	
Level III Status	Unknown				1.50	1.50
Level III Status	0	8.80		2.27	3.15	3.24
Level III Status	01 to 08	6.55		4.39	2.29	2.36
Level III Status	09 to 12	7.25		2.33	3.11	3.17
Level III Status	13 to 15			1.00	3.88	3.78
Level III Status	16 to 24	1.00		4.18	3.27	3.36
Level III Status	25 to 40			1.50	5.18	4.53
Level III Status	41 to 49			1.00		1.00
Level III Status	50 to 74					
Level III Status	75					
Level III Status	All	6.95		3.19	2.57	2.64
Non-rural	Unknown	46.50	7.00	27.40	19.10	28.10
Non-rural	0	13.68	20.75	15.42	6.27	6.88
Non-rural	01 to 08	6.92	17.00	5.40	3.29	3.49
Non-rural	09 to 12	17.87	20.17	11.22	5.62	6.70
Non-rural	13 to 15	17.10		1.33	5.61	6.99
Non-rural	16 to 24	24.58	14.71	18.24	11.57	14.58
Non-rural	25 to 40	40.79	8.60	42.75	10.99	17.01
Non-rural	41 to 49	68.00				68.00
Non-rural	50 to 74	27.00				27.00
Non-rural	75	1.00			5.00	3.67
Non-rural	All	12.97	15.97	11.96	4.32	4.96

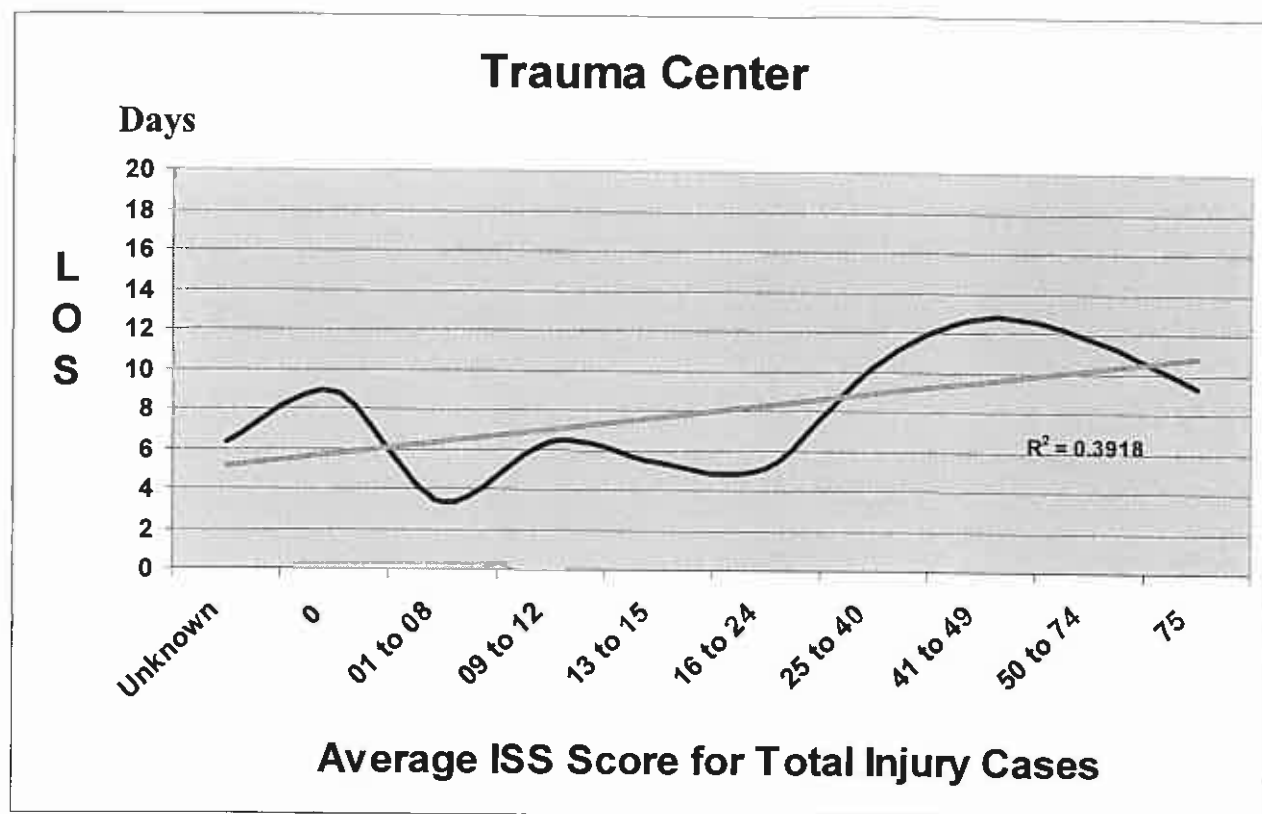
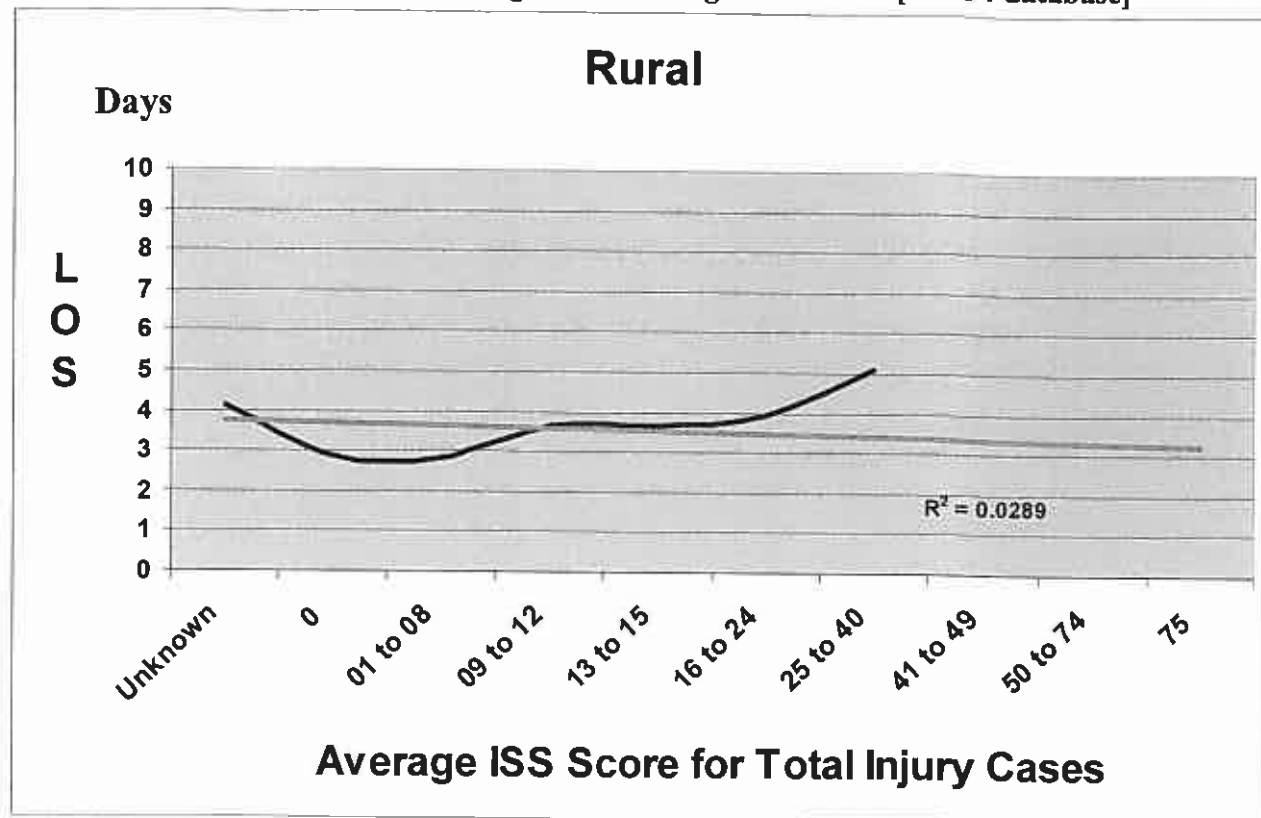
**Table 8 (continued): Hospital Length of Stay by Type Facility and ISS Score Range, 1996 through 2001 [PHC4 database]**

Rural	Unknown				4.14	4.14
Rural	0	3.00		2.63	2.87	2.86
Rural	01 to 08	7.83		1.35	2.85	2.84
Rural	09 to 12	3.00		1.93	3.74	3.64
Rural	13 to 15	9.00		2.80	3.62	3.66
Rural	16 to 24	20.00		5.56	3.34	3.95
Rural	25 to 40			1.25	5.48	5.09
Rural	41 to 49					
Rural	50 to 74					
Rural	75				2.00	2.00
Rural	All	7.73		2.11	2.97	2.96
Trauma Center	Unknown	22.67			3.66	6.29
Trauma Center	0	21.99	21.37	18.21	7.26	8.85
Trauma Center	01 to 08	6.55	10.20	4.45	3.15	3.39
Trauma Center	09 to 12	37.45	31.00	6.03	3.85	6.38
Trauma Center	13 to 15	7.39	68.00	5.94	5.19	5.43
Trauma Center	16 to 24	6.37	18.43	5.86	4.95	5.12
Trauma Center	25 to 40	14.14	10.00	7.37	9.94	10.21
Trauma Center	41 to 49			9.00	12.86	12.76
Trauma Center	50 to 74	11.00			11.74	11.71
Trauma Center	75	5.67			9.89	9.29
Trauma Center	All	14.92	19.27	10.79	4.76	5.64

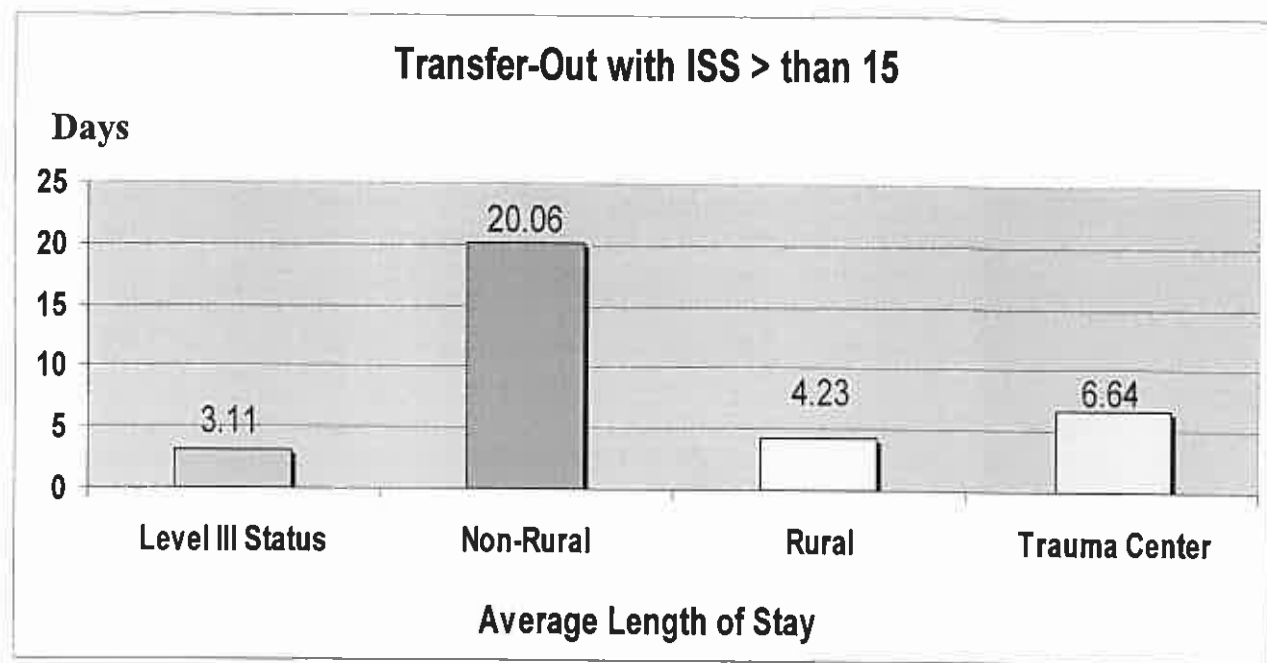
**Figure 7: Average Length of Stay in Days, All Injury Cases Regardless of Transfer Status, for Hospital Discharges 1996 through 2001 [PHC4 database]**



**Figure 7 (continued): Average Length of Stay in Days, All Injury Cases Regardless of Transfer Status, for Hospital Discharges 1996 through 2001 [PHC4 database]**



**Figure 8: Transferring Hospitals' Average Length of Stay in Days for Patients with an ISS Score Greater Than 15 Who Were Transferred-Out to Another Acute Care Hospital, Discharges 1996 through 2001 [PHC4 database]**



## Mortality of Patients

As Table 9 shows, the total mortality rate for rural hospitals is lower than the mortality rate of other facility types for both transferred-in and for those not transferred. The mortality rate for Trauma Center hospitals is the highest among the facility types for both those transferred-in and for those not transferred. This would be an indication that the Trauma Center hospitals are getting the most severely injured patients either as a direct admission from injury or through transfer from another hospital. Table 10 shows the total mortality rate of patients by year.

**Table 9: Mortality of Patients, Hospital Discharges 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Death In Hospital after Transferred In	Mortality Rate for Transferred In	Death in Hospital for Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Mortality Rate for Direct Admits and Not Transferred Out to Other Inpatient Acute Care
Level III Status	Unknown				0.00%
Level III Status	0		0.0%	1	0.52%
Level III Status	01 to 08		0.0%		0.00%
Level III Status	09 to 12		0.0%		0.00%
Level III Status	13 to 15		0.0%		0.00%
Level III Status	16 to 24				0.00%
Level III Status	25 to 40			6	21.43%
Level III Status	41 to 49				
Level III Status	50 to 74				
Level III Status	75				
Total			0.0%	7	0.41%
Non-rural	Unknown		0.0%		0.00%
Non-rural	0	1	1.4%	13	0.54%
Non-rural	01 to 08		0.0%	3	0.03%
Non-rural	09 to 12		0.0%	1	0.12%
Non-rural	13 to 15		0.0%		0.00%
Non-rural	16 to 24		0.0%		0.00%
Non-rural	25 to 40	1	4.2%	6	5.71%
Non-rural	41 to 49		0.0%		
Non-rural	50 to 74		0.0%		
Non-rural	75	1	100.0%		0.00%
Total		3	0.4%	23	0.18%
Rural	Unknown				0.00%
Rural	0		0.0%		0.00%
Rural	01 to 08		0.0%		0.00%
Rural	09 to 12		0.0%	1	0.37%
Rural	13 to 15		0.0%		0.00%

**Table 9 (continued): Mortality of Patients, Hospital Discharges 1996 through 2001  
[PHC4 database]**

Facility Type	ISS Range	Death In Hospital after Transferred In	Mortality Rate for Transferred In	Death in Hospital for Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Mortality Rate for Direct Admits and Not Transferred Out to Other Inpatient Acute Care
Rural	16 to 24		0.0%		0.00%
Rural	25 to 40				0.00%
Rural	41 to 49				
Rural	50 to 74				
Rural	75				0.00%
Total			0.0%	1	0.03%
Trauma Center	Unknown		0.0%	2	3.57%
Trauma Center	0	81	6.8%	227	1.99%
Trauma Center	01 to 08	8	0.6%	32	0.17%
Trauma Center	09 to 12	8	3.6%	20	0.72%
Trauma Center	13 to 15	1	5.6%	3	0.66%
Trauma Center	16 to 24	3	1.4%	43	1.79%
Trauma Center	25 to 40	17	24.6%	146	22.39%
Trauma Center	41 to 49			11	29.73%
Trauma Center	50 to 74		0.0%	11	47.83%
Trauma Center	75	2	66.7%	9	50.00%
Total		120	3.9%	504	1.37%

**Table 10: Mortality of Patients, Hospital Discharges 1996 through 2001 [PHC4 database]**

Facility Type	ISS Range	Death In Hospital after Transferred In	Mortality Rate for Transferred In	Death in Hospital for Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Mortality Rate for Direct Admits and Not Transferred Out to Other Inpatient Acute Care
Level III Status	1996		0.00%	2	0.58%
Level III Status	1997		0.00%	1	0.37%
Level III Status	1998		0.00%	2	0.70%
Level III Status	1999		0.00%	1	0.34%
Level III Status	2000		0.00%	0	0.00%
Level III Status	2001		0.00%	1	0.38%

**Table 10 (continued): Mortality of Patients, Hospital Discharges 1996 through 2001  
[PHC4 database]**

Facility Type	ISS Range	Death In Hospital after Transferred In	Mortality Rate for Transferred In	Death in Hospital for Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Mortality Rate for Direct Admits and Not Transferred Out to Other Inpatient Acute Care
Non-Rural	1996	1	0.04%	5	0.21%
Non-Rural	1997	1	0.05%	4	0.19%
Non-Rural	1998		0.00%	3	0.14%
Non-Rural	1999		0.00%	2	0.10%
Non-Rural	2000		0.00%	3	0.15%
Non-Rural	2001	1	0.05%	6	0.31%
Rural	1996		0.00%	0	0.00%
Rural	1997		0.00%	0	0.00%
Rural	1998		0.00%	1	0.17%
Rural	1999		0.00%	0	0.00%
Rural	2000		0.00%	0	0.00%
Rural	2001		0.00%	0	0.00%
Trauma Center	1996	15	0.23%	95	1.48%
Trauma Center	1997	19	0.33%	89	1.54%
Trauma Center	1998	19	0.33%	75	1.30%
Trauma Center	1999	17	0.30%	63	1.11%
Trauma Center	2000	21	0.34%	78	1.27%
Trauma Center	2001	29	0.42%	104	1.49%

### Unexpected Survivors

The PHC4 database contains a MediQual Atlas Admission Severity score. This is an indicator of the probability of in-hospital mortality for the patient at admission. It is calculated from clinical variables collected at the hospital.

The analysis in Table 11 below selected those patients that had a value which indicated clinical instability maximal, probability of death 0.5 to 1. Rural hospitals had only 3 cases which indicated clinical instability maximal, probability of death 0.5 to 1. This analysis also provides evidence that the most severely injured patients are being treated in a Trauma Center

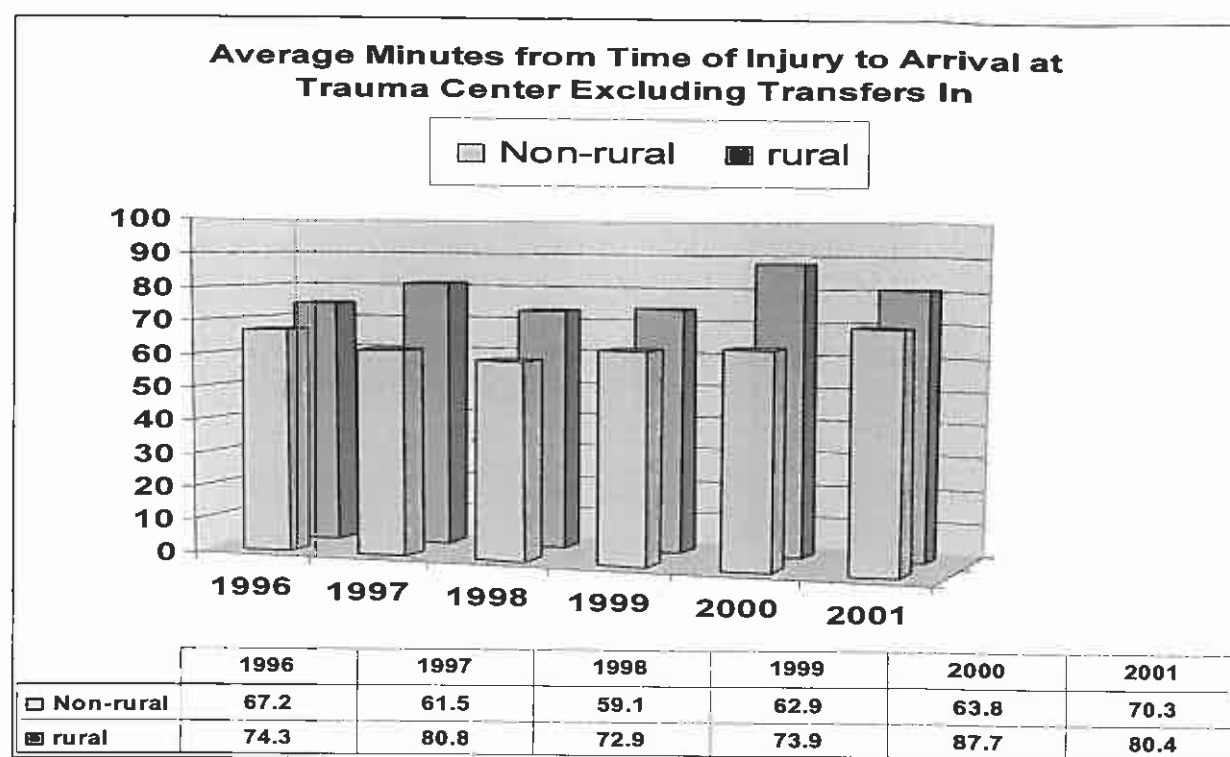
**Table 11: Unexpected Survivors for Hospital Discharges for The Period 1996 through 2001  
[PHC4 database]**

HC4 Records with MediQual Atlas Admission Severity of 4 (Maximal Probability of Death 0.5 to 1.0)							
Facility Type	Age Range	Cases Transferred In	Survived In Hospital after Transferred In	Survival Rate for Transferred In	Direct Admits and Not Transferred Out to Other Inpatient Acute Care	Survival in Hospital for Direct Admits and Those Not Transferred Out to Other Inpatient Acute Care	Survival Rate for Direct Admits and Those Not Transferred Out to Other Inpatient Acute Care
Level III Status	0						
Level III Status	01 to 05				1	1	100.0%
Level III Status	06 to 10				1	1	100.0%
Level III Status	11 to 14						
	Total				2	2	100.0%
Non-Rural	0				4	3	75.0%
Non-Rural	01 to 05				2	2	100.0%
Non-Rural	06 to 10				4	4	100.0%
Non-Rural	11 to 14				5	4	80.0%
	Total				15	13	86.7%
Rural	0						
Rural	01 to 05						
Rural	06 to 10				2	2	100.0%
Rural	11 to 14				1	1	100.0%
	Total				3	3	100.0%
Trauma Center	0	13	8	61.5%	43	23	53.5%
Trauma Center	01 to 05	4	0	0.0%	60	28	46.7%
Trauma Center	06 to 10	5	0	0.0%	44	22	50.0%
Trauma Center	11 to 14				27	10	37.0%
	Total	22	8	36.4%	174	83	47.7%

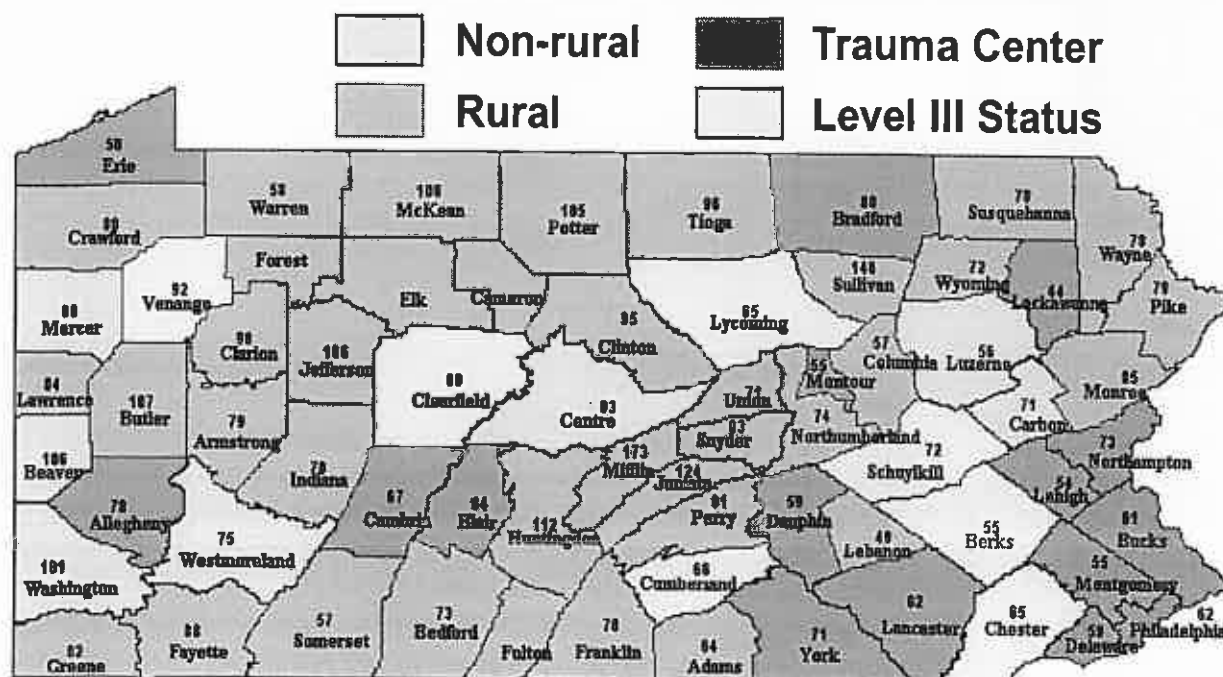
### Time of Injury to Arrival at Trauma Center Hospitals for PTOS Cases

The preceding analysis of Trauma Center hospitals included all injury cases that resulted in an inpatient hospital stay, regardless of severity. The following analysis includes only those injury cases that meet the requirements to be entered into the Pennsylvania Trauma Outcomes Study database (see Appendix D for specific criteria). For patients taken directly to a Trauma Center from the point of injury, it appears from Figure 9 that, on average, there is a 14 minute difference in time for a transport from a rural vs. a non-rural county. However, on a county-by-county basis, a much greater difference is noted in certain counties (see Figure 10). It should be noted that four counties in Figure 10 do not have transports to a trauma center. This could be true or their cases could be included in the 1,009 records without a county reported. Table 12 shows the average hours at the referring hospital prior to transferring the PTOS case to a trauma center.

**Figure 9: Average Minutes by County Type from Time of Injury to Arrival at Trauma Center for Direct Admit PTOS Patients [PTOS database]**



**Figure 10: Average Minutes by County from Time of Injury to Arrival at Trauma Center for Direct Admit PTOS Patients, 1996 through 2001 [PTOS database]**



**Table 12: Average Time from Accident to Arrival at Trauma Center for Patients Transferred from Non-trauma Centers [PTOS database]**

Facility Type	Year	Cases	Average Minutes to Initial Hospital from Time of Injury	Average Hours at Referring Hospital	Average Minutes From Referring Hospital to Trauma Center	Average Hours From Time of Injury to Arrival at Trauma Center
Level III Status	1996	7	56	1.9	59	3.8
Level III Status	1997	7	53	2.5	47	4.2
Level III Status	1998	23	56	2.1	72	4.3
Level III Status	1999	10	53	3.2	75	5.3
Level III Status	2000	20	66	2.5	51	4.4
Level III Status	2001	17	42	2.5	45	4.0
Non-rural	1996	191	52	2.6	42	4.1
Non-rural	1997	163	57	2.4	43	4.1
Non-rural	1998	155	50	2.8	57	4.6
Non-rural	1999	136	55	2.6	57	4.5
Non-rural	2000	140	49	2.4	46	4.0
Non-rural	2001	157	63	2.6	66	4.7
Rural	1996	114	44	3.1	61	4.8
Rural	1997	135	49	3.6	62	5.5
Rural	1998	110	51	2.1	60	4.0
Rural	1999	68	45	2.0	58	3.8
Rural	2000	85	58	2.8	64	4.8
Rural	2001	84	46	2.4	81	4.5

## Mortality at Trauma Centers for PTOS Cases

Table 13 shows the mortality rate of patients who were admitted directly to a Trauma Center hospital from their point of injury.

Table 14 shows the mortality rate of patients who were transferred from a Non-trauma Center to a Trauma Center hospital.

As demonstrated in Figure 11, the mortality rate of patients transferred-in to a Trauma Center is not any greater than the mortality rate of patients taken directly to the Trauma Center from the scene of the injury. Figure 11 combines all transfer facility types and years 1996 through 2001 for this comparison.

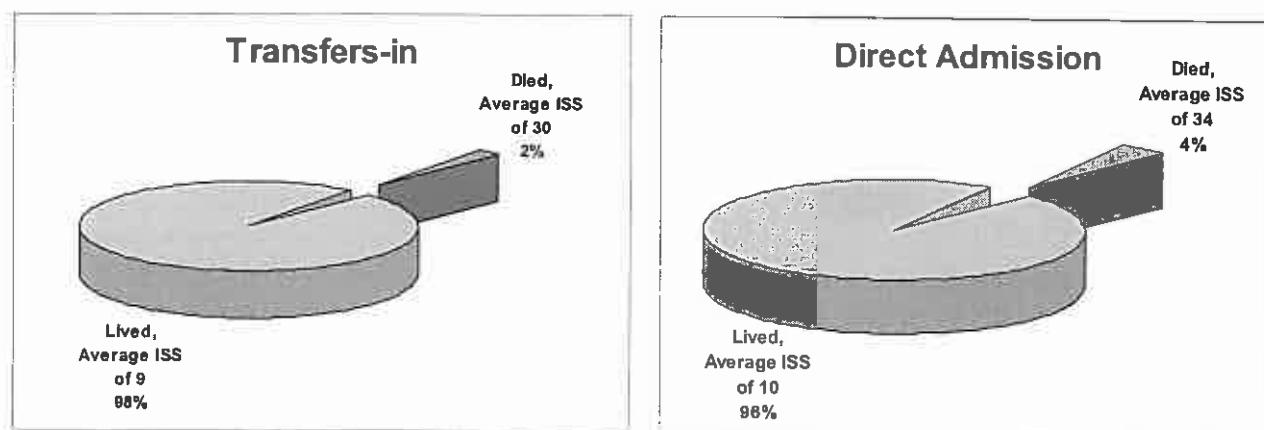
**Table 13: Mortality Rate of Patients Admitted Directly to Trauma Centers for Cases Treated 1996 through 2001 [PTOS database]**

Facility Type	Year	Discharged Alive Cases	Average ISS for Discharged Alive Cases	Patient Died Cases	Average ISS for Patient Died Cases	Mortality Rate
Trauma Center	1996	1,079	9.93	55	39.17	4.9%
Trauma Center	1997	1,033	10.74	52	35.69	4.8%
Trauma Center	1998	1,084	10.83	63	32.76	5.5%
Trauma Center	1999	1,300	10.14	65	30.84	4.8%
Trauma Center	2000	1,415	9.25	45	30.20	3.1%
Trauma Center	2001	1,528	9.57	36	34.91	2.3%

**Table 14: Mortality of Patients Transferred from Non-trauma Centers to Trauma Centers for Cases Treated 1996 through 2001 [PTOS database]**

Facility Type	Year	Discharged Alive Cases	Average ISS for Discharged Alive Cases	Patient Died Cases	Average ISS for Patient Died Cases	Mortality Rate
Level III Status	1996	33	10.56	2	27.50	5.7%
Level III Status	1997	44	10.70	3	40.00	6.4%
Level III Status	1998	50	13.06	4	33.75	7.4%
Level III Status	1999	62	12.84	1	43.00	1.6%
Level III Status	2000	57	11.64	1	27.00	1.7%
Level III Status	2001	66	9.76	0		0.0%
Non-rural	1996	501	7.87	7	30.43	1.4%
Non-rural	1997	448	8.44	8	25.50	1.8%
Non-rural	1998	486	8.00	6	9.33	1.2%
Non-rural	1999	571	8.29	5	28.80	0.9%
Non-rural	2000	635	7.88	9	26.00	1.4%
Non-rural	2001	592	7.81	12	25.73	2.0%
Rural	1996	254	9.35	5	33.00	1.9%
Rural	1997	275	9.17	10	29.90	3.5%
Rural	1998	237	9.18	3	50.50	1.3%
Rural	1999	270	8.76	7	27.17	2.5%
Rural	2000	300	9.54	4	27.75	1.3%
Rural	2001	300	8.88	4	40.25	1.3%

**Figure 11: Mortality Rate at Trauma Center Hospitals for PTOS Patients Transferred In and Direct Admissions for Cases Treated 1996 through 2001 [PTOS database]**



## **Time of Injury to Time of Death at Trauma Centers for PTOS Cases**

For direct admission patients, Table 15 shows the average minutes from the time of injury to arrival at the Trauma Center hospital and average elapsed days from the time the patient arrived at the Trauma Center Emergency Department to subsequent death.

Table 16 shows data for patients who were transferred in to Trauma Center hospitals from Non-trauma Center hospitals and subsequently died.

**Table 15: Average Time of Death from Time of Injury in Trauma Center Hospitals for Direct Admission Patients for Cases Treated 1996 through 2001 [PTOS database]**

Facility Type	Year	Cases	Average Minutes from Time of Injury to Arrival at Trauma Center	Average Hours from Date Entered Trauma Center to Death
Trauma Center	1996	41	71	19.4
Trauma Center	1997	41	49	12.8
Trauma Center	1998	46	49	72.1
Trauma Center	1999	46	47	16.4
Trauma Center	2000	28	53	68.2
Trauma Center	2001	25	41	22.9

**Table 16: Average Time of Death in Trauma Center Hospitals for Patients Transferred from Non-Trauma Centers to Trauma Centers for Cases Treated 1996 through 2001 [PTOS database]**

Facility Type	Year	Cases	Average Minutes to Initial Hospital from Time of Injury	Average Hours at Referring Hospital	Average Minutes From Referring Hospital to Trauma Center	Average Hours from Time Entered Trauma Center ED to Death
Level III Status	1996					
Level III Status	1997					
Level III Status	1998	3	42	1.1	19	8.8
Level III Status	1999					
Level III Status	2000	1	20	2.0	30	37.9
Non-rural	1996	2	54	8.2	93	276.0
Non-rural	1997	2	20	1.3	54	23.3
Non-rural	1998	1	0	1.8	31	9.8
Non-rural	1999	2	117	1.5	41	81.7
Non-rural	2000	2	83	0.4	45	32.6
Non-rural	2001	4	81	0.9	19	85.2
Rural	1996	4	36	1.5	38	7.1
Rural	1997	6	44	2.7	54	56.7
Rural	1998	2	24	0.6	31	6.8
Rural	1999	1	31	1.4	53	6.4
Rural	2000					
Rural	2001	1	40	0.8	45	3.3

## **Recommendations for Further Investigation**

This report focused on the frequency and severity of pediatric trauma care across Pennsylvania.

Future study areas that may provide useful information about pediatric trauma include:

- An in-depth analysis of EMS transport patterns for seriously injured patients in terms of transport protocols and interaction with medical command – that is, are EMS providers following established transport protocols in making decisions as to where to transport pediatric trauma patients?
- An analysis of air ambulance transports for seriously injured patients – for example, when, where and how are air ambulance services being used and what is the impact of air transport in reducing arrival times and improving outcomes for pediatric trauma patients?
- By linking the PTOS database with Pennsylvania's CODES database, a more comprehensive analysis could be completed on injury severity and outcomes of motor vehicle crashes involving children under age 14.

## **Limitation of Study**

- This study required, in part, an elapsed time calculation between the time of injury and the time of arrival at the Trauma Center emergency department. Also, we needed to identify the county in which the injury incurred. Both the time and county location is contained in the PTOS database in the pre-hospital segment. This data is to be provided to the Trauma Center hospital within 24 hours of the injury by the EMS unit that transported the patient. Approximately 43.5% of the cases in the PTOS database lacked this information. It is recommended that EMS initiate a quality improvement process to determine what process is in place in each of the 16 EMS Regions to assure that the required data is provided to the Trauma Centers.
- EMS time does not include time of injury in the PCR database, so we had to use time of dispatch to proxy the time of injury for analysis.
- The PHC4 database does not contain an ISS score. For analysis, an ISS score had to be determined through the use of the computer software "ICDMAP" that converts ICD-9CM discharge diagnoses into Abbreviated Injury Scale (AIS) scores and then computes Injury Severity Scores (ISS). Assumptions used in assigning AIS scores to ICD-9CM diagnoses are conservative; therefore, the ICDMAP-generated severity of trauma cases will, on average, be slightly lower using the conversion process as compared to AIS scoring directly from the medical record. Scores that cannot be computed due to lack of any relevant data (i.e., an ICD code outside software range) are recorded as zeros. Also, PHC4 codes for reimbursement purposes only, thus the ISS will likely be lower because some injuries will be excluded.

SENATE AMENDED  
PRIOR PRINTER'S NOS. 288, 1574, 1790

PRINTER'S NO. 2186

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 100      Session of  
2003

INTRODUCED BY SCHRODER, BUXTON, BARD, BEBKO-JONES, BELARDI,  
BELFANTI, BISHOP, BROWNE, CIVERA, CLYMER, CORNELL, COY, CRUZ,  
CURRY, DAILEY, DALEY, DIGIROLAMO, EACHUS, FICHTER, FLICK,  
FRANKEL, GEIST, GEORGE, GODSHALL, HARHAI, HARHART, HENNESSEY,  
HERSHEY, JAMES, KIRKLAND, LEDERER, LEH, MANDERINO, MANN,  
McILHINNEY, McNAUGHTON, MELIO, MICOZZIE, MUNDY, PAYNE,  
PISTELLA, READSHAW, ROBERTS, ROSS, RUBLEY, SATHER, SAYLOR,  
B. SMITH, STABACK, R. STEVENSON, STURLA, TANGRETTI,  
E. Z. TAYLOR, THOMAS, TIGUE, TRUE, WATSON, WHEATLEY,  
WOJNAROSKI, WRIGHT, YOUNGBLOOD, YUDICHAK, WEBER, JOSEPHS,  
REICHLEY AND PICKETT, FEBRUARY 12, 2003

SENATOR MOWERY, PUBLIC HEALTH AND WELFARE, IN SENATE, AS  
AMENDED, JUNE 24, 2003

AN ACT

1 Providing for the availability of and access to a comprehensive  
2 trauma care system; and imposing powers and duties upon the  
3 Department of Public Welfare.

4 The General Assembly of the Commonwealth of Pennsylvania

5 hereby enacts as follows:

6 Section 1. Short title.

7 This act shall be known and may be cited as the Pennsylvania  
8 Trauma Systems Stabilization Act.

9 Section 2. Definitions.

10 The following words and phrases when used in this act shall  
11 have the meanings given to them in this section unless the  
12 context clearly indicates otherwise:

13 "Department." The Department of Public Welfare of the

1 Commonwealth.

2 "Pennsylvania Trauma Systems Foundation." As defined under  
3 the act of July 3, 1985 (P.L.164, No.45), known as the Emergency  
4 Medical Services Act.

5 "Secretary." The Secretary of Public Welfare of the  
6 Commonwealth.

7 "Trauma care." Medical services provided to a person with  
8 severe multisystem or unisystem injury, which injury has the  
9 potential to produce mortality or major disability.

10 "Trauma center." A hospital accredited as a trauma center by  
11 the Pennsylvania Trauma System Foundation.

## 12 Section 3. Funding.

### 13 (a) Distribution.--

14 (1) Effective for fiscal year 2003-2004 and each year  
15 thereafter, upon Federal approval of an amendment to the  
16 Medicaid State plan, the department shall distribute annually  
17 from funds appropriated for this purpose disproportionate  
18 share payments to accredited trauma centers in this  
19 Commonwealth to provide financial assistance to assure  
20 readily available and coordinated trauma care of the highest  
21 quality to the citizens of this Commonwealth.

22 (2) Effective July 1, 2004, and annually thereafter, the  
23 secretary may evaluate the funds available and may make  
24 appropriate adjustments based on the number of accredited  
25 trauma centers and changes in the additional costs required  
26 to operate an accredited trauma center.

27 (b) Funding.--The department shall seek to maximize any  
28 Federal funds, including funds obtained pursuant to Title XIX of  
29 the Social Security Act (49 Stat. 620, 42 U.S.C. § 1396 et seq.)  
30 available for trauma care stabilization.

20030H0100B2186

- 1 (c) Payment calculation.--
- 2 (1) Payment to qualified hospitals shall be allocated
- 3 according to the following:
- 4 (i) Ninety percent of available funds shall be
- 5 allocated to hospitals accredited as Level I and Level II
- 6 trauma centers.
- 7 (ii) The remaining 10% to hospitals accredited as
- 8 Level III.
- 9 (2) Payment to each qualifying hospital accredited as a
- 10 Level I or Level II shall be calculated using data provided
- 11 by the Pennsylvania Trauma Systems Foundation as follows:
- 12 (i) Fifty percent of the total amount available for
- 13 Level I and Level II trauma centers shall be allocated
- 14 equally among each Level I and Level II trauma center.
- 15 (ii) Fifty percent of the total amount available for
- 16 Level I and Level II trauma centers shall be allocated on
- 17 the basis of each trauma center's percentage of medical
- 18 assistance and uninsured trauma cases and patient days
- 19 compared to the Statewide total number of medical
- 20 assistance and uninsured trauma cases and patient days
- 21 for all Level I and Level II trauma centers.
- 22 (3) Subject to the provisions of paragraph (4), payment
- 23 to each qualifying hospital accredited as a Level III shall
- 24 be calculated using data provided by the Pennsylvania Trauma
- 25 Systems Foundation as follows:
- 26 (i) Fifty percent of the total amount available for
- 27 Level III trauma centers shall be allocated equally among
- 28 each Level III trauma center.
- 29 (ii) Fifty percent of the total amount available for
- 30 Level III trauma centers shall be allocated on the basis

1 of each trauma center's percentage of medical assistance  
 2 and uninsured trauma cases and patient days compared to  
 3 the Statewide total number of medical assistance and  
 4 uninsured trauma cases and patient days for all Level III  
 5 trauma centers.

6 (4) Payment to each qualifying hospital accredited as a  
 7 Level III may not be greater than 50% of the average  
 8 Statewide annual payment to a Level II trauma center as  
 9 determined in the methodology described in paragraph (2).

10 Section 4. Reporting.

11 (a) General rule.--The department shall annually report to  
 12 the Public Health and Welfare Committee of the Senate and the  
 13 Banking and Insurance Committee of the Senate and the Health and  
 14 Human Services Committee of the House of Representatives and the  
 15 Insurance Committee of the House of Representatives on the  
 16 trauma centers funded under this act.

17 (b) Contents of report.--The report shall identify the  
 18 trauma centers receiving funds, the amount received, the number  
 19 of persons served and any other information that should be  
 20 brought to the attention of the General Assembly on the  
 21 availability of trauma care services to the citizens of this  
 22 Commonwealth.

23 Section 5. Standards for Level III trauma centers.

24 (a) General rule.--The Pennsylvania Trauma Systems  
 25 Foundation shall establish standards for and accredit Level III  
 26 trauma centers. The standards shall ~~provide that Level III~~ <—  
 27 ~~trauma centers at a minimum must meet~~ BE BASED UPON the current <—  
 28 guidelines for trauma centers as defined by the American College  
 29 of Surgeons.

30 (b) Letter of intent required.--To qualify for funds under

1 this act eligible hospitals must provide a letter of intent to  
2 the secretary and the Pennsylvania Trauma Systems Foundation to  
3 apply for accreditation within 180 days of the effective date of  
4 this act.

5 (c) Definition.--For purposes of this section and until the  
6 Pennsylvania Trauma Systems Foundation establishes Level III  
7 standards, a trauma center is defined as a hospital with  
8 comprehensive emergency services according to the Department of  
9 Health's annual licensure survey as of June 30, 2002, located in  
10 a county without an accredited Level I or Level II trauma center  
11 and not within 25 miles travel distance from a Level I or a  
12 Level II trauma center.

13 SECTION 6. REVIEW OF LEVEL III TRAUMA CENTERS. <—

14 WITHIN FIVE YEARS AFTER THE EFFECTIVE DATE OF THIS ACT, THE  
15 PENNSYLVANIA TRAUMA SYSTEMS FOUNDATION SHALL REASSESS THE IMPACT  
16 OF LEVEL III TRAUMA CENTERS IN PENNSYLVANIA WITH RESPECT TO  
17 PATIENT OUTCOMES AND THE IMPACT OF LEVEL III TRAUMA CENTERS ON  
18 THE TRAUMA SYSTEM AS A WHOLE. THE REPORT WITH RECOMMENDATIONS  
19 SHALL BE FORWARDED TO THE SECRETARY OF HEALTH, THE PUBLIC HEALTH  
20 AND WELFARE COMMITTEE OF THE SENATE AND THE HEALTH AND HUMAN  
21 SERVICES COMMITTEE OF THE HOUSE OF REPRESENTATIVES.

22 Section 6 7. Effective date. <—

23 This act shall take effect immediately.

FIELD	TYPE	LENGTH	DESCRIPTION
LTHCODE	Char	8	EMS LTHCODE (UNIQUE NUMBER FOR EACH RUN SHEET)
VEHNUM	Char	7	EMS VEHICLE NUMBER FIRST 5 DIGIT INDICATE AFFILIATE # LAST 2 INDICATE EMS VEHICLE NUMBER
MCD	Char	5	MINOR CIVIL DIVISION CODES STANDARD MCD CODES
DATE	Char	10	DATE OF EMS DISPATCH MM / DD / YYYY FORMAT
ATT1TYP	Char	2	EMS ATTENDANT 1 TYPE 0=NOT ENTERED 1 OR 01=H 2 OR 02 =P 3 OR 03=E 4 OR 04=F 5 OR 05=A 6 OR 06=O
ATT1NUM	Char	6	EMS LICENSE NUMBER OF ATTENDANT 1
ATT2TYP	Char	2	SAME AS CODING FOR ATTENDANT 1
ATT2NUM	Char	6	EMS LICENSE NUMBER OF ATTENDANT 2
ATT3TYP	Char	2	SAME AS CODING FOR ATTENDANT 1
ATT3NUM	Char	6	EMS LICENSE NUMBER OF ATTENDANT 3
ATT4TYP	Char	2	SAME AS CODING FOR ATTENDANT 1
ATT4NUM	Char	6	EMS LICENSE NUMBER OF ATTENDANT 4
RESPMODE	Char	1	EMS RESPONS MODE 0=NOT ENTERED 1=EMERGENCY 2=NON-EMERGENCY
TRANMODE	Char	1	EMS TRANSPORT MODE 0=NOT ENTERED 1=EMERGENCY 2=NON-EMERGENCY
DSPTIME	Char	4	EMS DISPATCH TIME
ENRTIME	Char	4	EMS ENROUTE TIME
ASTIME	Char	4	EMS ARRIVE SCENE TIME
DSTIME	Char	4	EMS DEPART SCENE TIME

ADTIME	Char	4	EMS ARRIVE DESTINATION TIME
AVAIL	Char	4	EMS AVAILABLE TIME
INQTIME	Char	4	EMS IN QUARTERS TIME
RESPOUT	Char	2	EMS RESPONSE OUTCOME
			0=NOT ENTERED
			1=TRANSPORTED
			2=CARE TRANSFERRED
			3=CANCELLED
			4=REFUSED
			5=FALSE CALL
			6=NO PATIENT FOUND
			7=PRIVATE VEHICLE
			8=TREATED, NO TRANSPORT
			9=STANDBY
			10=DOA
			11=OTHER
INCNUM	Char	7	EMS INCIDENT NUMBER
DISP2ENR	Char	4	MINUTES DISPATCH TO ENROUT
TIME2SCN	Char	4	MINUTES ENROUTE TO SCENE
TIMEASCN	Char	4	MINUTES AT SCENE
TIME2DES	Char	4	MINUTES FROM SCENE TO DESTINATION
TIMEADES	Char	4	MINUTES AT DESTINATION
TIME2Q	Char	4	MINUTES BACK TO QUARTERS
TCTIME	Char	4	TOTAL CALL TIME IN MINUTES
RESPTIME	Char	4	RESPONSE TIME MINUTES FROM DISPATCH TO SCENE ARRIVAL
INCLOC	Char	2	INCIDENT LOCATION
			00 OR 0=NOT ENTERED
			01 OR 1=RESIDENCE
			02 OR 2=TRAFFIC WAY 55+MPH
			03 OR 3=OTHER TRAFFIC WAY
			04 OR 4=PUBLIC PLACE
			05 OR 5=RECREATION AREA
			06 OR 6=WATERWAY
			07 OR 7=WILDERNESS
			08 OR 8=HOTEL/MOTEL
			09 OR 9=BAR RESTAURANT
			10=INDUSTRIAL

			11=MINE
			12=OFFICE/BUSINESS
			13=FARM
			14=ACUTE CARE FACILITY
			15=CLINIC
			16=EXTENDED CARE FACILITY
			17=EMS RENDEZVOUS
			18=OTHER
WORKREL	Char	1	WORK-RELATED?
			0=NOT ENTERED
			1=YES
			2=NO
			3=UNKNOWN
INCTYPE	Char	2	EMS INCIDENT TYPE
			00 OR 0=NOT ENTERED
			01 OR 1=ASSAULT
			02 OR 2=BICYCLE
			03 OR 3=BITE/STING
			04 OR 4=FALL
			05 OR 5=FIRE
			06 OR 6=INTER-FACILITY
			07 OR 7=MEDICAL
			08 OR 8=MOTORCYCLE
			09 OR 9=PEDESTRIAN
			10=RV
			11=SHOOTING
			12=STABBING
			13=VEHICULAR
			14=OTHER
SUSPILL	Char	24	SUSPECTED ILLNESS
			24 BYTE BOOLEAN VALUES EACH Y OR N FOR EACH BYTE FOR THE FOLLOWING ILLNESS
			"Y" IN BYTE 1 = AIRWAY OBSTRUCTION
			"Y" IN BYTE 2 = BEHAVIORAL
			"Y" IN BYTE 3 = CARDIAC ARREST
			"Y" IN BYTE 4 = CARDIAC SYMPTOMS
			"Y" IN BYTE 5 = DEHYDRATION
			"Y" IN BYTE 6 = DIABETES
			"Y" IN BYTE 7 = DIZZINESS
			"Y" IN BYTE 8 = DROWNING
			"Y" IN BYTE 9 = GI PROBLEM
			"Y" IN BYTE 10 = HEMORRHAGING
			"Y" IN BYTE 11 = HYPERTHERMIA
			"Y" IN BYTE 12 = HYPOTHERMIA
			"Y" IN BYTE 13 = NAUSEA
			"Y" IN BYTE 14 = OB/GYN
			"Y" IN BYTE 15 = PAIN
			"Y" IN BYTE 16 = PARALYSIS

			"Y" IN BYTE 17 = POISONING/OD
			"Y" IN BYTE 18 = RESPIRATORY
			"Y" IN BYTE 19 = SEIZURE
			"Y" IN BYTE 20 = SHOCK
			"Y" IN BYTE 21 = STROKE
			"Y" IN BYTE 22 = VOMITING
			"Y" IN BYTE 23 = WEAKNESS
			"Y" IN BYTE 24 = OTHER
SEX	Char	1	GENDER OF EMS PATIENT 0=UNKNOWN OR MISSING 1=FEMALE 2=MALE
AGE	Num	8	EMS-REPORTED AGE IN MONTHS DAYS OR YEARS 99=UNKNOWN
AGEMD	Char	1	IS AGE IN MONTHS DAYS OR YEARS? 0=AGE IS IN YEARS 1=AGE IS IN MONTHS 2=AGE IS IN DAYS
SYSTOL	Char	3	SYSTOLIC BLOOD PRESSURE
DIASTOL	Char	3	DIASTOLIC BLOOD PRESSURE
DIASPAL	Char	1	IS DIASTOLIC PULSE PALPABLE? Y="YES"
PULSE	Char	3	PULSE
RESP	Char	2	RESPIRATIONS
GLASGOW	Char	2	GLASGOW COMA SCORE MEASURE OF NEUROLOGICAL TRAUMA 15 = LEAST TRAUMA 0=MOST NEUROLOGICAL TRAUMA
SAFDEV	Char	8	SAFETY DEVICES 8 BYTE BOOLEAN EACH BYTE MEANS THE FOLLOWING "Y" IN BYTE 1 = LAP BELT "Y" IN BYTE 2 = SHOULDER BELT "Y" IN BYTE 3 = LAO/SHOULDER BELT "Y" IN BYTE 4 = AIR BAG "Y" IN BYTE 5 = HELMET "Y" IN BYTE 6 = SAFETY SEAT "Y" IN BYTE 7 = UNKNOWN "Y" IN BYTE 8 = NOT AVAILABLE/USED
CONTRIB	Char	7	7 BYTE BOOLEAN EACH BYTE MEANS THE FOLLOWING "Y" IN BYTE 1 = HAZARDOUS MATERIALS "Y" IN BYTE 2 = HISTORY OF CARDIAC ARREST / RESPIRATORY DISTRESS "Y" IN BYTE 3 = SELF EXTRICATED

			"Y" IN BYTE 4 = SELF INFLICTION
			"Y" IN BYTE 5 = STEERING WHEEL / DASH / WINDSHIELD DAMAGE
			"Y" IN BYTE 6 = WALKING AFTER ACCIDENT
			"Y" IN BYTE 7 = CO-MORBID FACTORS
SOI	Char	15	15 BYTE BOOLEAN EACH BYTE MEANS THE FOLLOWING
			"Y" IN BYTE 1 = FLAIL CHEST
			"Y" IN BYTE 2 = BURNS 10+% / FACE/ AIRWAY
			"Y" IN BYTE 3 = EXTRICATION 20+ MINUTES
			"Y" IN BYTE 4 = FALLS 20+ FEET
			"Y" IN BYTE 5 = LIMB PARALYSIS
			"Y" IN BYTE 6 = SPEED 40+ MPH
			"Y" IN BYTE 7 = 20+ SPEED CHANGE
			"Y" IN BYTE 8 = DEFORMITY 20+ INCHES
			"Y" IN BYTE 9 = INTRUSION 12+ INCHES
			"Y" IN BYTE 10 = ROLLOVER
			"Y" IN BYTE 11 = EJECTION
			"Y" IN BYTE 12 = DEATH SAME MOTOR VEHICLE
			"Y" IN BYTE 13 = PEDESTRIAN VS. MOTOR VEHICLE 5+ MPH
			"Y" IN BYTE 14 = PEDESTRIAN THROWN OR RUN OVER
			"Y" IN BYTE 15 = MOTORCYCLE 20+ MPH / SEPERATION
INJSTTYP	Char	84	INJURY SITE AND TYPE OF INJURY
			84 CHARACTER BOOLEAN
			THERE ARE 12 BODY SITES AND 7 TYPE OF INJURY
			THE DATA ARE ARRANGED IN SETS OF 7 BYTES EACH OF WHICH CORRESPOND TO THE FOLLOWING TYPES OF INJURY
			"Y" IN BYTE 1 = AMPUTATION
			"Y" IN BYTE 2 = BURN ELECTRIC INJURY
			"Y" IN BYTE 3 = BLUNT
			"Y" IN BYTE 4 = PENETRATING
			"Y" IN BYTE 5 = FRACTURE/DISLOCATE
			"Y" IN BYTE 6 = SOFT CLOSED
			"Y" IN BYTE 7 = SOFT OPEN
			EACH OF THE 12 SETS OF 7 CHARCTERS CORRESPOND TO THE FOLLOWING BODY REGIONS
			"Y" IN BYTE 1 TO 7 = HEAD
			"Y" IN BYTE 8 TO 14 = FACE
			"Y" IN BYTE 15 TO 21 = EYE
			"Y" IN BYTE 22 TO 28 = NECK/SPINE
			"Y" IN BYTE 29 TO 35 = CHEST
			"Y" IN BYTE 36 TO 42 = BACK / SPINE
			"Y" IN BYTE 43 TO 49 = ABDOMEN
			"Y" IN BYTE 50 TO 56 = PELVIS / GROIN
			"Y" IN BYTE 57 TO 63 = ARM
			"Y" IN BYTE 64 TO 70 = HAND
			"Y" IN BYTE 71 TO 77 = THIGH
			"Y" IN BYTE 78 TO 84 = LEG / FOOT
RTS	Char	2	REVISED TRAUMA SCORE (THIS IS NOT ACCURATE AND SHOULD BE RE-CALCULATED)

BLSTRT	Char	155	BASIC LIFE SUPPORT TREATMENT
			EACH SKILL ROW CONTAINS 5 IDENTIFIERS CORRESPONDING
			TO EMS ATTENDANTS 1 THROUGH 5
			"Y" IN BYTE 1 TO 5 = ABDOMINAL THRUST
			"Y" IN BYTE 6 TO 10 = BACK BLOWS
			"Y" IN BYTE 11 TO 15 = MANUAL
			"Y" IN BYTE 16 TO 20 = NASOPHARANGEAL
			"Y" IN BYTE 21 TO 25 = OROPHARANGEAL
			"Y" IN BYTE 26 TO 30 = POCKET MASK
			"Y" IN BYTE 31 TO 35 = DEMAND VALVE
			"Y" IN BYTE 36 TO 40 = BAG VALVE MASK
			"Y" IN BYTE 41 TO 45 = C-SPINE STABILIZER
			"Y" IN BYTE 46 TO 50 = CERVICAL COLLAR
			"Y" IN BYTE 51 TO 55 = C-SPINE IMM. DEV
			"Y" IN BYTE 56 TO 60 = BOARD - LONG
			"Y" IN BYTE 61 TO 65 = BOARD - SHORT
			"Y" IN BYTE 66 TO 70 = SPLINT - EXTREMITY
			"Y" IN BYTE 71 TO 75 = SPLINT - EXTREMITY
			"Y" IN BYTE 76 TO 80 = SPLINT - EXTREMITY
			"Y" IN BYTE 81 TO 85 = AUTO DEFIBRILLATION
			"Y" IN BYTE 86 TO 90 = OXYGEN 10 TO 15 LPM
			"Y" IN BYTE 91 TO 95 = BANDAGE
			"Y" IN BYTE 96 TO 100 = CPR
			"Y" IN BYTE 101 TO 105 = HOT PACK
			"Y" IN BYTE 106 TO 110 = COLD PACK
			"Y" IN BYTE 111 TO 115 = DELIVERY (OB)
			"Y" IN BYTE 116 TO 120 = EXTRICATION
			"Y" IN BYTE 121 TO 125 = IPECAC
			"Y" IN BYTE 126 TO 130 = IRRIGATION
			"Y" IN BYTE 131 TO 135 = MAST APPLIED
			"Y" IN BYTE 136 TO 140 = MAST INFLATED
			"Y" IN BYTE 141 TO 145 = ORAL GLUCOSE
			"Y" IN BYTE 146 TO 150 = SUCTIONING
			"Y" IN BYTE 151 TO 155 = SUCTIONING
			"Y" IN BYTE 156 TO 160 = SUCTIONING
ALSTRT	Char	65	BASIC LIFE SUPPORT TREATMENT
			EACH SKILL ROW CONTAINS 5 IDENTIFIERS CORRESPONDING
			TO EMS ATTENDANTS 1 THROUGH 5
			"Y" IN BYTE 1 TO 5 = PERIPHERAL IV
			"Y" IN BYTE 6 TO 10 = EKG
			"Y" IN BYTE 11 TO 15 = ENDOTRACHEAL INTUBATION
			"Y" IN BYTE 16 TO 20 = MED ADMINISTRATION
			"Y" IN BYTE 21 TO 25 = BLOOD DRAW
			"Y" IN BYTE 26 TO 30 = CENTRAL VEN IV
			"Y" IN BYTE 31 TO 35 = CRICOTHYROIDOTOMY
			"Y" IN BYTE 36 TO 40 = DEFIB / CARDIOVERT
			"Y" IN BYTE 41 TO 45 = EOA
			"Y" IN BYTE 46 TO 50 = INTEROSSEOUS IV
			"Y" IN BYTE 51 TO 55 = NEEDLE THORACOTOMY

			"Y" IN BYTE 56 TO 60 = PACING
			"Y" IN BYTE 61 TO 65 = URINARY CATHETERIZATION
<b>EKG</b>	<b>Char</b>	<b>30</b>	<b>DATA IN 2 BYTE GROUPS</b>
			FIRST BYTE = INITIAL 2ND BYTE=LAST
			"Y" IN BYTE 1 TO 2 = NORMAL SINUS
			"Y" IN BYTE 3 TO 4 = SINUS TACHYCARDIA
			"Y" IN BYTE 5 TO 6 = SINUS BRADYCARDIA
			"Y" IN BYTE 7 TO 8 = ASYSTOLE
			"Y" IN BYTE 9 TO 10 = AV BLOCK
			"Y" IN BYTE 11 TO 12 = ATRIAL FIBRILLATION
			"Y" IN BYTE 13 TO 14 = ATRIAL FLUTTER
			"Y" IN BYTE 15 TO 16 = EMD
			"Y" IN BYTE 17 TO 18 = JUNCTIONAL
			"Y" IN BYTE 19 TO 20 = PACED
			"Y" IN BYTE 21 TO 22 = PVC'S
			"Y" IN BYTE 23 TO 24 = SUPRA VENTRICULAR TACHYCARDIA
			"Y" IN BYTE 25 TO 26 = VENTRICULAR TACHYCARDIA
			"Y" IN BYTE 27 TO 28 = VENTRICULAR FIBRILLATION
			"Y" IN BYTE 29 TO 30 = OTHER
<b>IVFLUID</b>	<b>Char</b>	<b>3</b>	<b>IV FLUID</b>
			"Y" IN BYTE 1 = D5W
			"Y" IN BYTE 2 = NORMAL SALINE
			"Y" IN BYTE 2 = RINGERS LACTATE
<b>IVRATE</b>	<b>Char</b>	<b>3</b>	<b>IV RATE</b>
			"Y" IN BYTE 3 = TKO
			"Y" IN BYTE 3 = WIDE
			"Y" IN BYTE 3 = BOLUS
<b>MEDS</b>	<b>Char</b>	<b>30</b>	<b>MEDICATIONS</b>
			"Y" IN BYTE 1 = ALBUTEROL
			"Y" IN BYTE 2 = AMINOPHYLLINE
			"Y" IN BYTE 3 = ATROPINE
			"Y" IN BYTE 4 = BICARB
			"Y" IN BYTE 5 = BRETYLIUM
			"Y" IN BYTE 6 = CALCIUM
			"Y" IN BYTE 7 = DEXAMETHASONE
			"Y" IN BYTE 8 = D50
			"Y" IN BYTE 9 = DIAZEPAM
			"Y" IN BYTE 10 = DIPHENHYDRAMINE
			"Y" IN BYTE 11 = DOBUTAMINE
			"Y" IN BYTE 12 = DOPAMINE
			"Y" IN BYTE 13 = EPINEPHRINE
			"Y" IN BYTE 14 = FUROSEMIDE
			"Y" IN BYTE 15 = GLUCAGON
			"Y" IN BYTE 16 = HEPARIN
			"Y" IN BYTE 17 = HYDROCORTIZONE
			"Y" IN BYTE 18 = ISOPROTERENOL
			"Y" IN BYTE 19 = LIDOCAINE

			"Y" IN BYTE 20 = MEPERIDINE
			"Y" IN BYTE 21 = METAPROTERENOL
			"Y" IN BYTE 22 = MORPHINE
			"Y" IN BYTE 23 = NALOXONE
			"Y" IN BYTE 24 = NITROGLYCERINE
			"Y" IN BYTE 25 = NITROUS OXIDE
			"Y" IN BYTE 26 = OXYTOCIN
			"Y" IN BYTE 27 = PROCAINAMIDE
			"Y" IN BYTE 28 = TERBUTALINE
			"Y" IN BYTE 29 = VERAPAMIL
			"Y" IN BYTE 30 = OTHER
CPR1	Char	2	CPR TIME FROM ARREST TO CPR
			0=NOT ENTERED
			1= < 4 MINUTES
			2= 4 TO 10 MINUTES
			3 = >10 MINUTES
			4 = UNKNOWN
CPR2	Char	2	CPR TIME FROM ARREST TO ALS
			0=NOT ENTERED
			1= < 4 MINUTES
			2= 4 TO 10 MINUTES
			3 = >10 MINUTES
			4 = UNKNOWN
CPR3	Char	2	CPR TIME FROM ARREST TO SHOCK
			0=NOT ENTERED
			1= < 4 MINUTES
			2= 4 TO 10 MINUTES
			3 = >10 MINUTES
			4 = UNKNOWN
CPR4	Char	2	WITNESSED ARREST?
			0 = NOT ENTERED
			1 = YES
			2 = NO
			3 = UNKNOWN
CPR5	Char	2	BYSTANDER CPR?
			0 = NOT ENTERED
			1 = YES
			2 = NO
			3 = UNKNOWN
PATCOND1	Char	2	PATIENT CONDITION ON SCENE
			0=NOT ENTERED
			1=LIFE THREATENING
			2=MODERATE
			3=MINOR

## EMS DATA

## APPENDIX B

PATCOND2	Char	2	PATIENT CONDITION AT FACILITY
			0=NOT ENTERED
			1=IMPROVED
			2=STABLE
			3=UNSTABLE
			4=WORSE
MEDCMD	Char	7	MEDICAL COMMAND
			1 = TELEPHONE
			2 = CELLULAR
			3 = RADIO
			4 = PROTOCOL
			5 = MD ON SCENE
			6= NONE REQUIRED
			7 = NONE
RECFAC	Char	5	RECEIVING FACILITY- HOSPITAL ID OR EMS AFFILIATE TO WHICH PATIENT IS TRANSFERRED
RES	Char	4	Research Field (for local use)
CMDFAC	Char	4	ID NUMBER OF COMMAND FACILITY

**PENNSYLVANIA TRAUMA SYSTEMS FOUNDATION  
PENNSYLVANIA OUTCOME STUDY DATA COLLECTION  
2003**

**SECTION I: DEMOGRAPHIC DATA**

Institution Number\_\_\_\_\_

Trauma Number\_\_\_\_\_

PTOS Patient 1=yes; 2=no

Zip Code of Residence\_\_\_\_\_

Cause of Injury E\_\_\_\_. Specify\_\_\_\_\_

Height of Fall\_\_0=fall on same level; 1=less than or equal to 1 foot; 2=2 to 5 feet; 3=6 to 10 feet; 4=11 to 20 feet;  
5=21 to 30 feet; 6=greater than 30 feet; I=Inappropriate; U=Unknown

Place of Injury E849.\_\_\_\_ Specify\_\_\_\_\_

Race\_\_ 1=white; 2=black; 3=(no longer used); 4=Asian; 5=other; U=Unknown

Sex\_\_ 1=male; 2=female

Date of Birth \_\_/\_\_/\_\_\_\_

Age\_\_ in\_\_ 1=years; 2=months; 3=days; 4=estimated in years

Injury Date \_\_/\_\_/\_\_\_\_

Injury Time \_\_/\_\_/\_\_\_\_

County or State (if not PA)\_\_\_\_ (1-67) See attached County List; 68=DE; 69=MD; 70=NJ; 71=NY; 72=OH; 73=WV;  
74=other state \_\_\_\_\_; 75=VA; 79=other country \_\_\_\_\_;

Protective Devices\_\_ 0=none; 1=seatbelt; 2=car seat; 3=airbag; 4=helmet; 5=seatbelt + airbag; 6=sports  
equipment; 7=industrial equipment; I=inappropriate; U=unknown

Type of Injury\_\_ 1=blunt; 2=penetrating; 3=burn

Type of Burn Injury(required for burns)\_\_\_\_\_

Is there suspected abuse or neglect(required for burns)\_\_ 1=Yes; 2=No

Pre-existing Conditions:

Record 0.00 if none

## A. Cardiac Disease

A.01 History of Cardiac Surgery; A.02 Coronary Artery Disease; A.03 Congestive Heart Failure;  
A.04 Cor Pulmonale; A.05 Myocardial Infarction; A.06 Hypertension; A.07 Congenital Cardiac Disease

## B. Diabetes

B.01 Insulin Dependent; B.02 Non-Insulin Dependent

## C. Gastrointestinal Disease

C.01 Peptic Ulcer Disease; C.02 Gastric/Esophageal Varices; C.03 Pancreatitis; C.04 Inflammatory  
Bowel Disease

## D. Hematologic Disorders

D.01 Acquired Coagulopathy; D.02 Warfarin Therapy; D.03 Hemophilia; D.04 Pre-existing Anemia

## E. History of Psychiatric Disorders

E.01 Attention Deficit Disorder; E.02 Mental Retardation

## F. Immunosuppressed

F.01 HIV/AIDS; F.02 Routine Steroid Therapy; F.03 Transplants; F.04 Active Chemotherapy

## G. Liver Disease

G.01 Bilirubin &gt; 2mg% (on admission); G.02 Documented History of Cirrhosis

## H. Malignancy

H.01 Undergoing Current Therapy; H.02 Existence of Metastasis; H.03 History of Pediatric Malignancy

## I. Musculoskeletal

I.01 Rheumatoid Arthritis; I.02 Systemic Lupus Erythematosus

J. Neurologic

J.01 Spinal Cord Injury; J.02 Multiple Sclerosis; J.03 Alzheimer's Disease; J.04 Seizures;  
J.05 Chronic Demyelinating Disease; J.06 Chronic Dementia; J.07 Organic Brain Syndrome;  
J.08 Parkinsons Disease; J.09 CVA/Hemiparesis (stroke with residual)

K. Obesity

L. Pulmonary Disease

L.01 Documented Prior History with Ongoing Active Treatment; L.02 Asthma;  
L.03 Chronic Obstructive Pulmonary Disease; L.04 Chronic Pulmonary Condition

M. Renal Disease

M.01 Serum Creatinine > 2mg% (on admission); M.02 Dialysis (excludes transplant patients)

N. Substance Abuse

N.01 Chronic Ongoing Drug Abuse; N.02 Chronic Ongoing Alcohol Abuse

P. Pregnancy

Q. Any Previous History of Admission for Trauma or Burn (regardless of facility)(record as Q.00)

Q.01 Previous Head Trauma

R. Endocrine

R.01 Thyroid Disease

\* = Unknown

## **SECTION II: PREHOSPITAL DATA**

Was Patient Extricated?\_\_\_ 1=yes; 2=no

Were scene provider and transport provider the same?\_\_\_ 1=yes; 2=no

Are any scene provider data available?\_\_\_ 1=yes; 2=no

Record the following for Scene, Transport, and Ref/Interhospital Transport

Provider\_\_\_ 1=amb; 2=heli; 3=amb/heli; 4=police; 5=fire rescue; 6=private vehicle; 7=walk-in; 8=other;

U=unknown

Provider Dates & Times:

Dispatch\_\_\_/\_\_\_/\_\_\_ @ \_\_\_:\_\_\_

Arrive at Scene\_\_\_/\_\_\_/\_\_\_@ \_\_\_:\_\_\_

Leave Scene\_\_\_/\_\_\_/\_\_\_ @ \_\_\_:\_\_\_

Ambulance Code\_\_\_

Patient Care Record in Medical Record?\_\_\_ 1=yes; 2=no; 3=inappropriate

Patient Care Record #\_\_\_

Life Support: Provider\_\_\_ Care\_\_\_ 1=basic; 2=advanced; 3=basic/non-professional; 4=none

Ambulance Scene Time > 20 Minutes (auto calc)

Is this a transfer patient?\_\_\_ 1=yes; 2=no

If referral...

Date/Time Admission at ref. Hospital \_\_\_/\_\_\_/\_\_\_ @ \_\_\_:\_\_\_

Date/Time Discharge from ref. Hospital \_\_\_/\_\_\_/\_\_\_ @ \_\_\_:\_\_\_

Interventions: Diagnostic:

None = 00.00;

**Angiography** = NEC - 88.40, Aorta (arch) (ascending) (descending) - 88.42, Basilar - 88.41, Brachial - 88.49, Carotid (Internal) - 88.41, Celiac - 88.47, Cerebral (posterior circulation) - 88.41, Coronary NEC - 88.57, Double Catheter Technique (Judkins) (Ricketts and Abrams) - 88.56, Single Catheter Technique (Sones) - 88.55, Eye (fluorescein) - 95.12, Femoral - 88.48, Head and Neck - 88.41, Heart - 88.50, Intra-Abdominal NEC - 88.47, Intracranial - 88.41, Intrathoracic Vessels NEC - 88.44, Lower Extremity NEC - 88.48, Neck - 88.41, Placenta - 88.46, Pulmonary - 88.43, Renal - 88.45, Specified Artery NEC - 88.49, Superior Mesenteric Artery - 88.47, Transfemoral - 88.48, Upper Extremity NEC - 88.49, Vertebral - 88.41;

**Bronchoscopy** = NEC - 33.23, Fiberoptic - 33.22, Through Tracheostomy - 33.21, With Brush Biopsy - 33.24, With Lung

Biopsy - 33.27

**CAT Scan** = Abdomen - 88.01, Bone, Skeletal, CT nfs - 88.38, Brain, Head - 87.03, Kidney - 87.71, Thorax - 87.41, Mineral Density Scan of Bone, Skeletal - 88.98;

**Diagnostic Laparoscopy** - 54.21;

**Diagnostic Peritoneal Lavage (DPL)** = 54.25;

**MRI** = Abdomen, MRI nfs - 88.97, Bladder (urinary) - 88.95, Bone Marrow Blood Supply - 88.94, Brain (brain stem) - 88.91, Chest (hilar) (mediastinal) - 88.92, Extremity (upper) (lower) - 88.94, Eye Orbit - 88.97, Face - 88.97, Head NEC - 88.97, Musculoskeletal - 88.94, Myocardium - 88.92, Neck - 88.97, Prostate - 88.95, Specified Site NEC - 88.97, Spinal Canal (cord) (spine)- 88.93;

**X-ray Other and Unspecified** - 88.39;

**Ultrasound** = Abdomen - 88.76, Aortic Arch - 88.73, Biliary Tract - 88.74, Breast - 88.73, Deep Vein Thrombosis - 88.77, Digestive System - 88.74, Eye - 95.13, Head and Neck - 88.71, Heart - 88.72, Intestine - 88.74, Lung - 88.73, Midline Shift, Brain - 88.71, Multiple Sites - 88.79, Peripheral Vascular System - 88.77, Retroperitoneum - 88.76, Thorax NEC - 88.73, Total Body - 88.79, Urinary System - 88.75, Uterus - 88.79, Gravid - 88.78;

### Therapeutic:

**None** = 00.00;

**Central Lines** = Systemic Arterial - 89.61, Central Venous Pressure - 89.62, Pulmonary Artery Pressure - 89.63, Swan Ganz - 89.64,

**Chest tube(s)** = 34.04;

**CPR** = 99.60,

**\*Escharotomy** = 86.29 (This is a PTSF defined code),

**\*Fasciotomy** = 83.14 \*For burn patients only.

**Intubation** = 96.04;

**Peripheral Lines** = 38.93;

**Surgery** - Specify ICD-9-CM Procedure Codes,

Referral from facility # \_\_\_\_\_

Is referral facility medical record/patient data available? \_\_\_\_\_ 1=yes; 2=no

Patient transferred to another health care facility after spending > 6 hours in the initial hospital (auto calc)

### **SECTION III: PROCESS OF ACUTE CARE**

Date entered ED \_\_/\_\_/\_\_\_\_

Time entered ED\_\_:\_\_

ED Discharge Time\_\_:\_\_

Post ED Destination:\_\_\_ 1=ICU; 2=OR; 3=floor; 4=prison ward; 5=stepdown; 6=morgue; 7=transfer to other hospital/trauma center; 8=L&D; 9=burn unit; 10=home

Is time in ED increased due to admitted patient awaiting inpatient bed?\_\_\_ 1=Yes; 2=No

Time for Referral (auto calc)

Was operating room available?\_\_\_ 1=yes; 2=no

Was there documentation that the attending surgeon was immediately available (in the OR)?\_\_\_ 1=yes; 2=no

If no, specify arrival time \_\_:\_\_

Attending surgeon specialty\_\_\_ 01=trauma/general surgery; 03=orthopaedic surgery; 04=cardiac surgery;

05=obstetric/gynecological surgery; 06=ophthalmic surgery; 07=oral/maxillofacial surgery;

08=otorhinolaryngologic surgery; 09=pediatric surgery; 10=plastic surgery; 11=thoracic surgery; 12=urologic surgery; 13=Burn Surgery; 77=other

Was there documentation that the attending anesthesiologist was immediately present (in the OR)?\_\_\_ 1=yes; 2=no

If no, specify arrival time \_\_:\_\_

Admitting Service\_\_\_ 0=not admitted; 1=trauma (general surgery); 2=neurosurgery; 3=orthopaedics; 4=thoracic surgery; 5=other (surgical) specify \_\_\_\_\_; 6=other (non-surgical) specify \_\_\_\_\_; 7=oromaxillofacial; 8=OB/GYN; 9=burn

Trauma patient admitted to hospital under the care of admitting or attending physician who is not a surgeon (auto calc)

Did patient receive a CT scan of the head during the resuscitative phase? \_\_\_ 1=yes; 2=no

Did patient require a laparotomy that was not performed within 2 hours of ED arrival? \_\_\_ 1=yes; 2=no;  
3=did not require

Was trauma alert called? \_\_\_ 1=yes; 2=no; 3=trauma consult

Date/time trauma alert called \_\_\_/\_\_\_/\_\_\_ @\_\_\_:\_\_\_

Level of Alert \_\_\_ 1=highest level; 2=second level; 3=lowest level; 4=trauma consult; Specify \_\_\_

Emergency physician involved in patient care \_\_\_ 1=yes; 2=no; 3=medical command only

Arrival dates & times: Emergency physician; Emergency medicine resident, and PGY level \_\_\_; Attending trauma surgeon; Senior trauma resident, and PGY level \_\_\_; Neurosurgeon; Neurosurgical resident and PGY level \_\_\_; Orthopaedic surgeon; Orthopaedic resident and PGY level \_\_\_; Anesthesiologist; Anesthesiology resident and PGY level \_\_\_; CRNA \_\_\_

Patient monitoring during radiology studies? \_\_\_ 1=yes; 2=no; 3=no radiological studies performed

Was any CT scan performed at this hospital during resuscitative phase? \_\_\_ 1=yes; 2=no

24 hour in-house coverage 1=yes; 2=no

CT study ordered (time) \_\_\_:\_\_\_

CT Tech response/arrival time \_\_\_:\_\_\_

Patient monitored during CT studies 1=yes; 2=no

Units of Blood Hung \_\_\_

#### **SECTION IV: CLINICAL DATA**

Total Pre-hospital Fluids Administered \_\_\_ 1=None; 2=<500 ml; 3=500-2000 ml; 4=>2000 ml; 5=unknown amount

	AT SCENE	TRANSP	REF	INTERHOSP TRANSP	ADMISSION
Paralyzing Drugs	___	___	___	___	___
Pulse Rate/min	___	___	___	___	___
Respiratory Rate/min	___	___	___	___	___
Systolic Blood Pressure	___	___	___	___	___
Eye Opening	___	___	___	___	___
4=spontaneous; 3=to voice; 2=to pain; 1=none					
Verbal Response	___	___	___	___	___
5=oriented; 4=confused; 3=inappropriate words; 2=incomprehensible sounds; 1=none					
Motor Response	___	___	___	___	___
6=obeys command; 5=localize pain; 4=withdraws; 3=flexion; 2=extension; 1=none					
Intubated with artificial airway	___	___	___	___	___
1=yes; 2=no					
Is patient's resp rate controlled (bagging or ventilator) 1=yes; 2=no	___	___	___	___	___
If yes, Controlled Rate	___	___	___	___	___
Temperature			___		___
1=Fahrenheit; 2=Celsius					

## PTOS DATA

## APPENDIX C

	AT SCENE	TRANSP	REF	INTERHOSP TRANSP	ADMISSION
Route of Temperature Measurement 1=rectal; 2=oral; 3=axillary; 4=tympanic; 5=core			_____		_____
Weight (required for peds and burns; optional for adults) 1=pounds; 2=kilograms			_____		_____
ETOH/BAC			_____		_____
Drug Screen 0=not tested; 1=none; 2=cocaine; 3=PCP; 4=benzodiazepines; 5=barbiturates; 6=narcotics; 7=amphetamines; 8=marijuana; 9=tricyclics			_____		_____
When was the initial nutrition assessment performed? ____ 0=not done; 1=within 24 hours; 2=25-48 hours; 3=49-72 hours; 4= over 72 hours					
When was the nutrition initially started? ____ 0=not done; 1=within 24 hours; 2=25-48 hours; 3=49-72 hours; 4= over 72 hours					
Type of nutrition ____ 1=oral; 2=enteral; 3=parenteral					
Is there sequential neuro documentation on the ED record of trauma patient with admission diagnosis of skull fracture, intracranial injury, or spinal cord injury? 1=yes; 2=no; 3=head or spinal cord injury not present; 4=unable to assess due to chemical paralyzation					
Is there hourly documentation beginning with ED arrival? 1=yes; 2=no					
Did patient leave the ED with a discharge GCS $\leq$ 8? 1=yes; 2=no; 3=patient died in the ED or was a direct admit; U=no					
If yes, did the patient leave ED with definitive airway? 1=yes; 2=no					

**SECTION V: OUTCOME DATA**

Discharge Status \_\_\_\_ 6=live; 7=death  
Date of Death/Discharge/Transfer \_\_/\_\_/\_\_\_\_  
Time of Death/Discharge \_\_:\_\_\_\_  
Was this patient made DNR? 1=yes; 2=no  
Days in ICU \_\_\_\_ ratio 2:1  
Days in Step-down \_\_\_\_ ratio 4:1  
Total Hospital Days \_\_\_\_ (auto calc)  
Total Ventilator Days \_\_\_\_  
Discharge Destination  
1=home; 2=other hospital; 3=trauma center; 4=rehab; 5=skilled nursing facility; 6=burn center; 7=psychiatric  
facility; 8=legal authority; 9=drug or alcohol rehab; 10=other supervised residential facility; 11=AMA;  
12=homeless; 13=transitional care unit  
Discharge to Facility # \_\_\_\_  
Date of Occurrence \_\_/\_\_/\_\_\_\_  
Location of Occurrence \_\_\_\_  
Occurrences:  
**none** (01);  
**pulmonary**; acute respiratory distress syndrome(20); acute respiratory failure(21); aspiration/aspiration  
pneumonia (22); atelectasis (23); fat embolus syndrome (24); pleural effusion (44); pneumonia (26);  
**cardiovascular**; acute arterial occlusion (30); major arrhythmia (34); extremity compartment syndrome (32);

deep vein thrombosis (33); myocardial infarction (35)  
**hematologic/coagulopathy**; blood transfusion reaction (40); coagulopathy (41)  
**renal**; acute renal failure (50);  
**hepatic**; liver failure (63)  
**infection/sepsis**; empyema (70); sepsis (76); septicemia (77); acute sinusitis (78); soft tissue infection (79);  
 urinary tract infection (97); wound infection (99)  
**airway management**; esophageal intubation (80); unrecognized mainstem bronchus intubation (69)  
**gastrointestinal**; GI bleeding (83); pancreatitis (84); small bowel obstruction (86)  
**neurologic**; CNS infection (64); progression of original neurologic insult (66); seizures (96)  
**procedure related**; organ, nerve, vessel (91)  
**decubitus**; dehiscence/evisceration (65); decubitus (94)  
**hypothermia**; hypothermia (46);  
**post-op hemorrhage**; post-operative hemorrhage (47)  
**pharmacology**; adverse drug reaction (49)  
**burns**; burn graft loss (10); burn wound infection post incision (11); burn wound sepsis (12); burn wound  
 Were there more than 10 occurrences? 1=yes; 2=no  
 Specific Complications (auto calc)  
 Discharge diagnosis of cervical spine injury with fracture, subluxation, or neuro deficit not addressed on admission? \_\_\_ 1=yes; 2=no  
 Source of Final Anatomical Diagnoses: 1=yes; 2=no  
 Autopsy \_\_\_; CT \_\_\_; Surgery \_\_\_; MRI \_\_\_; Ultrasound \_\_\_  
 Functional Status at Discharge: Feeding \_\_\_; Locomotion \_\_\_; Expression \_\_\_; Transfer Mobility \_\_\_;  
 Social Interaction \_\_\_  
 Organ Donation \_\_\_\_\_  
 0=none; 1=heart; 2=liver; 3=kidney; 4=cornea; 5=pancreas; 6=lungs; 7=skin; 8=bone; 9=soft tissue;  
 10=heart valves; 11=blood vessels; 12=spleen  
 Discharge Weight and Unit of Measurement \_\_\_ in \_\_\_ 1=pounds; 2=kilograms  
 Burn Patient Follow-up \_\_\_ 1=none; 2=burn outpatient services, specify \_\_\_\_\_; 3=other burn service,  
 specify \_\_\_\_\_; 4=other, specify \_\_\_\_\_  
 Burn Patient Readmitted \_\_\_ 1=yes; 2=no  
 If yes, reason: \_\_\_ 1=Pain Management Requiring Narcotics (IM or IV); 2=Wound Infection Requiring IV  
 Burn Wound Management:  
 00=No dressings or creams applied; 01=Acticoat; 02=Allograft (cadaver); 03=Amniotic membrane;  
 04=Autograft; 05=Betadine (e.g. Providone-iodine); 06=Cultured epithelial cells; 07=Elase  
 (Fibrinolysin/Desoxyribonuclease); 08=Integra; 09=Mafenide Acetate cream; 10=Mafenide Acetate solution  
 (e.g. Sulfamylon); 11=Non-adherent wound veil (e.g. Exudry, N-terface); 12=Santyl (Collagenase, Biozyme-  
 c); 13=Santyl and Polysporin (Collagenase & Polysporin); 14=Silver Nitrate; 15=Silver Sulfadiazine (e.g.  
 Silvadene, Flamazine); 16=Synthetic film (e.g. OpSite, Bioclusive, Tegaderm); 17=Synthetic gels (e.g.  
 Omiderm, Deliperm, Duoderm); 18=Synthetic laminates (e.g. Biobrane, Epigard, Transcyt); 19=Travase  
 (Sutilains); 20=Triple antibiotic cream/ointment (e.g. Nystatin + 1% Hydrocortisone + Bactriban);  
 21=Xenograft;  
 22=Other, specify \_\_\_\_\_  
 Were rehab services required? \_\_\_ 1=yes; 2=no  
 Initial evaluation: physical therapy \_\_\_/\_\_\_/\_\_\_; occupational therapy \_\_\_/\_\_\_/\_\_\_; speech therapy \_\_\_/\_\_\_/\_\_\_; physiatry \_\_\_/\_\_\_/\_\_\_  
 Case Reviewed in QM \_\_\_ 1=yes; 2=no  
 Autopsy Requested \_\_\_ 1=yes; 2=no  
 Autopsy Results in Medical Record \_\_\_ 1=yes; 2=no  
 Organ Donation Referral Made \_\_\_ 1=yes; 2=no  
 Consults: Trauma \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Neurosurgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Orthopaedics \_\_\_/\_\_\_/\_\_\_

Provider \_\_\_; Thoracic Surgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Vascular Surgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_;  
 Pediatrics \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Oromaxillo Facial Service \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_;  
 OB/GYN \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Burn Services \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Cardiology \_\_\_/\_\_\_/\_\_\_  
 Provider \_\_\_; Cardiothoracic Surgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Drug/Alcohol Counselor \_\_\_/\_\_\_/\_\_\_  
 Provider \_\_\_; ENT \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Family Medicine \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_;  
 Infectious Disease \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Internal Medicine \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_;  
 Nephrology \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Neurology \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Nutrition \_\_\_/\_\_\_/\_\_\_  
 Provider \_\_\_; Occupational Therapy \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Ophthalmology \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_;  
 Oral Surgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Physiatry \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Physical Therapy \_\_\_/\_\_\_/\_\_\_  
 Provider \_\_\_; Plastic Surgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Psychiatry \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_;  
 Pulmonary \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Social Services \_\_\_/\_\_\_/\_\_\_ Provider; Speech Therapy \_\_\_/\_\_\_/\_\_\_  
 Provider \_\_\_; General Surgery \_\_\_/\_\_\_/\_\_\_ Provider \_\_\_; Urology \_\_\_/\_\_\_/\_\_\_ Provider; Other \_\_\_/\_\_\_/\_\_\_  
 Specify \_\_\_\_\_ Provider \_\_\_\_\_

**SECTION VI: FINAL ANATOMICAL DIAGNOSIS**

- |           |       |           |           |       |           |
|-----------|-------|-----------|-----------|-------|-----------|
| 1. _____  | _____ | AIS _____ | 15. _____ | _____ | AIS _____ |
| 2. _____  | _____ | AIS _____ | 16. _____ | _____ | AIS _____ |
| 3. _____  | _____ | AIS _____ | 17. _____ | _____ | AIS _____ |
| 4. _____  | _____ | AIS _____ | 18. _____ | _____ | AIS _____ |
| 5. _____  | _____ | AIS _____ | 19. _____ | _____ | AIS _____ |
| 6. _____  | _____ | AIS _____ | 20. _____ | _____ | AIS _____ |
| 7. _____  | _____ | AIS _____ | 21. _____ | _____ | AIS _____ |
| 8. _____  | _____ | AIS _____ | 22. _____ | _____ | AIS _____ |
| 9. _____  | _____ | AIS _____ | 23. _____ | _____ | AIS _____ |
| 10. _____ | _____ | AIS _____ | 24. _____ | _____ | AIS _____ |
| 11. _____ | _____ | AIS _____ | 25. _____ | _____ | AIS _____ |
| 12. _____ | _____ | AIS _____ | 26. _____ | _____ | AIS _____ |
| 13. _____ | _____ | AIS _____ | 27. _____ | _____ | AIS _____ |
| 14. _____ | _____ | AIS _____ |           |       |           |

Initial Carboxyhemoglobin \_\_\_ (required for burns)

PaO2 \_\_\_ (required for burns)

FIO2 \_\_\_ (required for burns)

Was a Bronchoscopy performed? (required for burns) \_\_\_ 1=Yes; 2=No

Was there upper airway edema? \_\_\_ 1=Yes; 2=No

Was there soot below the cords? \_\_\_ 1=Yes; 2=No

Was there erythema? \_\_\_ 1=Yes; 2=No

Lund-Browder Chart:

Area	Max	%2nd	%3rd	Total	ICD Codes	
					%2nd	%3rd
Head	[ ]	_____	_____	[ ]	[ ]	[ ]
Neck	[ ]	_____	_____	[ ]	[ ]	[ ]
Ant. Trunk	[ ]	_____	_____	[ ]	[ ]	[ ]
Post. Trunk	[ ]	_____	_____	[ ]	[ ]	[ ]
R. Buttock	[ ]	_____	_____	[ ]	[ ]	[ ]
L. Buttock	[ ]	_____	_____	[ ]	[ ]	[ ]
Genitalia	[ ]	_____	_____	[ ]	[ ]	[ ]
R.U. Arm	[ ]	_____	_____	[ ]	[ ]	[ ]
L.U. Arm	[ ]	_____	_____	[ ]	[ ]	[ ]
R.L. Arm	[ ]	_____	_____	[ ]	[ ]	[ ]
L.L. Arm	[ ]	_____	_____	[ ]	[ ]	[ ]
R. Hand	[ ]	_____	_____	[ ]	[ ]	[ ]
L. Hand	[ ]	_____	_____	[ ]	[ ]	[ ]

R. Thigh	[ ]	_____	_____	[ ]	[ ]	[ ]
L. Thigh	[ ]	_____	_____	[ ]	[ ]	[ ]
R. Leg	[ ]	_____	_____	[ ]	[ ]	[ ]
L. Leg	[ ]	_____	_____	[ ]	[ ]	[ ]
R. Foot	[ ]	_____	_____	[ ]	[ ]	[ ]
L. Foot	[ ]	_____	_____	[ ]	[ ]	[ ]
Total	[ ]	[ ]	_____	[ ]		
			(Total BSA)			
[Burn P(s) _____]						

**SECTION VII: PROCEDURE CODES**

Record both operative and non-operative procedures performed in your facility in the combined procedure code section. Record the location in which these procedures are performed from the list below:

- 1 = ED (procedures listed under section B **must** be recorded in the procedure section for this phase of care)
- 2 = OR
- 3 = ICU
- 4 = Med/surg floor
- 5 = Step-down Unit (Step-down from ICU)
- 6 = Radiology
- 7 = Nuclear Medicine
- 8 = Burn Unit
- 9 = PMR (Physical Medical Rehabilitation)
- 10 = Minor Surgery Unit
- 11 = Special Procedure Unit
- 12 = Pre-Hospital (Optional)
- 13 = PACU (Post Anesthesia Recovery Unit)

**A. Operative Procedures**

Record the ICD-9-CM procedure code, operation number, the date the procedure was performed, the time the procedure was performed, and location in which the procedure was performed.

**B. Non-Operative Procedures**

Record the following procedures, regardless of the location in the hospital in which they were performed, during the patient's hospital stay. Record the ICD-9-CM procedure code and the location in your facility in which the procedure was performed. Recording the date and time in which the procedures are performed is only required for those performed during the ED phase of care.

	ICD-9-CM	Date
Angiography/Vascular Imaging/Arteriography		
Aortography 88.42	_____	_____
Arteriography of femoral and other lower extremity arteries (88.48)	_____	_____
Arteriography of cerebral arteries 88.41	_____	_____
Anoscopy 49.21	_____	_____
Arthroscopies (Arthroendoscopy) 80.20-80.29	_____	_____
Biliary Tract Endoscopy 51.10, 51.11, 51.64, 51.84 - 51.88, 51.98	_____	_____
Bronchoscopy 33.21 - 33.24, 33.27	_____	_____
Cervical Stabilization (halo)(tongs) 02.94	_____	_____
Chest Tubes Bilateral, Unilateral 34.04	_____	_____
*Circulatory Monitoring/Vascular Access		
Arterial Catheterization 38.91	_____	_____
Central Venous Pressure monitoring 89.62	_____	_____

## PTOS DATA

## APPENDIX C

	ICD-9-CM	Date
Pulmonary artery wedge monitoring (Swan-Ganz, Pulmonary capillary wedge monitoring) 89.64	_____	_____
Systemic arterial pressure monitoring 89.61	_____	_____
Venous catheterization, not elsewhere classified 38.93	_____	_____
<i>*Only required for resuscitative phase</i>		
Colonoscopy 45.21 - 45.23, 45.25	_____	_____
Computerized Tomography (1 per body region)		
abdominal 88.01	_____	_____
bone or skeleton 88.38	_____	_____
head and brain 87.03	_____	_____
kidney 87.71	_____	_____
thorax 87.41	_____	_____
Cystoscopy 57.31 - 57.33	_____	_____
Duodenoscopy 45.11 - 45.13	_____	_____
Escharotomy (burn patients only) 86.29	_____	_____
Esophagogastroduodenoscopy 45.11, 45.12, 45.13, 45.15, 45.16	_____	_____
Esophagoscopy 42.21 - 42.23	_____	_____
Fasciotomy (burn patients only) 83.14	_____	_____
Gastrosocopy 44.11 - 44.13	_____	_____
Intracranial Pressure Monitor 01.18	_____	_____
Intubation 96.04	_____	_____
Laparoscopy (abdom., celio.) 54.21	_____	_____
Magnetic Resonance Imaging		
Abdomen 88.97	_____	_____
Brain 88.91	_____	_____
Chest 88.92	_____	_____
Spine/spinal cord 88.93	_____	_____
Mediastinoscopy 34.22	_____	_____
Open Cardiac Massage 37.91	_____	_____
Pancreatic Endoscopy 52.13, 52.14, 52.21, 52.93, 52.94, 52.97, 52.98	_____	_____
Pericardiocentesis 37.0	_____	_____
Peritoneal Lavage (1x) 54.25	_____	_____
Peritoneoscopy 54.21	_____	_____
Proctosigmoidoscopy 45.24, 48.21 - 48.24	_____	_____
Resuscitation - Closed Cardiopulmonary 99.60	_____	_____
Subxiphoid Pericardial Window 37.12	_____	_____
Surgical Airways		
Cricothyroidotomy 31.1	_____	_____
Mediastinal tracheostomy 31.21	_____	_____
Percutaneous tracheostomy 31.12	_____	_____
Permanent tracheostomy 31.29	_____	_____
Thoracoscopy 34.21	_____	_____
Thoracotomy (Exploratory) 34.02	_____	_____
Tracheoscopy/Laryngoscopy 31.41, 31.42	_____	_____
Ultrasounds		
Abdomen and retroperitoneum 88.76	_____	_____

## PTOS DATA

## APPENDIX C

Digestive system 88.74	_____	_____
Gravid uterus 88.78	_____	_____
Head and neck 88.71	_____	_____
Heart (echocardiogram) 88.72	_____	_____
Other (multiple sites, nongravid uterus, total body) 88.79	_____	_____
Peripheral vascular system 88.77	_____	_____
Transesophageal echocardiogram (both codes <b>must</b> be used) 88.72 and 42.23	_____	_____
Urinary system 88.75	_____	_____
Ureteroscopy 56.31, 56.33, 56.35	_____	_____
Urethroscopy 58.22	_____	_____
Ventilator: >6 hrs. post op 96.70 - 96.72	_____	_____
Ventriculostomy 02.2	_____	_____
Were there more than 84 procedures?___ 1=yes; 2=no		
Any patient sustaining a gunshot to the abdomen which is managed non-operatively 1=yes; 2=no; 3=patient did not sustain a gunshot wound to the abdomen		
Reintubation within 48 hours of extubation? 1=yes; 2=no; 3=patient not intubated, or only intubated for surgical procedure		
Patients with epidural or subdural brain hematoma receiving craniotomy > 4 hours after arrival at ED, excluding those performed for intracranial pressure (ICP) monitoring (auto calc)		
Interval of > 8 hours between arrival and initial treatment of blunt open tibial fracture (auto calc)		
Did patient have a craniotomy for trauma?___ 1=Yes; 2=No; 3=No craniotomy performed		
Did the patient have an abdominal, intrathoracic, vascular, or cranial surgery?		
Was abdominal surgery performed > 24 hours? 1=yes; 2=no; 3=surgery not required		
**Was abdominal surgery performed ≤ 24 hours? 1=yes; 2=no; 3=surgery not required		
Was intrathoracic surgery performed > 24 hours? 1=yes; 2=no; 3=surgery not required		
**Was intrathoracic surgery performed ≤ 24 hours? 1=yes; 2=no; 3=surgery not required		
Was vascular surgery performed > 24 hours? 1=yes; 2=no; 3=surgery not required		
**Was vascular surgery performed ≤ 24 hours? 1=yes; 2=no; 3=surgery not required		
Was cranial surgery performed > 24 hours? 1=yes; 2=no; 3=surgery not required		
**Was cranial surgery performed ≤ 24 hours? 1=yes; 2=no; 3=surgery not required		
** Optional		

**SECTION VIII: PAYOR CLASS**

Payor Class: Primary\_\_\_\_\_ Secondary\_\_\_\_\_

1=Blue Cross; 2=Champus/Champva; 3=Commercial Ins.; 4=Gov't plan; 5=HMO; 6=Medicaid; 7=Medicare;  
8=PPO; 9=Self pay; 10=Worker's Comp; 11=Medicaid HMO; 12=Medicare HMO

**SECTION IX: DATA COMPLETION**

Is the data entry completed? 1=yes; 2=no

**SECTION X: QUALITY ASSURANCE REPORTS\*\***

\*\* Indicates optional elements

PATIENT POPULATION

ALL patients admitted for treatment of a diagnosis of trauma (ICD-9-CM injury codes 800-995) and who meet any of the following criteria:

- All Intensive Care Unit (ICU) admissions (2:1 ratio) - Excluding ICU used as a PACU
- All step-down unit admissions (4:1 ratio)
- All Dead on Arrivals (DOA), pronounced dead after arrival
- All Trauma Deaths
- All trauma admissions over 48 hours, begin from the time of arrival to the Emergency Department
- All **admitted** transfers (In and Out)
  - e.g. Transfer In: Patient seen at another facility and transferred to your facility. Include patients transferred in from another accredited trauma center.
  - e.g. Transfer Out: Patient seen in Emergency Department at your facility and then admitted either to the Operating Room for emergency surgery or to the inpatient nursing unit. Then, due to a deteriorating condition, requires transfer to another accredited trauma center or burn center. Those patients must be included, as well as those patients who are admitted to the Emergency Department and then transferred to another accredited trauma center or burn center. Patients transferred out to any other hospital should not be included.
- Cases meeting **any** of the above criteria, but have no documented injuries
- Burn cases which meet one of the above criteria plus one of the following:
  - burned area 2° and 3° (age <10 or >50): 10%
  - burned area 2° and 3° (age >10 or <50): 20%
  - burned area 3° : >5% at any age
  - chemical burn
  - electrical injury
  - burn of face, hands, feet or perineum
  - airway or inhalation injury
  - burn accompanied by:
- significant associated injury or pre-existing disease
- suspected child abuse

OPTIONAL Elective admissions (patients not admitted through the Emergency Department not transferred from another facility) with an injury date > 72 hours prior to admission and an Injury Severity Score  $\geq$  13 may be submitted to PTOS. Elective admissions with injury > 72 hours prior to admission and ISS < 13 need not be submitted.

EXCLUDING

- solitary fractured hip, ICD-9-CM code 820.0 - 820.9 with no other injuries (describe other injuries)
- asphyxiation with no other injuries
- drownings
- poisonings

DEFINITION OF MAJOR TRAUMA PATIENT

The patient with severe multi-system or major uni-system injury, the extent of which may be difficult to ascertain, but which has the potential of producing mortality or major disability.

Approved by the  
 Pennsylvania Trauma System Foundation  
 Board of Directors  
 July 11, 1986

## PHC4 FIELD DESCRIPTIONS

This section explains the definitions of the fields for the inpatient data, facility profiles, and physician database.

### Inpatient Data

Each record in the inpatient data file represents an individual inpatient discharge from a Pennsylvania facility. The contents of the inpatient fields are either submitted by the facilities or assigned by PHC4 based upon other fields submitted by the facilities. Many of the fields have a limited number of valid values; when this is true, a table of valid values appears after the field description. Please note: values that do not appear in this table should not be considered valid for the field. Council staff provides assistance and feedback to the facilities to provide them with the opportunity to edit and correct the contents of the fields submitted. The ultimate responsibility of the accuracy of the field contents rests with the data sources. PHC4 can only assure that

the information contained in the fields provided accurately reflects the data sources' final submissions.

### Record Identification

**System-assigned unique record sequence number.** This is a unique identifier for each record in the quarter. It is assigned by PHC4 during file processing.

**Processing Year.** This is a four-digit year indicator for the record. It tells the year of discharge for the patient. When multiple years are combined, this may be used to distinguish records. This field is based upon the data submission, not calculated from the discharge date.

**Processing Quarter.** This is a single digit quarter indicator for the record. It tells the quarter of discharge for the patient. When multiple quarters of a single year are combined, this may be used to distinguish records. This field is based upon the data submission, not calculated from the discharge date.

### Facility Identification

**Pennsylvania Facility Number (PAF).** This is the PHC4 assigned facility identification number for the facility submitting the record. This field may be used to link to facility profile information.

**Facility Region Code.** PHC4 divides the state into nine separate regions for the purposes of reporting. This code indicates the region to which PHC4 has assigned the facility for these purposes. Appendix 1 contains a list and map of the facility regions by county. Please note: Butler Memorial Hospital is assigned to region 1 not region 2 as indicated by the county of the facility.

**Medical Assistance Identification Number (MAID).** This is the state-assigned number for Pennsylvania Medical Assistance Certification as provided by the facility. Specific units within facilities may have their own MAID numbers. Occasionally, a new facility will not yet have a MAID number assigned to them from Pennsylvania Medical Assistance; in this case, PHC4 provides a temporary number.

### Patient Data

**Patient Sex.** This is the character code for patient sex as submitted by the facility.

#### *Value Description*

M Male

F Female

U Unknown

**Hispanic/Latino Origin or Descent.** This is the numeric code for a patient's ethnic descent as submitted by the facility. An admission clerk often collects this field and its reliability varies among the facilities.

#### *Value Description*

1 Patient is of Hispanic/Latino origin or descent

2 Patient is not of Hispanic/Latino origin or descent

**Race Code.** This is the character code for patient race as submitted by the facility. Like the previous field, an admission clerk often collects race and its reliability varies among the facilities.

#### *Value Description*

W White

B Black

A Asian or Pacific Island

I Native American or Eskimo

N Other

U Unknown

**Pseudo Patient Identifier.** This is the unique patient identifier created by PHC4. To create this field, PHC4 applies an encryption technique to specific patient identification fields as supplied by the facilities. (If any one of these fields is blank or invalid, then the Pseudo Patient Identifier will be blank.) The Pseudo Patient Identifier is only as reliable as the combination of these identification fields. The Pseudo Patient Identifier is intended to be used to match patients across hospitalizations or to analyze patient readmission or transfer patterns.

**Patient Age in Years.** This is the age of the patient in years. This field is calculated from the date of birth and date of admission as submitted by the facility. If the patient is less than one year old, the age in years is 0. If the patient's age is unknown due to missing information in either the date of birth or date of admission fields, the age is blank.

**Patient Age in Days.** This is a code to indicate the age of the patient in days. This field is only calculated for patients less than one year old. Again, the date of birth and date of admission as submitted by the facility are used for the calculation.

*Value Description*

(blank) Age unknown or > 1 year

1 0 - 28 days

2 29 - 59 days

3 60 - 90 days

4 91 - 121 days

5 122 - 152 days

6 153 - 183 days

7 184 - 214 days

8 215 - 245 days

9 246 - 276 days

10 277 - 307 days

11 308 - 338 days

12 339 - 366 days

**Patient Zip Code.** This is the first five digits of the patient home zip code as submitted by the facilities. This field is not available for patients with confidential conditions. (See Appendix 6 for a list of confidential conditions and the CMS DRGs and ICD.9.CM diagnosis and procedure codes that define them.)

Furthermore, the following special cases have specific entries to describe them:

*Value Description*

OUTCU Patient's home is outside of the country.

HOMELESS Patient is homeless and has no zip code.

UNKNOWN Patient's zip code is unknown.

**Home Market Share Area Code.** *This field is currently blank.*

**Patient Home County Code.** This is the numeric code for the county in which the patient resides. This field is assigned by PHC4 based upon the patient zip code as submitted by the facility in combination with an updated zip code table provided by the United States Postal Service. Seventeen percent of the Pennsylvania zip codes cross county lines; in these instances, PHC4 assigns the zip code to a single county. Please contact PHC4 if you need more detailed information on these zip codes.

If the patient resides in Pennsylvania, the Pennsylvania county code is used. If the patient resides outside of the state, then the federal county code is used. Appendix 2 lists the Pennsylvania county codes. Please note that federal county codes are not unique among states; different counties in different states can have the same federal county code.

**State Code.** This is the two character United States Postal Service standard state code for the patient's state of residence. This field is assigned by PHC4 based upon the patient zip code as submitted by the facility. Appendix 3 contains a list of the state codes.

**Admission Data**

**Admission Type.** This is the numeric code for the urgency of the admission as supplied by the facility. The table of valid codes includes the definition for each value. Please note that interpretation of these definitions is not uniform across the facilities.

*Value Description Definition*

1 Emergency The patient requires immediate medical intervention as a result of severe, life threatening, or potentially disabling conditions.

2 Urgent The patient requires immediate attention for the care and treatment of a physical or mental disorder.

3 Elective The patient's condition permits adequate time to

schedule the availability of suitable accommodation.

4 Newborn The patient is born in the hospital or no more than three days prior to the hospitalization.

**Admission Source.** This is the code for the source of the admission as supplied by the facility. Please note that some values for admission source have different meanings depending upon the admission type.

*Admission Type Emergency (1), Urgent (2), or Elective (3)*

*Value Description*

0 Transfer from Psych, Substance Abuse or Rehab Hospital

1 Physician Referral

2 Clinic Referral

3 HMO Referral

4 Transfer from a Hospital

5 Transfer from a Skilled Nursing Facility (SNF)

6 Transfer from another Health Care Facility

7 Emergency Room

8 Court/Law Enforcement

A Transfer from a Critical Access Hospital

*Admission Type Newborn (4)*

*Value Description*

1 Normal Delivery

2 Premature Delivery

3 Sick Baby

4 Extramural Birth

**Admission Hour.** This is the two-digit hour designation of the hour of the admission as supplied by the facility. A military clock is used to give values between 00 and 23 hours.

**Admitting Diagnosis.** This is the ICD.9.CM diagnosis code used to indicate the reason for admission as supplied by the facility. This may differ from the principal diagnosis code that is assigned at discharge.

**Admission Day Of The Week.** This is the numeric code for the day of the week the admission took place. This field is assigned according to the date of admission as supplied by the facility.

*Value Description*

1 Sunday

2 Monday

3 Tuesday

4 Wednesday

5 Thursday

6 Friday

7 Saturday

## Discharge Data

**Discharge Status.** This is the numeric code used to indicate the patient disposition or intended destination upon discharge as supplied by the facility.

*Value Description*

01 Discharged to home or self care (routine discharge)

02 Discharged/transferred to another short term general hospital for inpatient care

03 Discharged/transferred to skilled nursing facility (SNF)

04 Discharged/transferred to an intermediate care facility (ICF)

05 Discharged/transferred to another type of institution for inpatient care or referred for outpatient services to another institution

06 Discharged/transferred to home under care of organized home health service organization

07 Left against medical advice or discontinued care

08 Discharged/transferred to home under care of a Home IV provider

20 Expired

50 Discharged to home with hospice care

51 Discharged to a hospice facility

61 Discharged/Transferred within the facility to a hospital - based Medicare approved swing bed

62 Discharged/Transferred to another rehabilitation facility including rehabilitation distinct part units of a hospital

63 Discharged/Transferred to a long term care hospital

71 Discharged/Transferred/Referred to another institution for outpatient services as specified by the discharge plan of care

72 Discharged/Transferred/Referred to this institution for outpatient services as specified by the discharge plan of care

**Length of Stay.** This is the number of days the patient stayed in the facility. It is calculated

using the date of admission and date of discharge as supplied by the facility. Note that if the date of discharge and the date of admission are the same, the patient has a zero (0) day length of stay. If either of the source fields is missing or invalid, the length of stay is blank.

**Discharge Hour.** This is the two-digit hour designation of the hour of the discharge as supplied by the facility. A military clock is used to give values between 00 and 23 hours.

**Discharge Day of the Week.** This is the numeric code for the day of the week on which the discharge took place. This field is assigned by PHC4 based upon the date of discharge as supplied by the facilities. Valid values for discharge day of the week are the same as for admission day of the week.

### Diagnosis Codes

PHC4 accepts an external cause of injury code (E-code), principal diagnosis code, and up to eight (8) secondary diagnosis codes.

**External Cause of Injury Code (E-Code).** This is the ICD.9.CM code that indicates an external cause of injury as supplied by the facility.

**Principal Diagnosis Code.** This is the ICD.9.CM diagnosis code assigned at discharge as the reason for the hospitalization as supplied by the facility. It may differ from the admitting diagnosis.

**Secondary Diagnosis Codes 1-8.** These are additional ICD.9.CM diagnosis codes assigned to describe additional conditions that coexist at admission or are discovered during the hospitalization as supplied by the facility.

### Procedure Codes

PHC4 accepts a principal procedure code and up to five (5) secondary procedure codes.

**Principal Procedure Code.** This is the ICD.9.CM procedure code to indicate the principal procedure performed on the patient during the inpatient stay as supplied by the facility.

**Secondary Procedure Codes 1-5.** These are the additional ICD.9.CM procedure codes for additional procedures performed on the patient during the inpatient stay as supplied by the facility. In some cases, diagnostic procedures performed three or fewer days prior to admission are billed with the inpatient admission and appear as a procedure in the record.

### Procedure Day of the Week

The facilities only submit procedure month and day, *not procedure year*, to PHC4. There are rare instances in which the true procedure day of the week is ambiguous due to uncertainty in the year associated with the procedure month and day. This can occur if the hospitalization is greater than one year in duration or the procedure month and day is outside of the admit and discharge dates (outside of the admission).

**Principal Procedure Day of the Week.** This is the day of the week on which the principal procedure was performed. This field is assigned based upon the principal procedure date as supplied by the facility. Valid values are the same as for admission day of the week.

**Secondary Procedure (1-5) Day of the Week.** This is the day of the week on which the corresponding secondary procedure was performed. This field is assigned based upon the corresponding secondary procedure date as supplied by the facility. Valid values are the same as for admission day of the week.

### Pennsylvania State Physician License Number

Facilities are required to supply the Pennsylvania state license number for the referring, attending, and operating physicians. PHC4 compares the submitted license numbers with a list of valid license numbers supplied by Department of State, Bureau of Professional Licensure. Please note: a number may be a valid license number without being the *correct* license number.

These license numbers are intended to be used with the accompanying physician profiles.

**Referring Physician.** This is the Pennsylvania state physician license number for the referring physician as submitted by the facility. The referring physician is defined as the physician who referred the patient to the attending physician for care and/or treatment. The interpretation of this definition varies dramatically among facilities.

**Attending Physician.** This is the Pennsylvania state physician license number for the attending physician as submitted by the facility. The attending physician is defined as the physician who would normally be expected to certify and re-certify the medical necessity of the services rendered and/or who has primary responsibility for the patient's medical care and treatment. The interpretation of this definition varies among facilities.

**Operating Physician.** This is the Pennsylvania state physician license number for the operating physician who performed the principal procedure as submitted by the facility.

**Payer Identification**

**Primary Payer.** This is a two-digit code that identifies the primary payer type as submitted by the facility. The first digit describes the general payer class. The second digit generally describes the different types of insurance coverage (products). The table of valid values appears below.

*Description**Type of Payer Type of Product**Value First Digit Second Digit*

00 Uninsured Self Pay or Charity/Indigent Care

12 Medicare PPO

13 Medicare POS

14 Medicare Part A or B Fee for Service

15 Medicare HMO

22 Medicaid PPO

24 Medicaid Fee for Service

25 Medicaid HMO

32 Blue Cross PPO

33 Blue Cross POS

34 Blue Cross Fee for Service

35 Blue Cross HMO

39 Blue Cross Unknown / Not Listed

42 Commercial PPO

43 Commercial POS

44 Commercial Fee for Service

45 Commercial HMO

47 Commercial Workers' Compensation

48 Commercial Automobile

49 Commercial Unknown / Not Listed

82 Government PPO

84 Government Fee for Service

85 Government HMO

89 Government Unknown / Not Listed

99 Unknown / Not Listed Unknown / Not Listed

**Secondary Payer.** This is a two-digit code that identifies the secondary payer type as submitted by the facility. The valid values for this field are the same as for the primary payer.

**Tertiary Payer.** This is a two-digit code that identifies the tertiary payer type as submitted by the facility. The valid values for this field are the same as for the primary payer.

**Estimated Payer Code.** *This field is currently blank.*

**NAIC.** This is the National Association of Insurance Companies assigned identification number for the primary payer as submitted by the facility. This number exists only for insurers that participate in the NAIC.

The following additional special values are also provided for the NAIC field:

*Value Description*

1111111 Self-Pay

1000000 Out-of-State Blue Cross

2222222 Behavioral Health Coverage

3333333 Automobile

4444444 Workers' Compensation

5555555 State Owned Psychiatric

6666666 Federally Paid Claim (Other than Medicaid or Medicare)

7777777 Third Party Administrators

8888888 Medicaid

9999999 Medicare

**Additional Data Elements**

**Unusual Occurrences 1 – Nosocomial Infection.** This is a code to indicate infections acquired while in the facility. *PHC4 currently does not collect this field. It is blank.*

**Unusual Occurrences 2 – Readmission.** This is a code to indicate that the hospitalization is a readmission within 30 days of a previous discharge. *PHC4 currently does not collect this field. It is blank.*

**Type Of Bill.** This is a code to indicate the type of bill as submitted by the facility. For inpatient data, PHC4 collects bills covering admission through discharge from facilities. Appendix 4 contains an explanation of the meaning for each digit in the type of bill.

**Hospital Diagnosis Related Group (DRG).** This is the CMS Medicare DRG classification for the patient as submitted by the facility. Appendix 5 contains a list of all MDCs and DRGs for the CMS Grouper.

**Procedure Coding Method Used.** This is a code to indicate what method was used to code the procedures as submitted by the facility. The only valid value for this field is 9 because all inpatient stays are coded with ICD.9.CM codes.

**PHC4 Diagnosis Related Group (DRG).** This is the CMS Medicare DRG classification for the patient as assigned by PHC4 when the data is grouped using the CMS Medicare Grouper. This field is assigned based upon the age, sex, and diagnosis and procedure codes as submitted by the facility. Please note: PHC4 is limited to nine diagnosis and six procedure codes for the assignment of the DRG. Facilities may have more diagnosis and procedure codes available. Appendix 5 contains a list of all MDCs and DRGs for the CMS Grouper.

**Cancer Code 1.** PHC4 assigns the cancer code to add value to the data. This code simplifies analysis of cancer patients by classifying them by the type of cancer. We use the PHC4 DRG and diagnosis codes as submitted by the facility to assign the cancer code. Appendix 7 contains a list of the DRGs and ICD.9.CM codes that define each value of the cancer code.

*Value Description*

blank No Cancer

A Cancer DRG

B Malignant Neoplasm

C Cancer In-Situ

D History of Cancer

**Cancer Code 2.** This code indicates the position of a cancer diagnosis if it is present in the record.

*Value Description*

blank No cancer diagnosis

1 Cancer diagnosis in principal position

2 Cancer diagnosis in first secondary diagnosis position

3 Cancer diagnosis in second secondary diagnosis position

4 Cancer diagnosis in third secondary diagnosis position

5 Cancer diagnosis in fourth secondary diagnosis position

6 Cancer diagnosis in fifth secondary diagnosis position

7 Cancer diagnosis in sixth secondary diagnosis position

8 Cancer diagnosis in seventh secondary diagnosis position

9 Cancer diagnosis in eighth secondary diagnosis position

**Major Diagnostic Category (MDC).** This is the CMS Medicare MDC assigned by PHC4 when the data is grouped using the CMS Medicare Grouper. When a MDC cannot be assigned to the record by the grouper, it returns the value 00 to indicate an error in the record. Appendix 5 contains a list of all MDCs and DRGs for the CMS Grouper.

### MediQual Data Elements

**MediQual Atlas Admission Severity.** The Atlas Admission Severity is an indicator of the probability of in-hospital mortality for the patient at admission. It is calculated from clinical variables collected at the facility and submitted to MediQual. Appendix 8 contains a list of the CMS DRGs covering conditions that do not require an Atlas Admission Severity.

*Value Clinical Instability Probability of Death*

0 None 0.000 – 0.001

1 Minimal 0.002 – 0.011

2 Moderate 0.012 – 0.057

3 Severe 0.058 – 0.499

4 Maximal 0.500 – 1.000

**MediQual Atlas Midstay Nonresponder Indicator.** The Atlas Midstay Nonresponder Indicator is used to determine whether a patient is responding to treatment. It is calculated from the difference in the probability of death at midstay and the probability of death at admission. The Nonresponder score is not a required submission for Pennsylvania facilities, but is included in the nonconfidential data if the facility chose to provide it.

*Value Description*

Y Yes – patient is a non-responder

N No – patient is responding to treatment

I Ineligible – patient is not eligible for this calculation

**MediQual Total Charges Grouper Cluster.** The MediQual Total Charges Grouper Cluster (MQ Grouper Cluster) is assigned with the MediQual Total Charges Grouper. It is an aggregation used to group discharges into similar categories for modeling purposes. It is

based on the procedure codes on the claim (or, if no procedure exists, the principal diagnosis). Appendix 10 contains a list of the Clusters and their descriptions.

**MediQual Total Charges Grouper Cell (aggregated and reformatted).** The MediQual Total Charges Grouper Cell, which is also known as the Atlas Total Charges Score, is based upon the predicted total charges from the MQ Grouper. The predicted total charge is calculated using administrative data (patient age, sex, principal and secondary diagnoses, principal and secondary procedures) using a separate equation for each cluster. The predicted total charge is then aggregated into 10 different categories. These categories were then aggregated again and reformatted by Council staff to a value from 0 to 4 to mimic the Atlas Admission Severity Score range. Although this new variable is similar to the Atlas Admission Severity Score, it is not equivalent since it is based on predicted charges throughout the stay instead of predicted mortality upon admission.

### **Summary Charges**

Summary charges are the sum of charges submitted by the facility (as defined by the revenue codes) for each category.

**Professional Fees.** This is the sum of the charges as defined by revenue codes submitted by the facility that relate to professional services.

**Total of Other Charges.** This is the sum of the charges excluding professional fees as submitted by the facility.

**Non-covered Charges.** This is the sum of all charges that are not covered by the payer as submitted by the facility.

**Room & Board Charges.** This is the sum of the charges as defined by revenue codes submitted by the facility that relate to room and board.

**Ancillary Charges.** This is the sum of the charges as defined by revenue codes submitted by the facility that relate to ancillary services.

**Drug Charges.** This is the sum of the charges as defined by revenue codes submitted by the facility that relate to the pharmacy (drugs).

**Equipment Charges.** This is the sum of the charges as defined by revenue codes submitted by the facility that relate to medical equipment and supplies.

**Specialty Charges.** This is the sum of the charges as defined by revenue codes submitted by the facility that relate to special care units.

**Miscellaneous Charges.** This is the sum of the charges as defined by revenue codes submitted by the facility that are not contained in any of the above groups.

### **All Patient Refined (APR) Grouper Fields**

The APR Grouper uses the patient's sex, birth date, admit date, discharge status, principal and secondary diagnosis codes, and principal and secondary procedure codes as submitted by the facilities to determine the MDC, DRG, severity of illness class and risk of mortality class. Please note, PHC4 is limited to nine diagnoses and six procedure codes. Appendix 9 contains a list of all MDCs and DRGs for the APR Grouper.

This quarter was grouped using the version 15 APR grouper with no code mapping.

**APR Major Diagnostic Category.** This is the MDC assigned by the APR Grouper to denote major body system of the condition causing the hospitalization.

**APR Diagnosis Related Group.** This is the DRG assigned by the APR Grouper for the hospitalization. This may differ from the CMS DRG because the groupers use different Diagnosis Related Groups.

**APR Severity Of Illness Class.** This is an indicator of the extent of physiologic decompensation or organ system loss of function.

#### *Value Description*

- 0 (Unable to Calculate)
- 1 Minor loss of function
- 2 Moderate loss of function
- 3 Major loss of function
- 4 Extreme loss of function

**APR Risk Of Mortality Class.** This is the likelihood of dying as determined by the APR system.

#### *Value Description*

- 0 (Unable to Calculate)
- 1 Minor likelihood of dying
- 2 Moderate likelihood of dying
- 3 Major likelihood of dying
- 4 Extreme likelihood of dying