



Central Ohio Trauma System (COTS)

2015 Report



Central Ohio
Trauma System

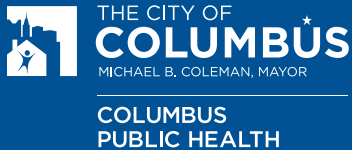
A Public Health Assessment

Prepared By:



Central Ohio
Trauma System

Roxanna L. Giambri, BS, RHIA
Trauma Registry Coordinator



Allen Emanuel, MPH
Center For Epidemiology, Preparedness & Response

Ben DeJesus, MS
Center For Epidemiology, Preparedness & Response

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Central Ohio Trauma System



ABOUT THE CENTRAL OHIO TRAUMA SYSTEM (“COTS”)

COTS was founded in 1997. COTS’ mission is to reduce injuries and save lives by improving and coordinating trauma care, emergency care and disaster preparedness systems. COTS addresses a need that is otherwise unmet among its stakeholders---that of coordinating system-wide improvements in emergency medical care and medical surge capabilities affecting central and Southeastern Ohio. COTS is a voluntary, cooperative, self-regulatory organization and maintains a 501(c)(3) Internal Revenue status for charitable, educational and scientific intent. COTS’ goals are:

- To sustain an inclusive system where community partners work together to resolve issues associated with trauma & emergency care;
- To maintain COTS’ two databases and use them to improve emergency care and injury prevention programming in Central Ohio;

- To facilitate initiatives that accomplish appropriate resource utilization while reducing deaths and disabilities from trauma, strokes, heart attacks and other emergency health conditions; and
- To coordinate and improve healthcare partners’ medical disaster preparedness and response.

COTS is an affiliate organization of the Columbus Medical Association.

The COTS Board of Trustees is comprised of health care experts from hospitals, emergency medical services (EMS) providers, physicians, and representatives from local government health agencies serving Central Ohio. The COTS Board meets quarterly. Board meetings are open to the public.

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Trauma Data in Central Ohio

The COTS Regional Trauma Registry (RTR) serves as the basis for this report. Founded in 1999, the RTR includes patients with serious injuries who are transferred to, admitted for 2 days or longer to, and/or die at a participating Central Ohio hospital. The following 26 hospitals contributed data to the RTR used for this report:

Adena Health System, Chillicothe, Ohio

Berger Health System, Circleville, Ohio

Coshocton County Memorial Hospital, Coshocton, Ohio

Diley Ridge Medical Center, Canal Winchester, Ohio

Fairfield Medical Center, Lancaster, Ohio

Genesis HealthCare System, Zanesville, Ohio

Knox Community Hospital, Mt. Vernon, Ohio

Licking Memorial Health System, Newark, Ohio

Madison Health, London, Ohio

Marietta Memorial Hospital, Marietta, Ohio

Memorial Health System, Marysville, Ohio

Morrow County Hospital, Mt. Gilead, Ohio

Mount Carmel East, Columbus, Ohio

Mount Carmel New Albany, New Albany, Ohio

Mount Carmel St. Ann's, Westerville, Ohio

Mount Carmel West, Columbus, Ohio

Nationwide Children's Hospital, Columbus, Ohio

The Ohio State University Hospital East, Columbus, Ohio

The Ohio State University Wexner Medical Center, Columbus, Ohio

OhioHealth Doctors Hospital, Columbus, Ohio

OhioHealth Dublin Methodist Hospital, Dublin, Ohio

OhioHealth Grady Memorial Hospital, Delaware, Ohio

OhioHealth Grant Medical Center, Columbus, Ohio

OhioHealth Marion General Hospital, Marion, Ohio

OhioHealth Riverside Methodist Hospital, Columbus, Ohio

Southeastern Ohio Regional Medical Center, Cambridge, Ohio

Since its inception in 1999, the RTR has collected data on more than 130,000 trauma patients---an average of over 12,000 Central Ohioans annually who experience a potentially life-threatening injury. The RTR is intended to serve as a community resource beyond this report by providing data that leads to improved trauma patient care. RTR data can serve as the basis for focusing injury prevention and trauma care initiatives on areas of highest need. The RTR can also provide benchmarks for measuring progress. RTR data is available to community researchers and injury prevention planners by contacting the Central Ohio Trauma System at (614) 240-7419. To learn more about COTS' work in Central Ohio or for extra copies of this report, contact the Central Ohio Trauma System at (614) 240-7419.

Columbus Public Health

ORGANIZATIONAL OVERVIEW



COLUMBUS PUBLIC HEALTH

Columbus Public Health

Columbus Public Health is the local health agency for the City of Columbus. Established in 1904, the department is charged with assuring conditions in which people can be healthy. Columbus Public Health is made up of a range of programs providing clinical, environmental, health promotion, and population based services. The department has an annual budget of \$46 million and is staffed by nearly 400 full and part-time employees.

Our Mission

The mission of Columbus Public Health is to protect health and improve lives in our community.

Our Vision

The Columbus community is protected from disease and other public health threats, and everyone is empowered to live healthier, safer lives. CPH is the leader for identifying public health priorities and mobilizing resources and community partnerships to address them.

Our Public Health Goals

- Identify and respond to public health threats and priorities.
- Collaborate with residents, community stakeholders and policymakers to address local gaps in public health.
- Empower people and neighborhoods to improve their health.
- Establish and maintain organizational capacity and resources to support continuous quality improvement

2015 Executive Summary

“Trauma” is a significant physical injury to human tissues and organs as a result of a transfer of energy from the environment¹. This energy typically occurs with a degree of rapidity and exceeds the body’s capacity to remain intact against it. Trauma is more than a simple cut or bruise; trauma implies the potential for death or long-term disability due to the severity of injury.

According to the Centers for Disease Control and Prevention (CDC), trauma is the leading cause of death in the 1-44 year-old age groups in the U.S.². Trauma deaths in this age group are particularly concerning because they involve “society’s youngest and potentially most productive members;” because these deaths are typically preventable; and because of possible long-term ramifications for decedents’ families and communities.

Twenty-six central Ohio hospitals from across fourteen counties provided data for this report. Data includes trauma-related deaths, patients who sustained an injury and were transferred from one hospital to another for care, and injured patients who were admitted for greater than 48 hours. These three parameters—death, transfer, and/or hospital admission of more than two days—help to delineate true “trauma patients” from those who sustain less serious injuries.

Based on the most recent data, more than 760 Franklin County residents die of trauma every year, and nearly there were over 4,000 hospital admissions for trauma. Based on the 2010-2012 registry data, the leading causes of trauma-related hospitalization (and the 3-year total counts) are... Falls

(6,002), Motor Vehicle Traffic Crashes (2,486), “Struck by or Against” an object such as from an assault or an inadvertent projectile³ (1,113), Firearm Related Injuries (641), and Fire or Hot Object Injuries (411). These top five causes account for over 75% of injury hospitalizations since 2004. In addition to these direct numbers of trauma victims, it is paramount to look at the rates (based on per 100,000) and costs of trauma as they affect the community.

In Franklin County, the rate of hospitalizations due to Falls has increased has increased by 8% from 2007-2012. Both categories of MVT Crashes and Fire or Hot Object have seen an increase in hospitalization rates by 9% from 2007 to 2012. Firearm injuries saw the most increase of the “top five” with 13% change from 2007 to 2012 while, “Struck by or Against” an object injuries had an increase 7% change.

Trauma is not just “numbers” of severely injured people. Trauma equates to real dollars that are expended by our Central Ohio community, not just in patients’ medical bills but in lost wages, insurance administration costs, property damage, fire loss, employer costs, and decreased work productivity⁴. Trauma also costs our community money in terms of publicly-supported human services that are required to address each incident, such as the EMS and law enforcement personnel who care for these victims and/or the scene of the injury.

Over 85% of the trauma cases in our region are the result of an unintentional injury meaning that they were preventable in

some way or another. We know, for example, that most Fall injuries occur in people who are 65 years of age and older, whereas the majority of Firearm injuries occur among people ages 15-24. Age-appropriate injury prevention programs could impact these types of injuries, i.e. fall prevention programs aimed at the elderly in which they or a family member are taught how to reduce the fall risk in their home. Besides age-related trends, data is also available that trends trauma by gender, race, zip code. Injury prevention programming aimed at these specific trends could work to address each of the top five causes of trauma in our region.

To that end, this community injury report is dedicated to those in our community who conduct injury-prevention programming with the elderly, the youth, or any other at-risk group. This report is for our government leaders as they look at trauma trends and work to eradicate associated risks. This report is for the healthcare workers in our community who care for every trauma victim reflected on these pages. Lastly, this report is for you, the consumer and potential trauma victim, to be more aware of trauma, local trauma trends, and the need to consider injury prevention in aspects of your everyday life.

¹ *Emergency Nurses Association, Chicago, IL. Trauma Nursing Core Course Curriculum (2007); p. 1 & 7.*

² *Centers for Disease Control and Prevention. Web-based injury statistics query and reporting system (WISQARS). Available at <http://www.cdc.gov/injury/wisqars/index.html>.*

³ *Excludes a projectile from a firearm*

⁴ *The American College of Surgeons Committee on Trauma, Chicago, IL. Advanced Trauma Life Support for Doctors Course (2008); p. xviii.*



SECTION 1:
All Causes of External Injury Hospitalizations

Section 1: All Causes of External Injury Hospitalizations

Franklin County is a large, urban county with an estimated 2012 population of 1,195,537 which is up 3% from the 2010 estimate. According to the 2012 estimate the primary racial groups are White (72%) and Black (23%)¹. However, 9.5% of the population are foreign born and 12.7% speak a language other than English. These are some factors that might influence our population risks for injuries. Both injury related fatalities and hospitalizations increased over the last 3 years since the last report.

Injury Mortality and Hospitalizations

Years	Mortality # (Rate)	Hospitalizations # (Rate)
2007-09 *(avg./yr.)	689 (62)	3595 (332)
2010-12 *(avg./yr.)	763 (65)	3980 (354)
Change in number	+74 (11% inc.)	+385 (11% inc.)

**An average number per year was calculated for each 3-year category.*

Unintentional injuries or accidents account for 62% of fatal injuries and 84% of 48-hour hospitalizations. Other injury categories are self-inflicted injuries and assault injuries. In general, the number and rate per 100,000 for fatal unintentional, self-inflicted, and assault injuries increased from 2007-2009 to 2010-2012. Additionally, the number and rate of hospitalizations in each of these categories increased.

Tables 1-3 through 1-7 show the gender, age, and race distribution of 48-hour hospitalizations by the three main categories: unintentional, self-inflicted and intentional. Compared to years 2007-2009, the 48-hour injury hospitalization number and rate for most gender, age, and racial groups have increased.

Number and Rate of Injury Mortality and Hospitalizations by Intentionality

Years	Unintentional	
	Fatal # (rate)	Hosp. # (rate)
2007-09 *(avg./yr.)	433 (40)	3004 (283)
2010-2012 *(avg./yr.)	477 (42)	3339 (302)
Change in number	+44 (10%)	+335 (11%)
Years	Self-inflicted	
	Fatal # (rate)	Hosp. # (rate) (suicide)
2007-09 *(avg./yr.)	134 (12)	35 (3)
2010-2012 *(avg./yr.)	138 (12)	51 (4)
Change in number	+4 (0%)	+11 (45%)
Years	Assault	
	Fatal # (rate)	Hosp # (rate)
2007-09 *(avg./yr.)	97 (8)	519 (43)
2010-2012 *(avg./yr.)	109 (9)	571 (46)
Change in number	+12 (12%)	+52 (10%)

**An average number per year was calculated for each 3-year category.*

Section 1: All Causes of External Injury Hospitalizations

Males continue to be at higher risk for injury hospitalization than females. The ratio has remained constant from 2007-12 with 1.3 males hospitalized for every female, although the number of females hospitalized increased by 12% from 2009 to 2012 whereas males increased by only 10%.

Hospitalizations per Year and Rate by Gender and Race

Years	Gender		Race	
	Male	Female	Black	White
2007-09 *(avg./yr.)	2063 (396)	1532 (264)	800 (352)	2473 (313)
2010-12 *(avg./yr.)	2261 (421)	1718 (283)	883 (360)	2839 (349)
Change in number	+198 (10%)	+186 (12%)	+83 (10%)	+366 (15%)

*An average number per year was calculated for each 3-year category.

The highest risk age groups for unintentional injury hospitalizations continues to be 45 and older. For intentional injuries the high risk age groups are 15-24 (84/100,000) and 25-44 (73/100,000). This is similar to the 2007-09 reports when the rates were 84 and 65 respectively. For intentional injury hospitalizations, Black youth continue to be at highest risk. The 2010-12 rate per 100,000 for White youth 15-24 years old is 38 compared to 218 for Black youth 15-24 years old. This is a 6 fold higher risk.

Intentional Injury Hospitalization for 15-24 year olds by Race

Years	Black 15-24 yr. old	White 15-24 yr. old
2007-09 *(avg./yr.)	274 (226/100,000)	129 (36/100,000)
2010-12 *(avg./yr.)	280 (218/100,000)	139 (38/100,000)
Change in number	+6 (2%)	+10 (8%)

*An average number per year was calculated for each 3-year category.

NOTE: All tables are of Franklin County residents who are admitted into hospital for 48-hours or more. All rates are based on per 100,000 people.

¹ National Center for Health Statistics. Vintage 2013 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2013), by year, county, single-year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of June 26, 2014, following release by the U.S. Census Bureau of the unbridged Vintage 2013 postcensal estimates by 5-year age group on June 26, 2014.

Section 1: All Causes of External Injury Hospitalizations

Table 1-1: Franklin County Injury Hospitalization Number & Rate Trends by Mechanism & Intentionality

Mechanism of Injury Hospitalization	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Mechanism of Injury Hospitalization	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	†Number	Rate	Number*	Rate				Number*	Rate	Number	Rate		
All	10,784	332	11,939	354		6.7%	All	4056	360	4076	359		-0.4%
Falls	5,289	174	6,002	189		8.3%	Falls	2040	193	2091	194		0.7%
Motor Vehicle Traffic (MVT)	2,204	64	2,486	70		8.6%	Motor Vehicle Traffic (MVT)	822	69	896	75		8.6%
Struck by/Against	1,003	29	1,113	31		7.7%	Struck by/Against	377	31	359	30		-4.5%
Firearm	575	16	641	17		9.0%	Firearm	239	19	198	17		-17.0%
Fire/Hot Object	366	11	411	12		9.4%	Fire/Hot Object	152	13	106	9		-31.0%
Cut/Pierce	347	10	374	10		6.5%	Cut/Pierce	127	10	118	10		-4.9%
Transport, Other	241	7	219	6		-10.0%	Other Specified and Classifiable	75	7	75	6		-3.1%
Other Specified and Classifiable	204	6	189	5		-8.8%	Pedal Cyclist, Other (Non-MVT related)	49	4	69	6		-8.5%
Pedal Cyclist, Other (Non-MVT related)	168	5	163	5		-7.8%	Transport, Other	58	5	57	5		-2.1%
Unspecified	121	4	93	3		-22.9%	Unspecified	29	3	32	3		13.3%
Natural/Environmental	103	3	72	2		-32.3%	Natural/Environmental	26	2	22	2		-17.8%
Machinery	51	2	53	2		0.0%	Machinery	26	2	15	**	N/A	N/A
Other Specified, Not Elsewhere Classifiable	43	1	26	1		-46.2%	Pedestrian, Other (Non-MVT related)	5	**	8	**	N/A	N/A
Pedestrian, Other (Non-MVT related)	15	**	27	1	N/A	N/A	Drowning/Submersion	9	**	8	**	N/A	N/A
Suffocation	19	**	19	**	N/A	N/A	Suffocation	5	**	7	**	N/A	N/A
Drowning/Submersion	13	**	26	1	N/A	N/A	Other Specified, Not Elsewhere Classifiable	7	**	6	**	N/A	N/A
Overexertion	9	**	16	**	N/A	N/A	Overexertion	5	**	6	**	N/A	N/A
Poisoning	9	**	8	**	N/A	N/A	Poisoning	4	**	3	**	N/A	N/A
Adverse Effects (Drugs/Medical)	0	**	0	**	N/A	N/A	Adverse Effects (Drugs/Medical)	0	**	0	**	N/A	N/A

Injury Hospitalization By Intentionality	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Injury Hospitalization By Intentionality	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Unintentional	9,014	283	10,018	302		6.7%	Unintentional	3,387	306	3,476	310		1.3%
Assault	1,557	43	1,713	47		7.9%	Assault	594	48	551	45		-7.9%
Self-Inflicted	106	3	155	4		47.2%	Self-Inflicted	53	4	39	3		-19.5%
Undetermined	96	3	37	1		-46.2%	Undetermined	12	**	8	**	N/A	N/A
Other	11	**	16	**	N/A	N/A	Other	10	**	2	**	N/A	N/A
Adverse Effects	0	**	0	**	N/A	N/A	Adverse Effects	0	**	0	**	N/A	N/A

* Data will not add up to total ("All" category). One case in 2011 could not be matched up to a specific mechanism of injury category.

** Data do not meet reliability or precision standards of the National Center for Health Statistics as they are based on less than 20 injuries (numerator) and are not presented here.

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 1: All Causes of External Injury Hospitalizations

Table 1-2: Franklin County Leading Mechanisms of Injury Hospitalization Number & Rate Trends by Intent

Unintentional Injury Hospitalization	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Unintentional Injury Hospitalization	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Falls	5,276	174	5,993	189		8.4%	Falls	2,040	193	2,088	194		0.5%
Motor Vehicle Traffic (MVT)	2,198	64	2,480	70		8.4%	Motor Vehicle Traffic (MVT)	819	69	893	75		8.6%
Struck by/Against	292	9	253	7		-16.5%	Struck by/Against	84	7	81	7		0.0%
Hot	228	7	249	7		7.6%	Transport, Other	75	7	75	6		-3.1%
Transport	241	7	219	6		-11.4%	Pedal Cyclist, Other (Non-MVT related)	49	4	69	6		38.1%
Pedal Cyclist, Other (Non-MVT related)	168	5	163	5		-7.8%	Hot	101	9	63	5		-37.2%
Fire	135	4	152	4		10.3%	Cut	27	2	40	3		50.0%
Cut/Pierce	79	2	103	3		26.1%	Fire	47	4	39	3		-17.9%
Other Specified and Classifiable	80	2	81	2		-4.3%	Other Specified and Classifiable	31	3	30	3		-3.8%
Nature/Environment	103	3	72	2		-30.0%	Nature/Environment	26	2	22	2		-17.8%

Assault Injury Hospitalization	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Assault Injury Hospitalization	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Struck by/Against	708	20	855	24		17.5%	Struck by/Against	290	24	278	23		-5.4%
Firearm	442	12	508	13		11.8%	Firearm	187	15	169	13		-8.9%
Cut/Pierce	212	6	194	5		-8.6%	Cut/Pierce	75	6	60	5		-19.7%
Other Specified and Classifiable	120	2	104	3		93.3%	Other Specified and Classifiable	26	2	24	2		-4.8%
Unspecified	54	2	31	1		-40.0%	Unspecified	8	**	12	**		N/A
Other Specified, Not Elsewhere Classifiable	13	**	8	**		N/A	Motor Vehicle Traffic (MVT)	2	**	3	**		N/A
Fire/Hot Object	2	**	5	**		N/A	Other Specified, Not Elsewhere Classifiable	4	**	3	**		N/A
Motor Vehicle Traffic (MVT)	2	**	5	**		N/A	Fire/Hot Object	2	**	2	**		N/A
Hot	1	**	4	**		N/A							
Falls	1	**	3	**		N/A							

Self-Inflicted Injury Hospitalization	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Self-Inflicted Injury Hospitalization	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Cut/Pierce	46	1	73	2		53.8%	Cut/Pierce	22	2	18	2		-11.8%
Firearm	26	1	44	1		50.0%	Firearm	20	2	8	**		N/A
Suffocation	15	**	17	**		N/A	Suffocation	5	**	5	**		N/A
Falls	5	**	6	**		N/A	Falls	0	**	3	**		N/A
Other Specified, Not Elsewhere Classifiable	2	**	5	**		N/A	Other Specified, Not Elsewhere Classifiable	0	**	2	**		N/A
Poisoning	3	**	4	**		N/A	Poisoning	2	**	1	**		N/A
Fire/Hot Object	1	**	2	**		N/A	Fire/Hot Object	1	**	1	**		N/A
Fire	1	**	2	**		N/A							
Unspecified	1	**	2	**		N/A							
Motor Vehicle Traffic (MVT)	3	**	1	**		N/A							

** Data do not meet reliability or precision standards of the National Center for Health Statistics as they are based on less than 20 injuries (numerator) and are not presented here.
 †NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 1: All Causes of External Injury Hospitalizations

Table 1-3: All Causes of Franklin County Injury Hospitalizations by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Assault		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	468	185.0	388	153.4	0	0	76	30.0	4	1.6
05-14	570	124.4	536	117.0	6	1.3	26	5.7	2	<1
15-24	1414	259.4	886	162.5	43	7.9	460	84.4	19	3.5
25-44	2800	262.6	1938	181.7	74	6.9	773	72.5	9	<1
45-64	2,879	334.8	2497	290.4	28	3.3	347	40.4	3	<1
65-74	1078	546.3	1059	536.7	2	1.0	17	8.6	0	0
75+	2,730	1,695.4	2714	1685.4	2	1.2	14	8.7	0	0
All	11,939	354.1	10,018	301.9	155	4.2	1,713	46.5	37	1.0

*16 hospitalizations were categorized in the "Other" intentionality category

Table 1-4: All Causes of Franklin County Injury Hospitalizations for Males, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Assault		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	279	216.1	231	178.9	0	0	44	34.1	4	3.1
05-14	361	154.6	339	145.2	1	<1	19	8.1	2	<1
15-24	1037	378.5	568	207.3	32	11.7	417	152.2	14	5.1
25-44	2012	380.1	1,313	248.1	57	10.8	629	118.8	8	1.5
45-64	1,768	429.8	1,445	351.3	22	5.4	294	71.5	3	<1
65-74	470	538.6	454	520.3	2	2.3	14	16.0	0	0
75+	857	1422.5	847	1,405.9	2	3.3	8	13.3	0	0
Total	6,784	421.4	5,197	334.7	116	6.3	1,425	77.8	31	1.7

*15 hospitalizations were categorized in the "Other" intentionality category

Section 1: All Causes of External Injury Hospitalizations

Table 1-5: All Causes of Injury Hospitalizations for Females, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Assault		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	189	152.6	157	126.7	0	0	32	25.8	0	0
05-14	209	93.1	197	87.7	5	2.2	7	3.1	0	0
15-24	377	139.0	318	117.3	11	4.1	43	15.9	5	1.8
25-44	788	146.7	625	116.4	17	3.2	144	26.8	1	<1
45-64	1,111	247.8	1052	234.6	6	1.3	53	11.8	0	0
65-74	608	552.4	605	549.6	0	0	3	2.7	0	0
75+	1,873	1,858.5	1867	1852.5	0	0	6	6.0	0	0
Total	5,155	283.1	4,821	264.6	39	2.2	288	15.9	6	<1

*1 hospitalization was categorized in the "Other" intentionality category

Table 1-6: All Causes of Franklin County Injury Hospitalizations for Whites, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Assault		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	247	174.4	208	146.9	0	0	37	26.1	2	1.4
05-14	337	127.1	327	123.3	3	1.1	7	2.6	0	0
15-24	749	207.31	575	159.2	27	7.5	139	38.5	4	1.1
25-44	1661	230.78	1281	178	56	7.8	317	44	4	<1
45-64	2154	337.37	1951	305.6	22	3.5	177	27.7	2	<1
65-74	905	582.52	896	576.7	1	1.0	8	5.2	0	0
75+	2465	1859.24	2454	1851	2	1.5	9	6.8	0	0
Total	8,518	348.8	7,692	315.5	111	4.5	694	28.0	12	<1

*9 hospitalizations were categorized in the "Other" intentionality category

Section 1: All Causes of External Injury Hospitalizations

Table 1-7: All Causes of Franklin County Injury Hospitalizations for Blacks, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Assault		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	143	190.8	115	153.4	0	0	26	34.7	2	2.7
05-14	168	122.2	150	109.1	2	1.5	14	10.2	2	1.5
15-24	521	405.3	211	164.1	15	11.7	280	217.8	13	10.1
25-44	882	400.2	463	210.1	12	5.4	400	181.5	5	2.3
45-64	617	362.5	455	267.3	5	2.9	155	91.1	1	1.0
65-74	124	368.7	116	344.9	1	3.0	7	20.8	0	0
75+	194	807.7	191	795.2	0	0	3	12.5	0	0
Total	2,649	359.7	1,701	242.5	35	4.1	885	109.9	23	2.6

**5 hospitalizations were categorized in the "Other" intentionality category*



SECTION 2:
Motor Vehicle Crash Injury Hospitalizations

Section 2: Motor Vehicle Crash Injury Hospitalizations

Motor vehicle crashes are the second leading cause of injury-related 48-hour or longer hospitalizations in Franklin County. In 2010-12 motor vehicle crashes caused 2,486 residents to be hospitalized 48-hours or longer, an average of 829 per year.

This includes drivers and passengers as well as pedestrians and bicyclists in motor vehicle crashes and motorcycle operators and passengers. In the previous three-year period (2007-2009), there were 2,204 hospitalizations, 735 per year average.

Table 2-1 shows the age, gender, race, and zip code distribution for all crash-related hospitalizations in 2010-12. The most hospitalizations are in the 20-24 year age group. The highest risk age group is the 80-84 year group where the rate per 100,000 is 130. There continue to be about 1.4 males hospitalized for every female and about 2 White residents for every Black resident. On average for 2010-12, there were 52 more males hospitalized per year than for 2007-09 and about 42 more females per year. There were also 58 additional Black residents hospitalized per year in the most recent three year period compared to the

previous three year period. The zip code with the highest number of crash related hospitalizations is 43207, with 148 hospital admissions for injuries during 2010-2012. The top 10 zip codes account for 45% of all the motor vehicle hospitalizations.

Tables 2-2 through 2-6 show the age-gender and age-race relationships for motor vehicle hospitalizations. For males and females both, the highest numbers of hospitalizations are in the 25-44 year age group and the highest risk age group is 75+, 140 per 100,000 for males and 95 per 100,000 for females. Age group 25-44 has the highest number of hospitalizations for both Blacks and Whites. However, for Blacks, this age group also has the highest rate (116 per 100,000).

Most motor vehicle related hospitalizations are to motor vehicle occupants (71%). The rest are among pedestrians (14%), motorcyclists (12%) and pedal cyclists (2%). This is similar to the distribution in the previous three year period, 2007-09. However, the number of pedestrians hospitalized increased, from 251 in 2007-

09 to 337 in 2010-12, a 34% increase. In 2012, table 2-8 shows the yearly seat belt or car seat use rate for crashes resulting in 48-hour or longer hospitalizations is 56%. According to the National Highway Traffic Safety Administration National Center for Statistics and Analysis, Traffic Safety facts, deaths and serious injuries could be reduced by approximately 50% with proper use of seat belts. Air bag deployments have increased in the three year period 2010-12 from 37% to 42%. These deployments may have prevented fatalities or more serious injuries.

Also for 2010-12, table 2-8 shows that only 35-40% of motorcyclists hospitalized 48-hours or longer were wearing a motorcycle helmet. There is no mandatory motorcycle helmet law in Ohio except for cyclists under 18. According to an article in the American Journal of Public Health (1996 January; 86(1):41-45) unhelmeted riders are nearly three times more likely to be head injured and are more likely to be readmitted for follow up treatment and to die from their injuries.

Motor Vehicle Related Mortality and Hospitalizations 2007-2012, Number and Rate per 100,000

Year	Mortality		Hospitalizations	
	Number	Rate/100,000	Number	Rate/100,000
2007-09 (avg./yr)	93	8	735	64
2010-12 (avg./yr)	104	9	829	70
Change in number	+11 (12%)		+94 (13%)	

Section 2: Motor Vehicle Crash Injury Hospitalizations

Table 2-1: Franklin County Unintentional Motor Vehicle Crash Hospitalizations: Demographic Number & Rate Trends

Characteristic Age-Group	2007-09		2010-12		Age-Specific Rate Bar Chart	Rate % Change	Characteristic Age-Group	2011		2012		Age-Specific Rate Bar Chart	Rate % Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
00-04	26	11	33	13		18.2%	00-04	8	9	14	16		73.2%
05-09	33	15	52	22		45.6%	05-09	11	14	14	18		23.9%
10-14	53	24	49	22		-8.3%	10-14	12	16	24	32		96.3%
15-19	180	74	203	85		14.9%	15-19	84	106	71	91		-14.7%
20-24	260	89	269	88		-1.1%	20-24	96	93	109	108		15.9%
25-29	220	69	251	80		15.9%	25-29	81	78	89	83		6.9%
30-34	180	72	241	87		20.8%	30-34	81	87	81	85		-2.9%
35-39	189	77	215	90		16.9%	35-39	74	94	82	103		9.9%
40-44	173	74	172	72		-2.7%	40-44	58	73	59	73		0.2%
45-49	215	88	170	72		-18.2%	45-49	62	79	56	73		-7.9%
50-54	145	63	191	79		25.4%	50-54	47	58	77	95		63.0%
55-59	132	68	157	75		10.3%	55-59	54	78	47	65		-15.9%
60-64	98	67	141	81		20.9%	60-64	46	78	47	79		1.3%
65-69	72	71	75	65		-8.5%	65-69	28	75	32	77		3.0%
70-74	59	77	83	101		30.6%	70-74	27	99	32	112		13.9%
75-79	72	112	58	92		-17.5%	75-79	16	76	20	95		24.2%
80-84	55	109	65	130		19.3%	80-84	18	108	20	121		12.2%
85+	36	82	55	114		39.0%	85+	16	100	19	115		14.5%

Gender	2007-09		2010-12		Gender Specific Rate Bar Chart	Rate % Change	Gender	2011		2012		Gender Specific Rate Bar Chart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Male	1308	79	1463	86		9.0%	Male	467	82	523	91		11.3%
Female	890	50	1017	55		9.4%	Female	352	56	370	60		6.3%

Race	2007-09		2010-12		Race Specific Rate Bar Chart	Rate % Change	Race	2011		2012		Race Specific Rate Bar Chart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Black	478	69	653	86		24.5%	Black	224	88	251	98		11.9%
White	1497	61	1633	65		7.4%	White	527	63	594	71		12.6%

Top Ten Zip Code*	2007-09		2010-12		Zip Specific Percentage Bar Chart	Number % Change	Top Ten Zip Code*	2011		2012		Zip Specific Percentage Bar Chart	Number % Change
	Number	Percent	Number	Percent				Number	Percent	Number	Percent		
43207	128	5.8%	148	6.0%		15.6%	43228	38	4.6%	58	6.5%		52.6%
43232	91	4.1%	138	5.6%		51.6%	43232	45	5.5%	55	6.2%		22.2%
43228	125	5.7%	137	5.5%		9.6%	43207	48	5.9%	47	5.3%		-2.1%
43204	83	3.8%	111	4.5%		33.7%	43204	36	4.4%	39	4.4%		8.3%
43123	85	3.9%	110	4.4%		29.4%	43229	45	5.5%	37	4.1%		-17.8%
43224	101	4.6%	106	4.3%		5.0%	43211	21	2.6%	36	4.0%		71.4%
43229	94	4.3%	105	4.2%		11.7%	43123	36	4.4%	35	3.9%		-2.8%
43068	87	4.0%	92	3.7%		5.7%	43215	23	2.8%	34	3.8%		47.8%
43213	85	3.9%	88	3.5%		3.5%	43026	27	3.3%	31	3.5%		14.8%
43026	60	2.7%	80	3.2%		33.3%	43110	25	3.1%	30	3.4%		20.0%

*Ranked by 2012 or 2010-12 frequencies

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 2: Motor Vehicle Crash Injury Hospitalizations

Table 2-2: Franklin County Motor Vehicle Crash Injury Hospitalizations by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	33	13.0	33	13.0	0	0	0	0	0	0
05-14	101	22.1	101	22.1	0	0	0	0	0	0
15-24	472	86.6	472	86.6	0	0	0	0	0	0
25-44	884	82.9	879	82.4	1	<1	4	<1	0	0
45-64	660	76.8	659	76.6	0	0	1	<1	0	0
65-74	158	80.1	158	80.1	0	0	0	0	0	0
75+	178	110.5	178	110.5	0	0	0	0	0	0
Total	2,486	69.7	2,480	69.6	1	<1	5	<1	0	0

Table 2-3: Franklin County Motor Vehicle Crash Injury Hospitalizations for Males, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	19	14.7	19	14.7	0	0	0	0	0	0
05-14	62	26.6	62	26.6	0	0	0	0	0	0
15-24	262	95.6	262	95.6	0	0	0	0	0	0
25-44	556	105.1	551	104.1	1	<1	4	<1	0	0
45-64	408	99.2	408	99.2	0	0	0	0	0	0
65-74	78	89.4	78	89.4	0	0	0	0	0	0
75+	83	137.8	83	137.8	0	0	0	0	0	0
Total	1,468	86.0	1,463	85.7	1	<1	4	<1	0	0

Table 2-4: Franklin County Motor Vehicle Crash Injury Hospitalizations for Females, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	14	11.3	14	11.3	0	0	0	0	0	0
05-14	39	17.37	39	17.4	0	0	0	0	0	0
15-24	210	77.45	210	77.5	0	0	0	0	0	0
25-44	328	61.06	328	61.1	0	0	0	0	0	0
45-64	252	56.2	251	56.0	0	0	1	<1	0	0
65-74	80	72.68	80	72.7	0	0	0	0	0	0
75+	95	94.26	95	94.3	0	0	0	0	0	0
Total	1018	54.8	1017	54.8	0	0	1	<1	0	0

Section 2: Motor Vehicle Crash Injury Hospitalizations

Table 2-5: Franklin County Motor Vehicle Crash Injury Hospitalizations for Whites, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	16	11.3	16	11.3	0	0	0	0	0	0
05-14	48	18.1	48	18.1	0	0	0	0	0	0
15-24	300	83	300	83.0	0	0	0	0	0	0
25-44	536	74.5	535	74.3	0	0	1	<1	0	0
45-64	454	71.1	453	71.0	0	0	1	<1	0	0
65-74	126	81.1	126	81.1	0	0	0	0	0	0
75+	155	116.9	155	116.9	0	0	0	0	0	0
Total	1,635	65.1	1,633	65.0	0	0	2	<1	0	0

Table 2-6: Franklin County Motor Vehicle Crash Injury Hospitalizations for Blacks, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	13	17.4	13	17.4	0	0	0	0	0	0
05-14	42	30.5	42	30.5	0	0	0	0	0	0
15-24	127	98.8	127	98.8	0	0	0	0	0	0
25-44	256	116.1	253	114.8	1	<1	2	<1	0	0
45-64	175	102.8	175	102.8	0	0	0	0	0	0
65-74	28	83.3	28	83.3	0	0	0	0	0	0
75+	15	62.5	15	62.5	0	0	0	0	0	0
Total	656	86.3	653	85.9	1	<1	2	<1	0	0

Section 2: Motor Vehicle Crash Injury Hospitalizations

Table 2-7: Franklin County Unintentional Motor Vehicle Crash Hospitalizations by Person

Unintentional MVC Hospitalization By Person	2007-09		2010-2012		Rate	Rate	Unintentional MVC Hospitalization By Person	2011		2012		Rate	Rate
	Number	Rate	Number	Rate	Trend BarChart	% Change		Number	Rate	Number	Rate	Trend BarChart	% Change
All	2,204	64	2,486	70		8.7%	All	819	69	893	75		8.7%
Occupant	1,560	46	1,768	50		8.8%	Occupant	586	49	641	54		9.5%
Motorcyclist	308	9	289	8		-9.1%	Motorcyclist	91	8	104	9		12.6%
Pedestrian	251	7	337	10		29.2%	Pedestrian	110	9	125	10		12.9%
Pedal Cyclist	44	1	48	1		4.8%	Pedal Cyclist	22	2	14	**	NA	N/A
Unspecified	25	1	31	1		38.5%	Unspecified	9	**	5	**	NA	N/A
Other	10	**	7	**	NA	N/A	Other	1	**	4	**	NA	N/A

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Table 2-8: Franklin County Unintentional Motor Vehicle Crash Hospitalizations: Safety Device Use Trends

MVC - Occupant & Safety Device Use	Documented Use* (% Usage)									Percent Usage Trend BarChart
	2005	2006	2007	2008	2009	2010	2011	2012		
Seat belt or Car Seat	335 (55%)	290 (56%)	289 (56%)	308 (63%)	339 (61%)	322 (60%)	378 (65%)	361 (56%)		
Air Bag	156 (26%)	177 (34%)	178 (35%)	206 (42%)	223 (40%)	202 (37%)	263 (45%)	269 (42%)		
None	106 (18%)	80 (15%)	72 (14%)	53 (11%)	74 (13%)	92 (17%)	90 (15%)	106 (17%)		
N/A	122 (20%)	102 (20%)	108 (21%)	76 (16%)	87 (16%)	70 (13%)	51 (9%)	94 (15%)		

MVC - Motor & Pedal Cyclist Safety Device Use	Documented Use* (% Usage)									Percent Usage Trend BarChart
	2005	2006	2007	2008	2009	2010	2011	2012		
Motorcycle Helmet	50 (43%)	34 (37%)	40 (35%)	31 (31%)	31 (32%)	33 (35%)	32 (35%)	42 (40%)		
Pedal Cycle Helmet	3 (16%)	5 (28%)	3 (19%)	1 (7%)	3 (23%)	0 (0%)	2 (9%)	0 (0%)		

*Number and percentage among those with any information documented



SECTION 3:
Fall Injury Hospitalizations

Section 3: Fall Injury Hospitalizations

Falls are the leading cause of serious injury hospitalizations in Franklin County. For the three year period 2010-12, a total of 6,002 residents were hospitalized due to a fall injury. This is an average of 2,001 per year. The next highest cause of injury related hospitalizations is motor vehicle crashes with an average of 829 per year. Every day, in Franklin County, 5.5 people are hospitalized as a result of a fall.

From 2010-12, fifty-five percent (3,289) of all unintentional fall injuries are for residents 65 years and older. The rate of hospitalizations

per 100,000 population progressively increases in each age group starting from the age group 25-44. Fall related hospitalizations are increasing in Franklin County.

The table below illustrates how fall related hospitalizations have increased. There was a nearly 14% increase from 2007-09 to 2010-12.

Table 3-1 shows the location where falls occurred. The home continues to be the primary location for serious fall injuries, with

69% (3,797) of all serious falls occurring in the home. Thirteen percent (719) occurred in residential institutions.

Tables 3-2 to 3-7 show the distribution of fall injury hospitalizations by age, gender, and race. There were substantial increases in unintentional fall related hospitalizations in some age groups (10-14 and 55-59) for 2007-09 compared to 2010-12.

From 2010-12, White residents experienced an increase in fall hospitalization rates when compared to 2007-09; however, Black residents experienced a decrease from 2010-12 when compared to 2007-09. White residents experienced a 14% increase in the rate, from 180/100,000 in 2007-09 to 205/100,000 in 2010-12; Black residents experienced a slight decrease (-4%) in rates, from 122/100,000 to 117/100,000 in 2010-12.

Fall Related 48-Hour or Longer Hospitalizations, Number and Rate per 100,000

Years	2007-09 (avg./yr)		2010-12 (avg./yr)		Change
	Number	Rate	Number	Rate	
Males	773	170.7	878	185.7	+105 (13.6%)
Females	986	170.7	1120	184.9	+134 (13.6%)
Total	1,763*		2,000*		+237.7 (13.5%)

*Male and female numbers don't add up to total number due to missing gender information

Unintentional Fall Related Hospitalizations by Age Group, 2007-09 and 2010-12

Age Group	Total Unintentional 2007-09		Total Unintentional 2010-12		Change
	Number	Rate/100,000	Number	Rate/100,000	
00-04	180	74	174	69	-6 (-3%)
05-14	259	58	234	51	-25 (-10%)
15-24	219	41	186	34	-33 (-15%)
25-44	605	58	643	60	+38 (+6%)
45-64	1,224	151	1,467	171	+243 (+20%)
65-74	678	379	816	414	+138 (+20%)
75+	2,111	1,332	2,473	1,535	+362 (+17%)
Total	5,276	154	5,993	169	+717 (+14%)

Section 3: Fall Injury Hospitalizations

Table 3-1: Franklin County Unintentional Fall Injury Hospitalizations by Location

Unintentional Fall *Location	2007-09		2010-12		Percentage Trend Chart	Number % Change	Unintentional Fall *Type	2011		2012		Percentage Trend BarChart	Number % Change
	†Number	Percent	Number	Percent				Number	Percent	Number	Percent		
Home	3,185	73.9%	3,797	68.5%		19.2%	Home	1292	68.5%	1335	71.6%		3.3%
Residential Institution	553	12.8%	719	13.0%		30.0%	Residential Institution	266	14.1%	238	12.8%		-10.5%
Public Facility	374	8.7%	401	7.2%		7.2%	Public Facility	129	6.8%	169	9.1%		31.0%
Not Determined	445	10.3%	317	5.7%		-28.8%	Not Determined	111	5.9%	85	4.6%		-23.4%
Recreational/Sport Place	221	5.1%	216	3.9%		-2.3%	Other	66	3.5%	75	4.0%		13.6%
Other	107	2.5%	191	3.4%		78.5%	Recreational/Sport Place	65	3.4%	69	3.7%		6.2%
Work	213	4.9%	184	3.3%		-13.6%	Work	60	3.2%	68	3.6%		13.3%
Street	177	4.1%	157	2.8%		-11.3%	Street	48	2.5%	46	2.5%		-4.2%
Farm	1	<1.0%	11	<1.0%		1000.0%	Farm	3	<1.0%	3	<1.0%		N/A

*Ranked by 2010-12 or 2012 frequencies

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 3: Fall Injury Hospitalizations

Table 3-2: Franklin County Unintentional Fall Injury Hospitalizations: Demographic Number & Rate Trends

Characteristic		2007-09		2010-12		Age-Specific Rate	Rate	Characteristic		2011		2012		Age-Specific Rate	Rate
Age-Group	Number	Rate	Number	Rate	Trend Chart	% Change	Age-Group	Number	Rate	Number	Rate	Trend BarChart	% Change		
00-04	180	74	174	69		-6.5%	00-04	46	54	71	83		52.8%		
05-09	157	70	112	48		-31.3%	05-09	33	43	31	39		-8.4%		
10-14	102	46	122	54		17.6%	10-14	34	46	42	55		21.3%		
15-19	116	48	104	44		-8.8%	15-19	37	47	35	45		-4.5%		
20-24	103	35	82	27		-24.1%	20-24	27	26	22	22		-16.8%		
25-29	120	38	137	44		15.9%	25-29	41	39	41	38		-2.7%		
30-34	151	60	155	56		-7.1%	30-34	59	64	50	52		-17.7%		
35-39	153	62	164	69		10.5%	35-39	73	92	48	60		-34.7%		
40-44	181	78	187	79		1.4%	40-44	63	79	57	71		-10.8%		
45-49	239	97	256	109		11.5%	45-49	86	110	77	100		-8.7%		
50-54	337	147	353	146		-0.7%	50-54	119	148	125	154		4.6%		
55-59	332	171	428	205		19.5%	55-59	155	223	146	203		-9.0%		
60-64	316	217	430	247		13.8%	60-64	155	263	157	264		0.4%		
65-69	316	310	399	347		12.1%	65-69	140	376	147	356		-5.4%		
70-74	362	471	417	506		7.2%	70-74	150	549	151	531		-3.3%		
75-79	485	755	521	830		9.9%	75-79	186	889	178	845		-4.9%		
80-84	643	1276	714	1427		11.8%	80-84	218	1304	262	1584		21.4%		
85+	983	2244	1238	2568		14.5%	85+	418	2617	448	2705		3.3%		

Characteristic		2007-09		2010-12		Gender Specific Rate	Rate	Characteristic		2011		2012		Gender Specific Rate	Rate
Gender	Number	Rate	Number	Rate	Trend Chart	% Change	Gender	Number	Rate	Number	Rate	Trend BarChart	%Change		
Male	2319	171	2634	186		8.8%	Male	886	154	917	191		23.5%		
Female	2957	171	3359	185		8.3%	Female	1154	191	1171	190		-0.2%		

Characteristic		2007-09		2010-12		Race Specific Rate	Rate	Characteristic		2011		2012		Race Specific Rate	Rate
Race	Number	Rate	Number	Rate	Trend Chart	% Change	Race	Number	Rate	Number	Rate	Trend BarChart	%Change		
Black	684	122	725	117		-3.8%	Black	235	89	259	97		8.4%		
White	4214	180	4978	205		13.8%	White	1721	214	1760	217		1.3%		

Characteristic		2007-09		2010-12		Zip Specific Percentage	Number	Characteristic		2011		2012		Zip Specific Percentage	Number
Zip Code*	Number	Percent	Number	Percent	Trend Chart	% Change	Zip Code*	Number	Percent	Number	Percent	Trend Chart	% Change		
43207	258	4.9%	309	5.2%		19.8%	43229	82	4.0%	116	5.6%		41.5%		
43081	304	5.8%	293	4.9%		-3.6%	43068	98	4.8%	112	5.4%		14.3%		
43229	269	5.1%	289	4.8%		7.4%	43081	97	4.8%	111	5.3%		14.4%		
43068	247	4.7%	281	4.7%		13.8%	43207	128	6.3%	101	4.8%		-21.1%		
43230	227	4.3%	259	4.3%		14.1%	43123	61	3.0%	92	4.4%		50.8%		
43213	163	3.1%	227	3.8%		39.3%	43230	93	4.6%	90	4.3%		-3.2%		
43232	164	3.1%	227	3.8%		38.4%	43213	72	3.5%	88	4.2%		22.2%		
43224	204	3.9%	226	3.8%		10.8%	43232	92	4.5%	81	3.9%		-12.0%		
43228	166	3.1%	219	3.7%		31.9%	43224	79	3.9%	76	3.6%		-3.8%		
43213	163	3.1%	218	3.6%		33.7%	43209	59	2.9%	68	3.3%		15.3%		

*Ranked by 2012 or 2010-12 frequencies
 †NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 3: Fall Injury Hospitalizations

Table 3-3: Franklin County Fall Injury Hospitalizations by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	174	68.8	174	68.8	0	0	0	0	0	0
05-14	235	51.3	234	51.1	0	0	1	<1	0	0
15-24	187	34.3	186	34.1	1	<1	0	0	0	0
25-44	648	60.8	643	60.3	4	<1	1	<1	0	0
45-64	1469	170.9	1467	170.6	1	<1	1	<1	0	0
65-74	816	413.5	816	413.5	0	0	0	0	0	0
75+	2473	1535.8	2473	1535.8	0	0	0	0	0	0
Total	6,002	188.9	5,993	188.6	6	<1	3	<1	0	0

Table 3-4: Franklin County Fall Injury Hospitalizations for Males, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	101	78.2	101	78.2	0	0	0	0	0	0
05-14	144	61.7	144	61.7	0	0	0	0	0	0
15-24	134	48.9	133	48.5	1	<1	0	0	0	0
25-44	426	80.5	423	79.9	3	<1	1	<1	0	0
45-64	779	189.4	777	188.9	1	<1	0	0	0	0
65-74	319	365.6	319	365.6	0	0	0	0	0	0
75+	737	1223.3	737	1223.3	0	0	0	0	0	0
Total	2,640	186.0	2,634	185.7	5	<1	1	<1	0	0

Table 3-5: Franklin County Fall Injury Hospitalizations for Females, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	73	58.9	73	58.9	0	0	0	0	0	0
05-14	91	40.5	90	40.1	0	0	1	<1	0	0
15-24	53	19.6	53	19.6	0	0	0	0	0	0
25-44	222	41.3	220	41.0	1	<1	1	<1	0	0
45-64	690	153.9	690	153.9	0	0	0	0	0	0
65-74	497	451.5	497	451.5	0	0	0	0	0	0
75+	1736	1722.5	1736	1722.5	0	0	0	0	0	0
Total	3,362	185.1	3,359	184.9	1	<1	2	<1	0	0


Section 3: Fall Injury Hospitalizations

Table 3-6: Franklin County Fall Injury Hospitalizations for Whites, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	105	74.1	105	74.1	0	0	0	0	0	0
05-14	149	56.2	149	56.2	0	0	0	0	0	0
15-24	126	34.9	125	34.6	1	<1	0	0	0	0
25-44	454	63.1	450	62.5	4	<1	0	0	0	0
45-64	1209	189.4	1208	189.2	1	<1	0	0	0	0
65-74	694	446.7	694	446.7	0	0	0	0	0	0
75+	2247	1694.8	2247	1694.8	0	0	0	0	0	0
Total	4,984	205.3	4,978	205.0	6	<1	0	0	0	0

Table 3-7: Franklin County Fall Hospitalizations for Blacks, by Intent and Age, 2010-12.

Age-Group	All		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	38	50.7	38	50.7	0	0	0	0	0	0
05-14	54	39.3	54	39.3	0	0	0	0	0	0
15-24	34	26.5	34	26.5	0	0	0	0	0	0
25-44	134	60.8	133	60.3	0	0	1	<1	0	0
45-64	219	128.7	218	128.1	0	0	1	<1	0	0
65-74	81	240.8	81	240.8	0	0	0	0	0	0
75+	167	695.3	167	695.3	0	0	0	0	0	0
Total	727	117.8	725	117.5	0	0	2	<1	0	0



SECTION 4:
Firearm Injury Hospitalizations

Section 4: Firearm Injury Hospitalizations

Firearm injuries occur when a firearm is discharged intentionally (self-inflicted or assault) or unintentionally (accident). In Franklin County there were an average of 214 firearm related 48-hour or longer hospitalizations per year for the three year period 2010-12. This is compared to an average of 192 hospitalizations for the previous three year period 2007-09. This is an 11% increase. The rate per 100,000 population was 17.0 for 2010-12 (Table 4-1) compared to 15.5 for 2007-09.

The age group at greatest risk is the 15-24 year old group (Table 4-1) with an average of 88 hospitalizations per year and a rate of 48.6 per 100,000 in 2010-12. This age group's rate is almost twice as high as the next highest age-group, 25-44 year olds (26.6 per 100,000).

Intentional firearm injuries outnumber unintentional firearm injuries nearly 10:1 and self-inflicted firearm injuries nearly 12:1. There were an average of 169 intentional firearm injuries per year, a rate of 13.4 per 100,000 compared to an average of 17 unintentional injuries per year, 1.4 per 100,000 (Table 4-1).

Males in Franklin County are at much greater risk to firearm injuries than females. The average number of males injured by firearms in 2010-12 was 192 per year compared to an average of 22 females per year, a ratio of 9:1. Males are nine times more likely to be injured by a firearm than females. In the previous three year period the risk ratio was 7:1, 168 males per year compared to 23 females. In 2010-12 compared to 2007-09, there were an average of 1 less females hospitalized per year; however, there were an average 23 per year more males. This is a 4% decrease in females and a 14% increase in males.

Males are also at greater risk for unintentional firearm injury hospitalizations. There were 52 unintentional firearm hospitalizations in 2010-12, about 17 per year. Forty-five were males and 7 were females, a male: female ratio of 7:1. The ratio of males to females for self-inflicted firearm injuries in 2010-12 was 3:1, 11 males per year compared to 4 females (Tables 4-2 and 4-3).

Firearm Injury Hospitalizations for Males and Females, 2010-12

Age Group	Males		Females		Ratio M:F
	Number	Rate per 100,000	Number	Rate per 100,000	
00-04	3	2.3	0	0	-
05-14	7	3.0	1	0.5	7:1
15-24	247	90.2	18	6.6	14:1
25-44	249	47.0	35	6.5	7:1
45-64	65	15.8	11	2.5	6:1
65-74	2	2.3	0	0	-
75+	2	3.3	1	1.0	2:1
Total	575	30.5	66	3.6	9:1

Section 4: Firearm Injury Hospitalizations

Table 4-1: Franklin County Firearm Injury Hospitalizations by Intent* and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	3	1.2	1	<1	0	0	1	<1	1	<1
05-14	8	1.8	6	1.3	0	0	1	<1	1	<1
15-24	265	48.6	23	4.2	13	2.4	209	38.3	17	3.12
25-44	284	26.6	13	1.2	21	2.0	239	22.4	6	<1
45-64	76	8.8	7	<1	9	1.1	56	6.5	2	<1
65-74	2	1.0	1	<1	0	0	1	<1	0	0
75+	3	1.9	1	<1	1	<1	1	<1	0	0
Total	641	17.0	52	1.4	44	1.2	508	13.4	27	<1

*10 Firearm related hospitalizations were categorized in the "Other" intentionality category

Table 4-2: Franklin County Firearm Injury Hospitalizations for Males, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	3	2.3	1	<1	0	0	1	<1	1	<1
05-14	7	3.0	5	2.1	0	0	1	<1	1	<1
15-24	247	90.2	22	8.0	10	3.7	199	72.6	13	4.7
25-44	249	47.0	10	1.9	15	2.8	213	40.2	6	1.1
45-64	65	15.8	6	1.5	6	1.5	49	11.9	2	<1
65-74	2	2.3	1	1.2	0	0	1	1.2	0	0
75+	2	3.3	0	0	1	1.7	1	1.7	0	0
Total	575	30.5	45	2.3	32	1.7	465	24.6	23	1.2

*10 Firearm related male hospitalizations were categorized in the "Other" intentionality category

Table 4-3: Franklin County Firearm Injury Hospitalizations for Females, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	0	0	0	0	0	0	0	0	0	0
05-14	1	<1	1	<1	0	0	0	0	0	0
15-24	18	6.6	1	<1	3	1.1	10	3.7	4	1.5
25-44	35	6.5	3	<1	6	1.1	26	4.8	0	0
45-64	11	2.5	1	<1	3	<1	7	1.6	0	0
65-74	0	0	0	0	0	0	0	0	0	0
75+	1	1.0	1	1.0	0	0	0	0	0	0
Total	66	3.6	7	<1	12	<1	43	2.3	4	<1

Section 4: Firearm Injury Hospitalizations

Table 4-4: Franklin County Firearm Injury Hospitalizations for Whites, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	2	1.4	1	<1	0	0	0	0	1	<1
05-14	1	0.4	1	<1	0	0	0	0	0	0
15-24	54	15.0	5	1.38	6	1.7	36	10.0	4	1.1
25-44	80	11.1	8	1.11	15	2.1	53	7.4	1	<1
45-64	33	5.2	6	<1	6	<1	18	2.8	1	<1
65-74	2	1.3	1	<1	0	0	1	<1	0	0
75+	2	1.5	1	<1	1	<1	0	0	0	0
Total	174	6.9	23	<1	28	1.1	108	4.3	7	<1

*8 Firearm related white hospitalizations were categorized in the "Other" intentionality category

Table 4-5: Franklin County Firearm Injury Hospitalizations for Blacks, by Intent and Age, 2010-12.

Age-Group	Total		Unintentional		Self-Inflicted		Intentional		Undetermined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
00-04	1	1.3	0	0	0	0	1	1.3	0	0
05-14	6	4.4	4	2.9	0	0	1	<1	1	<1
15-24	195	151.7	15	11.7	7	5.4	162	126.0	11	8.6
25-44	191	86.7	3	1.4	5	2.3	177	80.3	5	2.3
45-64	37	21.7	1	<1	3	1.8	32	18.8	1	<1
65-74	0	0	0	0	0	0	0	0	0	0
75+	1	4.2	0	0	0	0	1	4.2	0	0
Total	431	51.6	23	2.6	15	1.7	374	45.1	18	2.1

*1 Firearm related black hospitalizations was categorized in the "Other" intentionality category



SECTION 5:
Geographic Distribution of Injury Hospitalizations

Section 5: Geographic Distribution of Injury Hospitalizations

The injuries requiring 48-hour hospitalization are distributed throughout the Franklin County. However, the risk level for residents based on their location can be estimated. Table 5-1 through 5-4 show numbers and rates of various causes of injury to residents living in different quadrants of the county (Northwest, Northeast, Southwest, and Southeast). Refer to the map in the Appendix to better identify the four quadrants.

For motor vehicle related hospitalizations, residents in the Southwest and Southeast

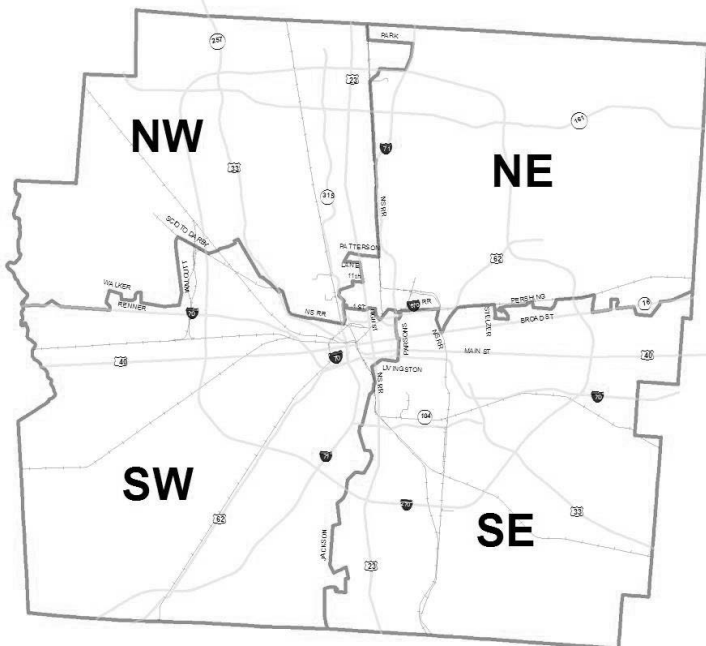
quadrants have a higher risk than residents in the other two quadrants. Their rates per 100,000 are 88 and 85, respectively. Residents in the Northwest quadrant are half as likely to experience a motor vehicle related hospitalization; their rate per 100,000 is 42. The rate per 100,000 for residents in the Northeast quadrant is 58.

For fall injury hospitalizations, the rates per 100,000 are more uniform across the county. The range is 204 per 100,000 in the Southeast quadrant to 170 in the Southwest quadrant. The rate of firearm

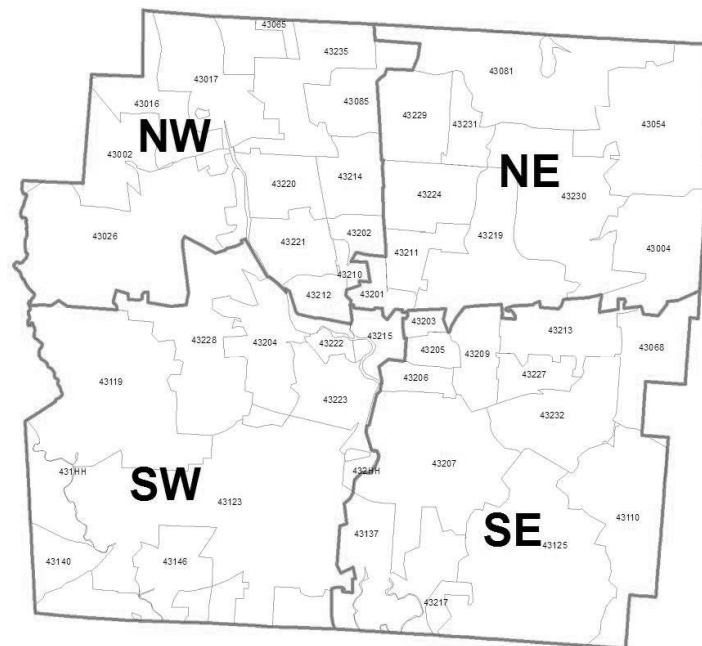
related hospitalizations among residents of the Southeast (32 per 100,000) is nearly twice that of the Northeast (16 per 100,000) and approximately eleven times higher than the Northwest (3 per 100,000).

Age is also an important factor. For example, residents 15-44 years old in the Southeast and Southwest quadrants have a greater risk for motor vehicle related hospitalizations than residents 15-44 in the other two quadrants.

Regions with available corresponding named/identifiable boundaries



Regions with corresponding U.S. Census Bureau ZCTA Boundaries



Section 5: Geographic Distribution of Injury Hospitalizations

Table 5-1: Northwest Region Selected External Injury Hospitalization Mechanisms, by Intent and Age, 2010-12.

Mechanism/ Intent	Total		00-04		05-14		15-24		25-44		45-64		65-74		75+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
MVC	405	42.4	5	8.6	14	12.1	81	54.4	152	51.4	82	34.9	28	58.6	43	92.8
Unintentional	405	42.4	5	8.6	14	12.1	81	54.4	152	51.4	82	34.9	28	58.6	43	92.8
Assault	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Inflicted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Falls	1417	171.3	26	44.5	61	52.6	48	32.2	98	33.1	262	111.5	181	378.6	741	1598.6
Unintentional	1,416	171.2	26	44.5	61	52.6	48	32.2	97	32.8	262	111.5	181	378.6	741	1598.6
Assault	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Inflicted	1	<1	0	0	0	0	0	0	1	<1	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Firearm	29	2.8	0	0	0	0	13	8.7	10	3.4	5	2.1	0	0	1	2.2
Unintentional	1	<1	0	0	0	0	1	<1	0	0	0	0	0	0	0	0
Assault	18	1.7	0	0	0	0	9	6.0	5	1.7	4	1.7	0	0	0	0
Self Inflicted	7	<1	0	0	0	0	1	<1	4	1.4	1	<1	0	0	1	2.2
Undetermined	2	<1	0	0	0	0	2	1.3	0	0	0	0	0	0	0	0
Other	1	<1	0	0	0	0	0	0	1	<1	0	0	0	0	0	0
All	2,226	255.8	61	104.3	118	101.8	214	143.7	364	122.7	444	189.3	224	468.5	801	1728.0
Unintentional	2,092	242.5	51	87.2	116	100.1	173	116.2	320	108.2	411	174.8	224	468.5	797	1719.4
Assault	102	10.1	10	17.1	1	<1	33	22.2	28	9.5	27	11.5	0	0.0	3	6.5
Self Inflicted	26	2.6	0	0	1	<1	5	3.4	14	4.7	5	2.1	0	0	1	2.2
Undetermined	3	<1	0	0	0	0	2	1.3	1	<1	0	0	0	0	0	0
Other	3	<1	0	0	0	0	1	<1	1	<1	1	<1	0	0	0	0

Section 5: Geographic Distribution of Injury Hospitalizations

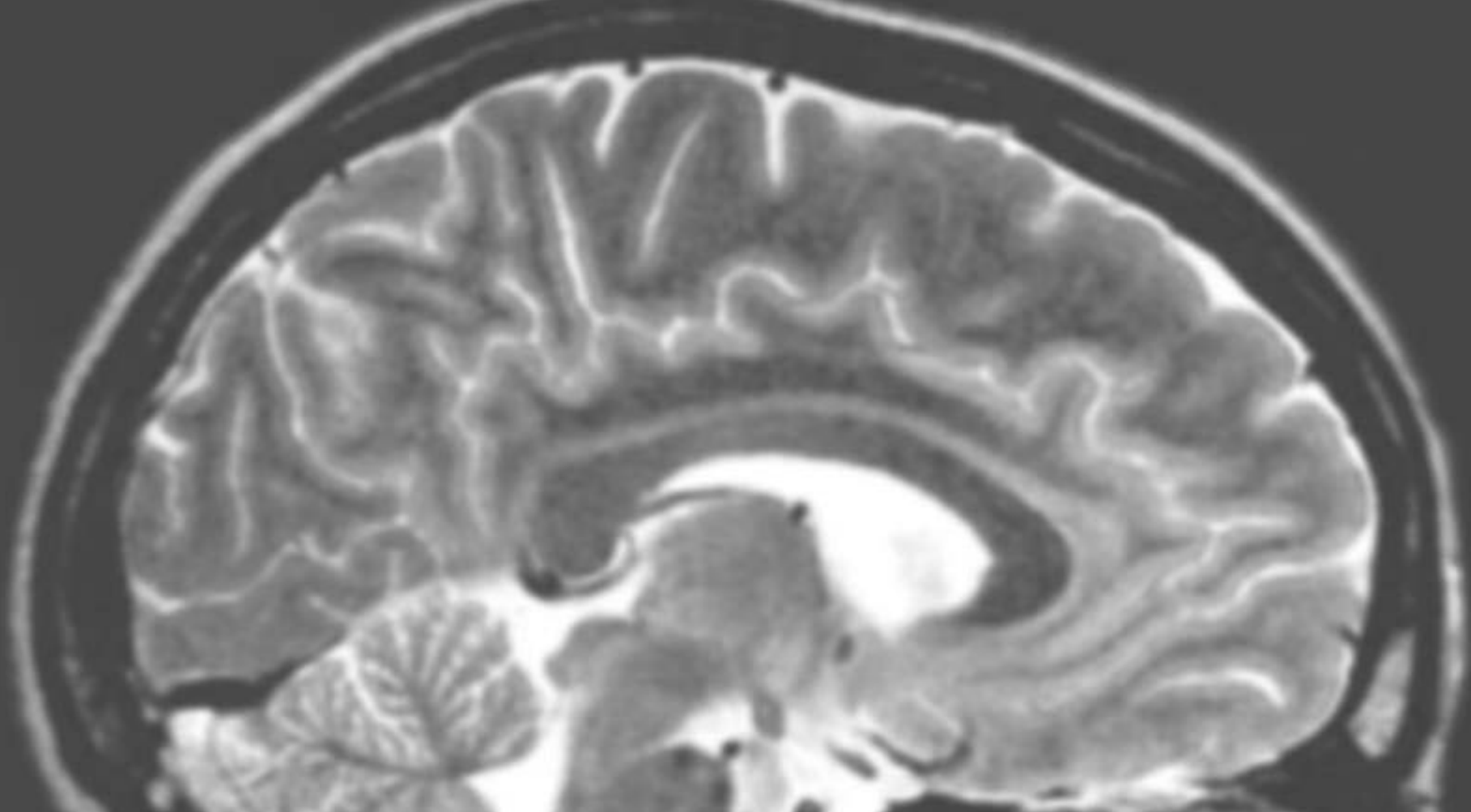
Table 5-3: Southeast Region Selected External Injury Hospitalization Mechanisms, by Intent and Age, 2010-12.

Mechanism/ Intent	Total		00-04		05-14		15-24		25-44		45-64		65-74		75+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
MVC	792	85.3	11	15.7	22	16.9	142	110.3	275	104.5	230	96.9	44	76.4	68	144.6
Unintentional	788	84.3	11	15.7	22	16.9	142	110.3	271	102.9	230	96.9	44	76.4	68	144.6
Assault	3	<1	0	0	0	0	0	0	3	1.1	0	0	0	0	0	0
Self Inflicted	1	<1	0	0	0	0	0	0	1	<1	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Falls	1,797	204.0	48	68.4	49	37.6	49	38.0	187	71.0	495	208.5	252	437.6	718	1,526.8
Unintentional	1,797	204.0	48	68.4	49	37.6	49	38.0	187	71.0	495	208.5	252	437.6	718	1,526.8
Assault	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Inflicted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Firearm	297	32.2	1	1.4	5	3.8	121	93.9	133	50.5	36	15.2	0	0	1	2.1
Unintentional	27	2.9	1	1.4	4	3.1	14	10.9	4	1.5	4	1.7	0	0	0	0
Assault	246	26.8	0	0	1	<1	97	75.3	120	45.6	27	11.4	0	0	1	2.1
Self Inflicted	12	1.3	0	0	0	0.0	2	1.6	5	1.9	5	2.1	0	0	0	0
Undetermined	10	1.1	0	0	0	0.0	8	6.2	2	<1	0	0	0	0	0	0
All	3,773	415.7	148	210.8	134	102.9	459	356.3	915	347.4	985	415.1	325	564.6	807	1,716.0
Unintentional	3,052	338.2	129	183.7	122	93.7	254	197.2	579	219.9	843	355.2	321	557.6	804	1,710.1
Assault	664	71.2	17	24.2	11	8.5	185	143.6	314	119.2	130	54.8	4	7.0	3	6.4
Self Inflicted	40	4.2	0	0	1	<1	12	9.3	16	6.1	11	4.6	0	0	0	0
Undetermined	14	1.5	2	2.9	0	0	8	6.2	4	1.5	0	0	0	0	0	0
Other	3	<1	0	0	0	0	0	0	2	<1	1	<1	0	0	0	0

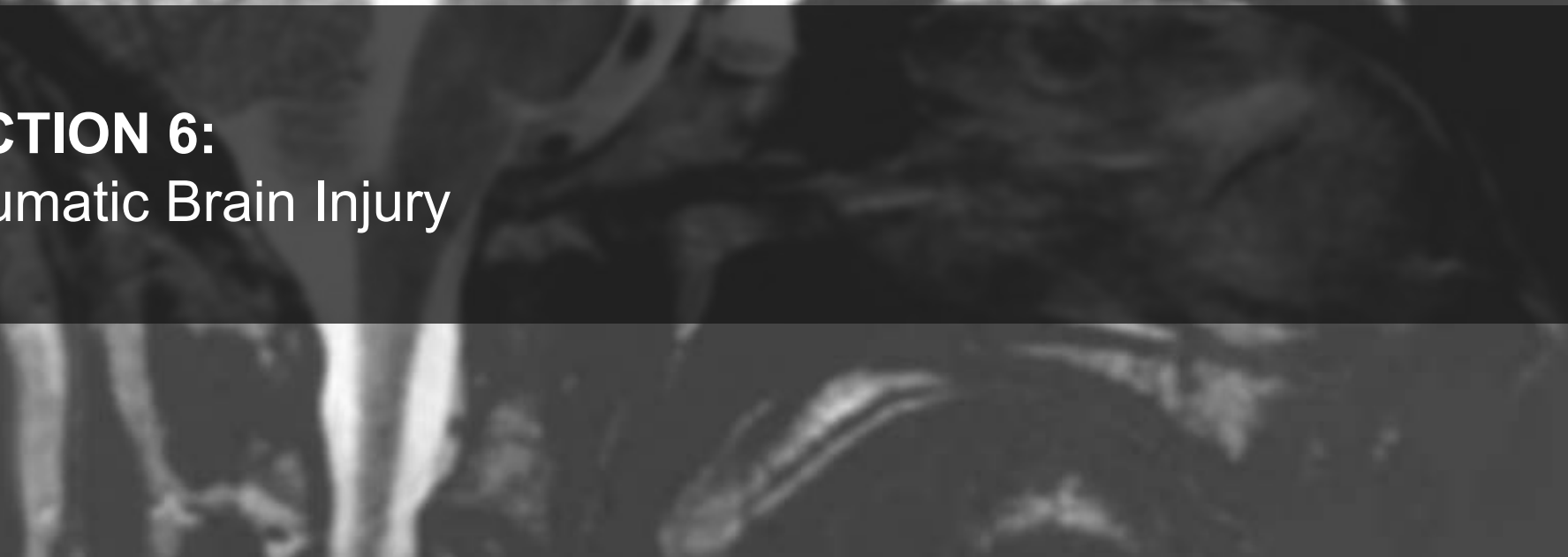
Section 5: Geographic Distribution of Injury Hospitalizations

Table 5-4: Southwest Region Selected External Injury Hospitalization Mechanisms, by Intent and Age, 2010-12.

Mechanism/ Intent	Total		00-04		05-14		15-24		25-44		45-64		65-74		75+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
MVC	628	88.4	6	11.0	37	39.1	125	124.1	240	108.8	155	90.3	42	110.4	23	82.7
Unintentional	627	88.3	6	11.0	37	39.1	125	124.1	239	108.3	155	90.3	42	110.4	23	82.7
Assault	1	<1	0	0	0	0	0	0	1	<1	0	0	0	0	0	0
Self Inflicted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Falls	1043	170.2	49	89.5	45	47.6	40	39.7	168	76.2	306	177.5	135	355.7	303	1092.0
Unintentional	1043	169.8	49	89.5	45	47.6	39	38.7	166	75.3	306	177.5	135	355.7	303	1092.0
Assault	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Inflicted	0	0	0	0	0	0	1	1.0	2	1.0	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Firearm	128	17.5	2	3.7	2	2.1	44	43.7	58	26.3	19	11.0	2	5.3	1	3.6
Unintentional	12	1.8	0	0	1	1.1	4	4.0	3	1.4	2	1.2	1	2.6	1	3.6
Assault	92	12.5	1	1.8	0	0	30	29.8	46	20.9	14	8.1	1	2.6	0	0
Self Inflicted	14	1.9	0	0	0	0	7	7.0	7	3.2	0	0	0	0	0	0
Undetermined	5	<1	1	1.8	1	1.1	2	2.0	0	0	1	<1	0	0	0	0
Other	5	<1	0	0	0	0	1	1.0	2	<1	2	1.2	0	0	0	0
All	2,596	385.5	137	250.2	155	164.2	330	327.9	767	347.9	661	383.4	203	534.9	343	1,236.2
Unintentional	2,047	311.0	103	188.1	141	149.4	214	212.6	513	232.7	544	315.5	194	511.2	338	1,218.2
Assault	479	64.9	32	58.4	10	10.6	94	93.3	222	100.7	109	63.2	7	18.5	5	18.0
Self Inflicted	55	7.6	0	0	3	3.2	16	15.9	29	13.1	5	2.9	2	5.3	0	0
Undetermined	7	<1	2	3.7	1	1.1	3	3.0	0	0	1	<1	0	0	0	0
Other	8	1.1	0	0	0	0	3	3.0	3	1.4	2	1.2	0	0	0	0



SECTION 6:
Traumatic Brain Injury



Section 6: Traumatic Brain Injury

Traumatic brain injuries (TBI) are caused by an external force to the head that result in physical, psychosocial, and/or cognitive impairment. They are often a serious consequence of an injury event. An injured person with a TBI may not survive. Those that do survive have a significant risk of long term disability. As shown in Figure 6-1 TBI's occur, on average, in 28% of all injury-related hospitalizations of 48-hours or longer. The number of TBI's are increasing. In 2004 there were 765 TBI's compared to 1,291 in 2012, a

69% increase. In 2004, 30% (226) of all TBI's were related to falls and 44% (340) were related to motor vehicle crashes. In 2012, 52% (677) were related to falls and 29% (377) to motor vehicle crashes.

Table 6-2 provides additional details about TBI's and motor vehicle crashes. All residents involved in a motor vehicle crash are at risk for a TBI. Using a safety device (seat belt or helmet) reduces this risk. The average seat belt use rate for Franklin

County is 87% according to the most recent Ohio Department of Public Safety survey. Occupants hospitalized for motor vehicle crash related injuries and had a TBI were wearing a seat belt 53% of the time (2007-2012). Motor vehicle occupants hospitalized with no TBI were wearing a seat belt 65% of the time. Motorcyclists hospitalized due to a crash and had a TBI were wearing a helmet 26% of the time. Motorcyclists hospitalized due to a crash and did not have TBI were wearing a helmet 40% of the time.

Figure 6-1: Percentage of TBI among Total Injury Hospitalizations by Year

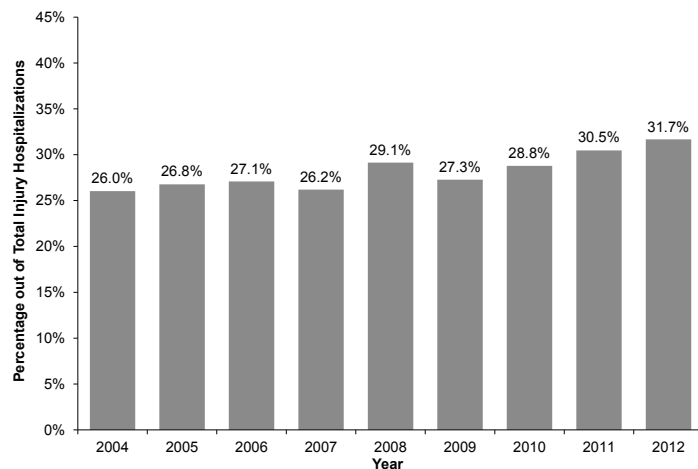


Figure 6-2: TBI Age-Adjusted Rate per 100,000 population, by Year

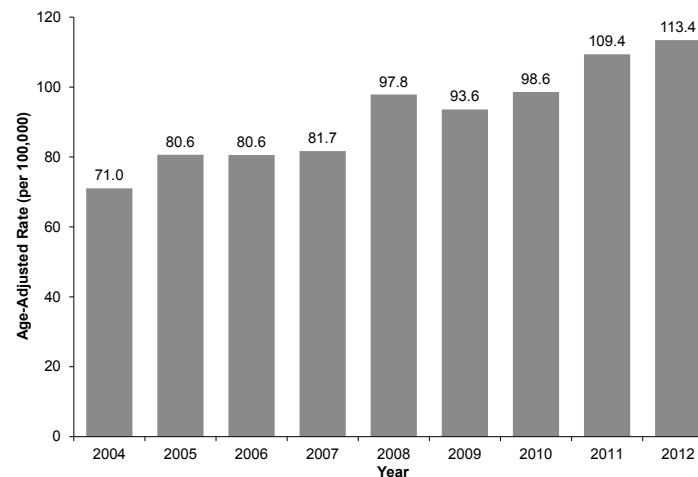


Table 6-1: Franklin County Traumatic Brain Injury by Leading Injury Hospitalization Mechanisms, Number and Percentage, by Year

	2006	2007	2008	2009	2010	2011	2012
All TBIs	856	885	1,065	1,023	1,096	1,236	1,291
Fall Related TBIs	309 (36%)	381 (43%)	509 (48%)	502 (49%)	548 (50%)	626 (51%)	677 (52%)
Motor Vehicle Crash Related TBIs	320 (37%)	309 (35%)	316 (30%)	295 (29%)	294 (27%)	380 (31%)	377 (29%)
Struck By/Against Person or Object Related TBIs	110 (13%)	101 (11%)	142 (13%)	122 (12%)	155 (14%)	150 (12%)	146 (11%)
All Other Mechanism Related TBIs	117 (14%)	94 (11%)	98 (9%)	104 (10%)	99 (9%)	80 (6%)	91 (7%)

Section 6: Traumatic Brain Injury

Table 6-2: Franklin County Unintentional MVC Hospitalization: Traumatic Brain Injury Trends

	Year	Number of TBI	Total MVT By Person	Percent of Total	TBI Percentage of Total Trend Chart	TBI Rate Trend Chart	
All Persons	2003	267	676	39%	..... 39.5%	..... 24.3
	2004	339	764	44%	..... 44.4%	..... 30.3
	2005	350	812	43%	..... 43.1%	..... 30.7
	2006	319	737	43%	..... 43.3%	..... 28.3
	2007	309	740	42%	..... 41.8%	..... 27.0
	2008	315	698	45%	..... 45.1%	..... 27.3
	2009	295	760	39%	..... 38.8%	..... 24.9
	2010	295	768	38%	..... 38.4%	..... 24.9
	2011	379	819	46%	..... 46.3%	..... 31.4
	2012	377	893	42%	..... 42.2%	..... 31.4
	Occupants	2003	197	492	40% 40% 17.8
		2004	251	561	45% 44.7% 22.4
2005		263	604	44%	..... 43.5%	..... 23.2
2006		225	520	43%	..... 43.3%	..... 19.8
2007		207	514	40%	..... 40.3%	..... 18.1
2008		224	487	46%	..... 46%	..... 19.4
2009		214	559	38%	..... 38.3%	..... 18.0
2010		207	541	38%	..... 38.3%	..... 17.6
2011		261	586	45%	..... 44.5%	..... 21.6
2012		275	641	43%	..... 42.9%	..... 22.9
Motorcyclists		2003	26	72	36% 36.1% 2.3
		2004	29	82	35% 35.4% 2.4
	2005	47	115	41%	..... 40.9%	..... 3.9
	2006	32	93	34%	..... 34.4%	..... 2.7
	2007	53	113	47%	..... 46.9%	..... 4.5
	2008	40	99	40%	..... 40.4%	..... 3.4
	2009	38	96	40%	..... 39.6%	..... 3.3
	2010	37	94	39%	..... 39.4%	..... 3.1
	2011	44	91	48%	..... 48.4%	..... 3.6
	2012	33	104	32%	..... 31.7%	..... 2.8
	Pedestrians	2003	31	79	39% 39.2% 3.0
		2004	37	86	43% 43% 3.4
2005		29	64	45%	..... 45.3%	..... 2.6
2006		48	96	50%	..... 50%	..... 4.5
2007		33	82	40%	..... 40.2%	..... 3.0
2008		35	86	41%	..... 40.7%	..... 3.1
2009		33	83	40%	..... 39.8%	..... 2.8
2010		36	102	35%	..... 35.3%	..... 3.0
2011		59	110	54%	..... 53.6%	..... 4.9
2012		59	125	47%	..... 47.2%	..... 4.9
Pedal Cyclists		2003	5	12	42% 41.7%	N/A*
		2004	12	18	67% 66.7%	N/A*
	2005	7	19	37%	..... 36.8%	N/A*
	2006	11	18	61%	..... 61.1%	N/A*
	2007	9	16	56%	..... 56.3%	N/A*
	2008	7	15	47%	..... 46.7%	N/A*
	2009	6	13	46%	..... 46.2%	N/A*
	2010	7	12	58%	..... 58.3%	N/A*
2011	10	22	45%	..... 45.5%	N/A*	
2012	4	14	29%	..... 28.6%	N/A*	

	Year	TBI usage number	Non-TBI Usage Number	Total MVT TBI	Total MVT Non-TBI	TBI Percent Use	Non-TBI Percent Use	Percent Usage Trend Chart	
Occupant Safety Belt and Car Seat Use	2004	106	212	251	310	42%	68%		
	2005	115	220	263	341	44%	65%		
	2006	107	183	225	295	48%	62%		
	2007	104	185	207	307	50%	60%		
	2008	128	180	224	263	57%	68%		
	2009	112	227	214	345	52%	66%		
	2010	106	216	208	335	51%	64%		
	2011	155	225	263	325	59%	69%		
	2012	137	224	277	366	49%	61%		
	2004-12	1070	1872	2132	2887	50%	65%		
	Motor Cyclist Helmet Use	2004	6	24	29	53	21%	45%	
		2005	14	36	47	68	30%	53%	
		2006	10	24	32	61	31%	39%	
2007		16	24	53	60	30%	40%		
2008		6	25	40	59	15%	42%		
2009		11	20	38	58	29%	34%		
2010		8	25	37	57	22%	44%		
2011		15	17	46	47	33%	36%		
2012	9	33	33	71	27%	46%			
2004-12	95	228	355	534	27%	43%			

Section 6: Traumatic Brain Injury

Table 6-3: Franklin County Traumatic Brain Injury: 2010-2012 Demographic Numbers, Percentages, and Rates

2010-12				2010-12			
Age-Group	Number	Rate	Age-Specific Rate Chart	Leading Zip Codes	Number	Percent of Total	Percent of Total Chart
00-04	143	57		43228	194	5.4%	
05-09	55	24		43207	187	5.2%	
10-14	70	31		43068	181	5.0%	
15-19	186	78		43204	167	4.6%	
20-24	238	77		43123	144	4.0%	
25-29	248	79		43224	143	3.9%	
30-34	236	85		43232	143	3.9%	
35-39	208	87		43081	141	3.9%	
40-44	203	86		43213	127	3.5%	
45-49	229	97		43229	125	3.5%	
50-54	260	108		43215	122	3.4%	
55-59	203	97		43026	121	3.3%	
60-64	191	110		43230	121	3.3%	
65-69	156	136		43209	102	2.8%	
70-74	195	236		43223	102	2.8%	
75-79	200	318		43017	93	2.6%	
80-84	202	404		43206	91	2.5%	
85+	400	830		43227	90	2.5%	

2010-12				2010-12			
Gender	Number	Rate	Rate Chart	Race	Number	Rate	Rate Chart
Male	2155	138		Black	706	99	
Female	1468	80		White	2626	107	



SECTION 7:
Injury Mortality



Section 7: Injury Mortality

From 2010-12 there was an average of 763 injury related fatalities per year among Franklin County residents. This compares to an average of 689 for the years 2007-09 (Table 7-3). This is an increase of 11%. Taken together, unintentional (accidents) and intentional (homicides and suicides) injuries are the third leading cause of death for Franklin County residents (Table 7-1). Unintentional injuries alone are the leading cause of death if Years of Productive Life Lost before age 65 (YPLL) is the measure. Injuries are also the leading cause of death for residents 05-44 years old (Table 7-2).

Poisoning is the leading cause of unintentional injury fatality. It has increased from an average of 177 poisoning fatalities per year in 2007-09 to an average of 208 per year from 2010-12 (18% increase) (Table 7-4). Male poisoning deaths increased from an average of 123 per year in 2007-09 to an average of 151 per year in 2010-12, a 23% increase. During the same timeframes females poisoning deaths increased from 84 per year to 101, a 20% increase. From 2010-2012, the age group at greatest risk for poisoning fatalities is 45-49 at 51 per 100,000 (Table 7-6).

Table 7-1: Top 20 Franklin County Leading Causes of Death, 2010-12.

Rank	Cause of Death	Number	Rate	YPLL Rank	YPLL
1	Malignant Neoplasm	5,527	176.6	2	19,893
2	Diseases of the Heart	5,429	176.1	4	16,204
3	Chronic lower respiratory disease	1,585	53.2	9	2,900
4	Accidents	1,431	41.5	1	26,387
5	Cerebrovascular Disease	1,325	43.8	10	2,879
6	Alzheimers Disease	799	27.3	19	72
7	Diabetes mellitus	786	24.9	8	3381
8	Influenza and Pneumonia	595	19.8	13	1,439
9	Nephritis, nephritic syndrome and nephrosis	421	13.9	14	1,277
10	Suicide	413	11.6	6	9,056
11	Septicemia	351	11.4	12	1,749
12	Homicide	327	8.7	5	10,869
13	Chronic liver disease and cirrhosis	326	9.6	11	2,846
14	Essential primary hypertension and hypertensive renal disease	262	8.4	15	691
15	Certain conditions originating in the perinatal period	257	6.8	3	16,705
16	Parkinsons Disease	212	7.5	20	17
17	Pneumonitis due to solids and liquids	182	6.1	18	370
18	Congenital malformations, deformations and chromosomal abnormalities	141	3.7	7	7220
19	In Situ Benign Unknown Behavior Neoplasm	136	4.4	16	633
20	Aortic aneurysm and dissection	110	3.6	17	376

Table 7-2: Franklin County Leading Causes of Death by Age-Group, 2010-12.

Rank	Age Group							
	<1	01-04	05-14	15-24	25-44	45-64	65-74	75+
1	Congenital Anomalies (87)	Congenital Anomalies (13)	Accidents (Unintentional Injuries) & Malignant Neoplasm (10)	Accidents (Unintentional Injuries) (134)	Accidents (Unintentional Injuries) (424)	Malignant Neoplasm (1,733)	Malignant Neoplasm (1,355)	Diseases of the Heart (3,122)
2	Short Gestation (86)	Accidents (10)	Homicide (4)	Homicide (109)	Diseases of the Heart (174)	Diseases of the Heart (1,234)	Diseases of the Heart (880)	Malignant Neoplasm (2,243)
3	SIDS (61)	Malignant Neoplasm (7)	Disease of the Heart & Suicide (3)	Suicide (51)	Malignant Neoplasm (170)	Accidents (Unintentional Injuries) (456)	Chronic Lower Respiratory Disease (403)	Cerebrovascular Disease (894)
4	Maternal Pregnancy Complications (53)	Homicide (5)	Congenital Anomalies & In Situ Benign Unknown Behavior Neoplasm (2)	Malignant Neoplasm (9)	Suicide (155)	Chronic Lower Respiratory Disease (298)	Cerebrovascular Disease (189)	Chronic Lower Respiratory Disease (860)
5	Newborn Complications (27)	5 Tied (2)	Septicemia (1)	Disease of the Heart (8)	Homicide (140)	Diabetes mellitus (259)	Diabetes mellitus (184)	Alzheimers Disease (740)

Section 7: Injury Mortality

Table 7-3: Franklin County Injury Mortality: Number & Rate Trends by Mechanism & Intentionality

Mechanism of Injury Mortality	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Mechanism of Injury Mortality	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	†Number	Rate	Number	Rate				Number	Rate	Number	Rate		
All	2,068	62	2,290	66		6.4%	All	762	66	755	65		-1.3%
Poisoning	620	18	761	21		18.1%	Poisoning	263	22	246	20		-7.0%
Firearm	444	12	469	13		3.0%	Firearm	151	12	144	12		-5.2%
Motor Vehicle Traffic	278	8	311	9		8.8%	Fall	101	10	107	10		3.6%
Fall	231	8	295	10		21.8%	Motor Vehicle Traffic	108	9	99	8		-8.3%
Suffocation	181	5	190	5		1.7%	Suffocation	55	5	84	7		46.1%
Unspecified	107	4	58	2		-49.7%	Unspecified	19	**	18	**		N/A
Drowning/Submersion	36	1	36	1		1.2%	Adverse Effects (Drugs/Medical)	10	**	12	**	N/A	N/A
Cut/Pierce	33	1	35	1		-5.3%	Other Specified, Not Elsewhere Classifiable	8	**	11	**	N/A	N/A
Adverse Effects (Drugs/Medical)	31	1	31	1		-11.1%	Drowning/Submersion	13	**	9	**	N/A	N/A
Other Specified, Not Elsewhere Classifiable	30	1	31	1		0.0%	Cut/Pierce	14	**	7	**	N/A	N/A
Fire/Hot Object	28	1	30	1		0.0%	Other Specified and Classifiable	5	**	6	**	N/A	N/A
Other Specified and Classifiable	19	**	16	**	N/A	N/A	Fire/Hot Object	14	**	5	**	N/A	N/A
Land Transport, Other	7	**	8	**	N/A	N/A	Land Transport, Other	3	**	3	**	N/A	N/A
Natural/Environmental	4	**	6	**	N/A	N/A	Pedestrian, Other (Non-MVT related)	1	**	1	**	N/A	N/A
Transport, Other	3	**	5	**	N/A	N/A	Natural/Environmental	2	**	1	**	N/A	N/A
Pedestrian, Other (Non-MVT related)	10	**	3	**	N/A	N/A	Transport, Other	2	**	1	**	N/A	N/A
Machinery	2	**	2	**	N/A	N/A	Pedal Cyclist, Other (Non-MVT related)	0	**	1	**	N/A	N/A
Pedal Cyclist, Other (Non-MVT related)	2	**	1	**	N/A	N/A	Machinery	2	**	0	**	N/A	N/A
Struck by/Against	2	**	1	**	N/A	N/A							

Injury Mortality By Intentionality	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Injury Mortality By Intentionality	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Unintentional	1,298	38	1,431	40		6.6%	Unintentional	499	44	469	41		-6.0%
Suicide	403	12	413	12		-0.9%	Suicide	129	11	145	12		10.1%
Homicide	290	8	327	9		9.5%	Homicide	107	9	104	8		-2.2%
Undetermined	46	1	86	2		84.6%	Undetermined	26	2	24	2	N/A	-9.1%
Other	31	1	33	1	N/A	0.0%	Other	11	**	13	**	N/A	N/A

** Data do not meet reliability or precision standards of the National Center for Health Statistics as they are based on less than 20 deaths (numerator) and are not presented here.

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 7: Injury Mortality

Table 7-4: Franklin County Leading Mechanisms of Injury Mortality: Number & Rate Trends by Intent

Leading Unintentional Injury Mortality	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Leading Unintentional Injury Mortality	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Poisoning	532	15	623	17		12.6%	Poisoning	222	18	199	16		-10.9%
Motor Vehical Traffic (MVT)	278	8	311	9		9.4%	Fall	98	10	103	10		3.8%
Fall	226	8	286	10		20.9%	Motor Vehical Traffic (MVT)	108	9	99	8		-8.6%
Suffocation	83	3	77	2		-9.8%	Suffocation	20	2	35	3		74.9%
Unspecified	76	3	41	1		-51.9%	Unspecified	13	**	14	1		N/A
Drowning	26	1	26	1		-9.1%	Drowning	11	**	4	**	N/A	N/A
Fire/Hot Object	23	1	24	1		-1.4%	Fire/Hot Object	11	**	4	**	N/A	N/A
Other Specified	15	**	11	**	N/A	N/A	Other Specified and Classifiable	4	**	3	**	N/A	N/A
Other Land Transport	6	**	6	**	N/A	N/A	Other Land Transport	2	**	2	**	N/A	N/A
Natural Environment	4	**	6	**	N/A	N/A	Firearm	1	**	1	**	N/A	N/A

Leading Intentional Injury Mortality	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Leading Intentional Injury Mortality	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Firearm	212	6	254	7		17.2%	Firearm	84	7	80	6		-3.9%
Cut/Pierce	23	1	29	1		25.0%	Other Specified, Not Elsewhere Classifiable	7	**	8	**	N/A	N/A
Other Specified, Not Elsewhere Classifiable	16	**	23	1	N/A	N/A	Cut/Pierce	12	1	6	**	N/A	N/A
Suffocation	10	**	9	**	N/A	N/A	Suffocation	1	**	5	**	N/A	N/A
Unspecified	22	1	6	**	N/A	N/A	Unspecified	2	**	3	**	N/A	N/A
Other Specified and Classifiable	3	**	3	**	N/A	N/A	Other Specified and Classifiable	1	**	1	**	N/A	N/A
Fire/Hot Object	2	**	1	**	N/A	N/A	Poisoning	0	**	1	**	N/A	N/A
Poisoning	1	**	1	**	N/A	N/A	Fire/Hot Object	0	**	0	**	N/A	N/A
Struck by/Against	1	**	1	**	N/A	N/A							
Fall	0	**	0	**	N/A	N/A							

Leading Self-Inflicted Injury Mortality	2007-09		2010-12		Adjusted-Rate Trend BarChart	Rate % Change	Leading Self-Inflicted Injury Mortality	2011		2012		Adjusted-Rate Trend BarChart	Rate %Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Firearm	224	7	206	6		-9.2%	Firearm	65	6	60	5		-9.1%
Suffocation	88	2	104	3		16.3%	Suffocation	34	3	44	3		18.1%
Poisoning	63	2	81	2		27.8%	Poisoning	24	2	30	3		30.0%
Falls	3	**	8	**	N/A	N/A	Falls	3	**	4	**	N/A	N/A
Cut/Pierce	8	**	5	**	N/A	N/A	Drowning/Submersion	0	**	2	**	N/A	N/A
Other Specified, Not Elsewhere Classifiable	4	**	3	**	N/A	N/A	Other Specified, Not Elsewhere Classifiable	0	**	2	**	N/A	N/A
Drowning	7	**	2	**	N/A	N/A	Cut/Pierce	1	**	1	**	N/A	N/A
Other Land Transport	1	**	2	**	N/A	N/A	Other Land Transport	1	**	1	**	N/A	N/A
Fire/Hot Object	1	**	1	**	N/A	N/A							
Other Specified and Classifiable	1	**	1	**	N/A	N/A							

** Data do not meet reliability or precision standards of the National Center for Health Statistics as they are based on less than 20 deaths (numerator) and are not presented here.

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 7: Injury Mortality

Table 7-5: Franklin County All Injury Mortality: Demographic Number & Rate Trends

Characteristic		2007-09		2010-12		Age-Specific Rate	Rate	Characteristic		2011		2012		Age-Specific Rate	Rate
Age-Group	†Number	Rate	Number	Rate	Trend Chart	% Change		Age-Group	Number	Rate	Number	Rate	Trend BarChart	% Change	
00-04	51	21	35	14		-33.7%		00-04	13	15	8	9		-39.2%	
05-09	10	4	9	4		-13.6%		05-09	4	5	2	3		-49.8%	
10-14	10	5	8	4		-20.9%		10-14	2	3	3	4		50.0%	
15-19	89	37	99	42		13.4%		15-19	34	43	32	41		-4.9%	
20-24	177	60	199	65		7.2%		20-24	67	65	61	60		-7.1%	
25-29	178	56	195	62		11.2%		25-29	67	64	60	56		-12.9%	
30-34	158	63	196	71		12.3%		30-34	56	60	65	68		12.7%	
35-39	142	58	171	72		24.3%		35-39	59	75	55	69		-7.4%	
40-44	200	86	182	77		-10.6%		40-44	66	83	55	68		-17.9%	
45-49	220	90	225	96		6.5%		45-49	84	107	73	95		-11.3%	
50-54	191	83	244	101		20.7%		50-54	78	97	91	112		16.1%	
55-59	151	78	175	84		7.5%		55-59	62	89	50	69		-22.0%	
60-64	69	47	83	48		0.6%		60-64	27	46	28	47		2.8%	
65-69	62	61	57	50		-18.4%		65-69	19	51	20	48		-5.1%	
70-74	46	60	60	73		21.4%		70-74	23	84	20	70		-16.5%	
75-79	81	126	73	116		-7.8%		75-79	17	81	29	138		69.5%	
80-84	86	171	79	158		-7.5%		80-84	25	150	28	169		13.2%	
85+	147	336	200	415		23.7%		85+	69	432	75	453		4.8%	

Gender		2007-09		2010-12		Gender Specific Rate	Rate	Gender		2011		2012		Gender Specific Rate	Rate
Gender	Number	Rate	Number	Rate	Trend Chart	% Change		Gender	Number	Rate	Number	Rate	Trend BarChart	%Change	
Male	1396	89	1489	86		-2.8%		Male	489	88	486	88		-0.3%	
Female	672	38	788	43		12.7%		Female	274	44	265	43		-2.7%	

Race		2007-09		2010-12		Race Specific Rate	Rate	Race		2011		2012		Race Specific Rate	Rate
Race	Number	Rate	Number	Rate	Trend Chart	% Change		Race	Number	Rate	Number	Rate	Trend BarChart	%Change	
Black	498	72	540	71		-1.9%		Black	181	72	171	66		-7.7%	
White	1482	61	1638	53		-12.6%		White	548	66	548	65		-1.2%	

Top Ten Zip Code*		2007-09		2010-12		Zip Specific Percentage	Number	Top Ten Zip Code*		2011		2012		Zip Specific Percentage	Number
Zip Code*	Number	Percent	Number	Percent	Trend Chart	% Change		Zip Code*	Number	Percent	Number	Percent	Trend Chart	% Change	
43207	156	7.9%	160	7.3%		2.6%		43207	44	5.9%	58	7.8%		31.8%	
43204	103	5.2%	125	5.7%		21.4%		43228	35	4.7%	46	6.1%		31.4%	
43223	85	4.3%	109	5.0%		28.2%		43223	40	5.4%	43	5.7%		7.5%	
43228	109	5.5%	108	5.0%		-0.9%		43204	42	5.6%	42	5.6%		0.0%	
43123	65	3.3%	99	4.5%		52.3%		43224	22	3.0%	34	4.5%		54.5%	
43224	91	4.6%	91	4.2%		0.0%		43123	30	4.0%	33	4.4%		10.0%	
43211	72	3.6%	88	4.0%		22.2%		43026	24	3.2%	26	3.5%		8.3%	
43213	62	3.1%	85	3.9%		37.1%		43211	30	4.0%	24	3.2%		-20.0%	
43232	73	3.7%	82	3.8%		12.3%		43230	26	3.5%	24	3.2%		-7.7%	
43229	62	3.1%	77	3.5%		24.2%		43068	24	3.2%	21	2.8%		-12.5%	

*Ranked by 2010-12 or 2012 frequencies
 †NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 7: Injury Mortality

Table 7-6: Franklin County Unintentional Motor Vehicle Crash Mortality: Demographic Number & Rate Trends

Characteristic		2007-09		2010-12		Age-Specific Rate	Rate	Characteristic		2011		2012		Age-Specific Rate	Rate
Age-Group	†Number	Rate	Number	Rate	Bar Chart	% Change		Age-Group	Number	Rate	Number	Rate	Bar Chart	% Change	
00-04	5	2	3	1		-26.7%		00-04	1	1	1	1		0.0%	
05-09	1	0	4	2		N/A		05-09	1	1	2	3		>100%	
10-14	4	2	1	0		-80.4%		10-14	0	0	0	0		N/A	
15-19	28	12	28	12		-1.9%		15-19	13	16	8	10		-37.8%	
20-24	33	14	39	13		-9.3%		20-24	15	15	9	9		-38.6%	
25-29	33	9	28	9		-0.6%		25-29	9	9	10	9		8.7%	
30-34	21	7	32	12		64.8%		30-34	6	6	11	12		77.5%	
35-39	21	9	28	12		27.6%		35-39	12	15	8	10		-33.8%	
40-44	20	9	24	10		12.8%		40-44	8	10	8	10		-4.1%	
45-49	33	14	27	11		-18.1%		45-49	7	9	10	13		46.1%	
50-54	14	6	24	10		65.8%		50-54	6	7	11	14		99.0%	
55-59	15	8	14	7		-16.3%		55-59	6	9	3	4		-52.3%	
60-64	11	8	14	8		0.7%		60-64	5	8	2	3		-60.7%	
65-69	4	4	7	6		52.4%		65-69	3	8	2	5		-40.0%	
70-74	11	14	9	11		-22.1%		70-74	5	18	2	7		-61.5%	
75-79	8	12	5	8		-33.5%		75-79	0	0	4	19		N/A	
80-84	11	22	9	18		-18.2%		80-84	3	18	3	18		1.4%	
85+	5	11	15	31		>100%		85+	8	50	5	30		-39.8%	

Characteristic		2007-09		2010-12		Gender Specific Rate	Rate	Characteristic		2011		2012		Gender Specific Rate	Rate
Gender	Number	Rate	Number	Rate	Bar Chart	% Change		Gender	Number	Rate	Number	Rate	Bar Chart	%Change	
Male	200	12	211	12		0.0%		Male	77	14	59	10		-27.3%	
Female	78	4	96	5		23.3%		Female	29	5	38	6		29.8%	

Characteristic		2007-09		2010-12		Race Specific Rate	Rate	Characteristic		2011		2012		Race Specific Rate	Rate
Race	Number	Rate	Number	Rate	Bar Chart	% Change		Race	Number	Rate	Number	Rate	Bar Chart	%Change	
Black	71	10	75	10		0.0%		Black	22	8	30	13		55.4%	
White	186	8	203	7		-10.3%		White	72	9	57	7		-26.0%	

Top Ten		2007-09		2010-12		Zip Specific Percentage	Number	Top Ten		2011		2012		Zip Specific Percentage	Number
Zip Code*	Number	Percent	Number	Percent	Bar Chart	% Change		Zip Code*	Number	Percent	Number	Percent	Bar Chart	% Change	
43228	15	5.8%	21	7.4%		40.0%		43228	3	3.0%	11	11.5%		>100%	
43204	13	5.0%	20	7.0%		53.8%		43068	4	4.0%	7	7.3%		75.0%	
43207	29	11.2%	20	7.0%		-31.0%		43207	6	6.1%	7	7.3%		16.7%	
43232	10	3.9%	16	5.6%		60.0%		43224	1	1.0%	7	7.3%		>100%	
43223	7	2.7%	14	4.9%		100.0%		43119	3	3.0%	6	6.3%		100.0%	
43026	8	3.1%	13	4.6%		62.5%		43026	2	2.0%	5	5.2%		>100%	
43068	6	2.3%	13	4.6%		>100%		43232	7	7.1%	5	5.2%		-28.6%	
43119	9	3.5%	12	4.2%		33.3%		43085	1	1.0%	4	4.2%		>100%	
43224	3	1.2%	11	3.9%		>100%		43204	9	9.1%	4	4.2%		-55.6%	
43123	15	5.8%	10	3.5%		-33.3%		43209	0	0.0%	4	4.2%		#DIV/0!	

*Ranked by 2010-12 or 2012 frequencies

†NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 7: Injury Mortality

Table 7-7: Franklin County Unintentional Poisoning Mortality: Demographic Number & Rate Trends

Age-Group							Age-Group						
Characteristic	2007-09		2010-12		Age-Specific Rate Bar Chart	Rate % Change	Characteristic	2011		2012		Age-Specific Rate Bar Chart	Rate % Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
00-04	1	0	0	0		-100.0%	00-04	0	0	0	0	N/A	
05-09	0	0	0	0		N/A	05-09	0	0	0	0	N/A	
10-14	0	0	2	1		N/A	10-14	2	3	0	0	-100.0%	
15-19	8	3	6	3		-24.2%	15-19	0	0	1	1	N/A	
20-24	24	8	39	13		55.6%	20-24	11	11	15	15	39.6%	
25-29	48	15	55	18		15.9%	25-29	21	20	17	16	-21.3%	
30-34	62	25	80	29		17.1%	30-34	26	28	27	28	1.1%	
35-39	54	22	71	30		35.6%	35-39	22	28	23	29	4.0%	
40-44	90	39	74	31		-19.4%	40-44	28	35	21	26	-26.1%	
45-49	79	32	89	38		17.1%	45-49	37	47	26	34	-28.2%	
50-54	87	38	96	40		4.5%	50-54	34	42	38	47	11.4%	
55-59	46	24	76	36		53.2%	55-59	30	43	20	28	-35.7%	
60-64	11	8	16	9		22.7%	60-64	4	7	4	7	0.0%	
65-69	12	12	10	9		-25.6%	65-69	3	8	4	10	20.0%	
70-74	4	5	2	2		-53.8%	70-74	0	0	1	4	N/A	
75-79	4	6	2	3		-50.0%	75-79	0	0	1	5	N/A	
80-84	2	4	1	2		-51.3%	80-84	1	6	0	0	-100.0%	
85+	0	0	4	8		N/A	85+	3	19	1	6	-67.9%	

Gender							Gender						
Characteristic	2007-09		2010-12		Gender Specific Rate Bar Chart	Rate % Change	Characteristic	2011		2012		Gender Specific Rate Bar Chart	Rate % Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Male	369	22	453	26		18.6%	Male	145	25	145	25	-1.6%	
Female	251	14	304	17		17.6%	Female	115	19	100	16	-15.3%	

Race							Race						
Characteristic	2007-09		2010-12		Race Specific Rate Bar Chart	Rate % Change	Characteristic	2011		2012		Race Specific Rate Bar Chart	Rate % Change
	Number	Rate	Number	Rate				Number	Rate	Number	Rate		
Black	94	14	116	16		12.3%	Black	38	15	30	12	-21.1%	
White	515	21	619	18		-15.0%	White	214	26	210	25	-2.4%	

Top Ten Zip Code*							Top Ten Zip Code*						
Zip Code*	2007-09		2010-12		Zip Specific Percentage Bar Chart	Number % Change	Zip Code*	2011		2012		Zip Specific Percentage Bar Chart	Number % Change
	Number	Percent	Number	Percent				Number	Percent	Number	Percent		
43207	52	14.9%	65	10.8%		25.0%	43204	12	5.6%	24	12.1%	100.0%	
43204	32	9.2%	47	7.8%		46.9%	43207	20	9.4%	20	10.1%	0.0%	
43223	27	7.8%	41	6.8%		51.9%	43228	11	5.2%	14	7.1%	27.3%	
43224	14	4.0%	32	5.3%		128.6%	43223	17	8.0%	12	6.1%	-29.4%	
43123	20	5.7%	31	5.1%		55.0%	43224	9	4.2%	9	4.5%	0.0%	
43228	38	10.9%	31	5.1%		-18.4%	43123	12	5.6%	8	4.0%	-33.3%	
43211	14	4.0%	27	4.5%		92.9%	43220	0	0.0%	8	4.0%	#DIV/0!	
43213	19	5.5%	27	4.5%		42.1%	43230	4	1.9%	8	4.0%	100.0%	
43081	12	3.4%	19	3.1%		58.3%	43211	10	4.7%	7	3.5%	-30.0%	
43219	6	1.7%	18	3.0%		200.0%	43215	5	2.3%	7	3.5%	40.0%	

*Ranked by 2010-12 or 2012 frequencies
 †NOTE: All 2007-09 and 2010-12 categories are 3-year totals

Section 7: Injury Mortality

Table 7-8: Franklin County Firearm Homicide: Demographic Number & Rate Trends

Characteristic		2007-2009		2010-12		Age-Specific Rate	Rate	Characteristic		2011		2012		Age-Specific Rate	Rate
Age-Group	↑Number	Rate	Number	Rate	Bar Chart	% Change		Age-Group	Number	Rate	Number	Rate	Bar Chart	% Change	
00-04	0	0	1	0		N/A		00-04	0	0	1	1		N/A	
05-09	4	2	2	1		-63.6%		05-09	0	0	0	0		N/A	
10-14	1	0	1	0		-11.1%		10-14	0	0	1	1		N/A	
15-19	24	10	41	17		71.7%		15-19	12	15	12	15		0.7%	
20-24	56	19	60	20		2.1%		20-24	23	22	14	14		-38.1%	
25-29	37	12	50	16		37.1%		25-29	18	17	16	15		-13.9%	
30-34	28	11	27	10		-12.6%		30-34	8	9	8	8		-3.5%	
35-39	19	8	18	8		-2.6%		35-39	3	4	7	9		135.1%	
40-44	16	7	19	8		17.6%		40-44	9	11	6	7		-34.5%	
45-49	14	6	9	4		-33.3%		45-49	3	4	3	7		94.7%	
50-54	7	3	14	6		93.3%		50-54	3	4	8	10		164.9%	
55-59	5	3	6	3		7.7%		55-59	1	1	2	3		92.9%	
60-64	0	0	2	1		N/A		60-64	1	2	1	1		-37.5%	
65-69	0	0	0	0		N/A		65-69	0	0	0	0		N/A	
70-74	0	0	4	5		N/A		70-74	3	11	1	4		-67.9%	
75-79	1	0	0	0		N/A		75-79	0	0	0	0		N/A	
80-84	0	0	0	0		N/A		80-84	0	6	0	0		-100.0%	
85+	0	0	0	0		N/A		85+	0	0	0	0		N/A	

Characteristic		2007-09		2010-12		Gender Specific Rate	Rate	Characteristic		2011		2012		Gender Specific Rate	Rate
Gender	Number	Rate	Number	Rate	Bar Chart	% Change		Gender	Number	Rate	Number	Rate	Bar Chart	%Change	
Male	184	10	229	13		33.3%		Male	71	12	75	13		4.9%	
Female	28	2	25	1		-13.3%		Female	13	2	5	1		-61.9%	

Characteristic		2007-09		2010-12		Race Specific Rate	Rate	Characteristic		2011		2012		Race Specific Rate	Rate
Race	Number	Rate	Number	Rate	Bar Chart	% Change		Race	Number	Rate	Number	Rate	Bar Chart	%Change	
Black	153	19	175	21		7.2%		Black	58	20	54	20		-3.8%	
White	48	2	67	2		21.1%		White	22	3	23	3		3.8%	

Top Ten		2007-09		2010-12		Zip Specific Percentage	Number	Top Ten		2011		2012		Zip Specific Percentage	Number
Zip Code*	Number	Percent	Number	Percent	Bar Chart	% Change		Zip Code*	Number	Percent	Number	Percent	Bar Chart	% Change	
43211	20	9.8%	20	8.2%		0.0%		43207	4	4.8%	9	11.3%		125.0%	
43232	15	7.3%	20	8.2%		33.3%		43211	7	8.4%	8	10.0%		14.3%	
43207	14	6.8%	18	7.4%		28.6%		43223	3	3.6%	7	8.8%		133.3%	
43204	7	3.4%	15	6.2%		114.3%		43228	3	3.6%	5	6.3%		66.7%	
43205	10	4.9%	15	6.2%		50.0%		43232	7	8.4%	5	6.3%		-28.6%	
43219	14	6.8%	15	6.2%		7.1%		43201	2	2.4%	4	5.0%		100.0%	
43203	5	2.4%	12	4.9%		140.0%		43203	3	3.6%	4	5.0%		33.3%	
43206	14	6.8%	12	4.9%		-14.3%		43206	2	2.4%	4	5.0%		100.0%	
43223	10	4.9%	12	4.9%		20.0%		43219	5	6.0%	4	5.0%		-20.0%	
43224	19	9.3%	12	4.9%		-36.8%		43224	3	3.6%	4	5.0%		33.3%	

*Ranked by 2010-12 or 2012 frequencies
 †NOTE: All 2007-09 and 2010-12 categories are 3-year totals

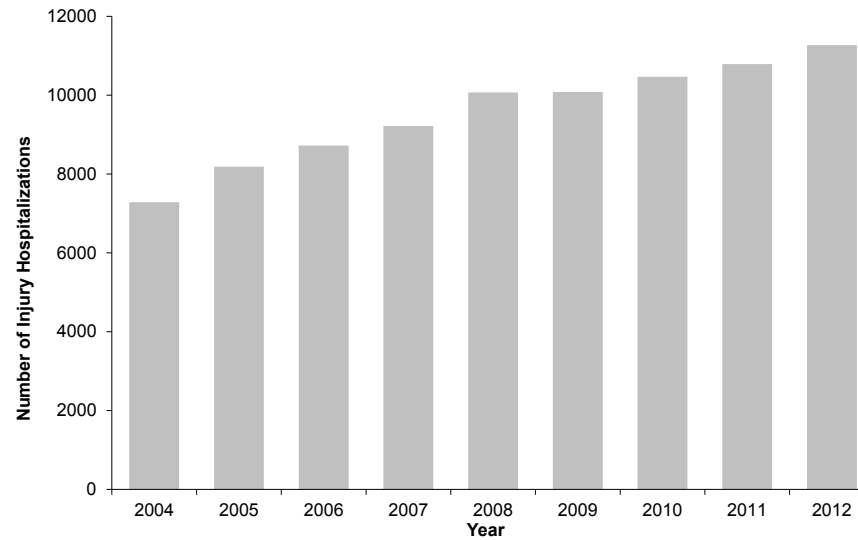


SECTION 8:
Regional Leading Mechanisms of
External Injury Hospitalizations

Section 8: Leading Mechanisms

The COTS registry collects injury information from 26 hospitals in 15 counties in the Central Ohio region. For the years 2010-12, the average number of hospital admissions per year was 10,841. For 2007-09 the average was 9,790 per year. This is an 11% increase in injury related hospital admissions of 48-hours or longer. Table 8-1 shows the increases in injury admissions over the period 2004-2012 by the various injury mechanisms. For the years 2010-2012, Franklin County residents comprise about one-third (37%) of all regional hospital admissions of 48-hours or longer. For each of the years in the entire COTS registry, the top three causes of injury admissions are falls, motor vehicle crashes, and struck by or against an object.

Figure 8-1: Total Number of COTS Injury Hospitalizations, by Year

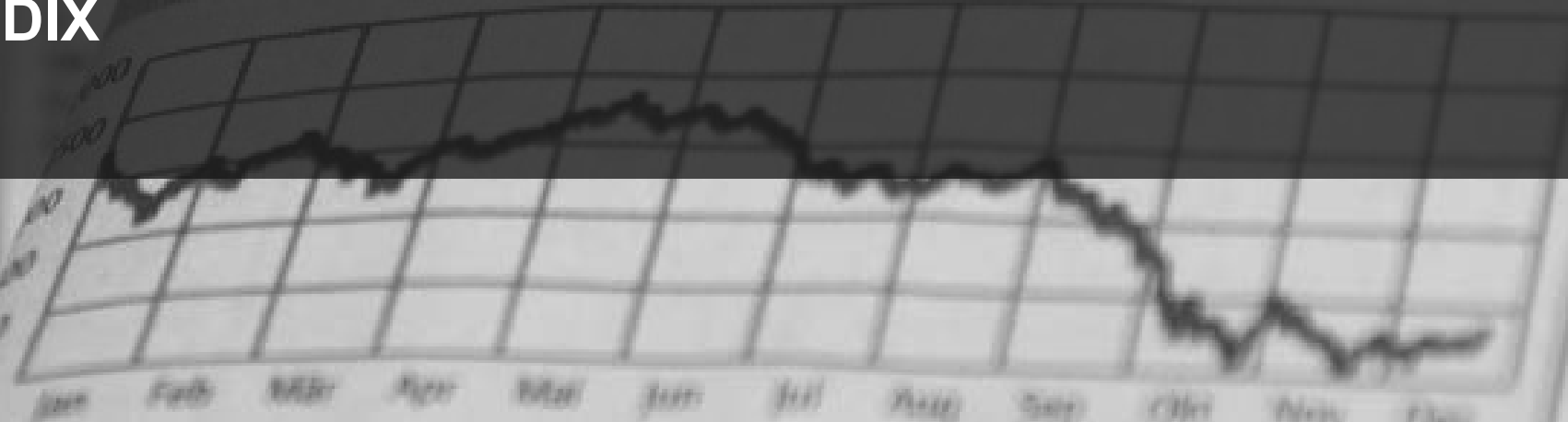


1200	1000	800	600	400	200	0	-200	-400	-600	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
1200	1000	800	600	400	200	0	-200	-400	-600	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
1200	1000	800	600	400	200	0	-200	-400	-600	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000
1200	1000	800	600	400	200	0	-200	-400	-600	-800	-1000	-1200	-1400	-1600	-1800	-2000	-2200	-2400	-2600	-2800	-3000



APPENDIX

M-DAX



4.8	2.45C
40.00	23.10
15.26	17.01
19.34	9.90
43.14	288.71
9.10	0.0000

APPENDIX: Glossary

Age-Adjusted Rate

A special kind of rate in which age-specific rates for a selected population are applied to a standard population to calculate what rate would be expected if the selected population had the same age distribution as the standard population. Note: Age-adjusted rates are artificial measurements and should never be compared to any other type of rate or be used to calculate the actual number of events (age-adjusted rates are further discussed in the Analysis section).

Age-Specific Rate

A statistical measure describing the number of events, which occur in a specified number of people in a specific age group within a defined time period, and allows the evaluation of an injury problem across different age groupings (age-specific rates are further discussed in the Analysis section).

Central Ohio Trauma System Trauma Registry

The central repository of trauma related data and information for the Central Ohio region.

E Code

The external cause of injury is defined by the World Health Organization's International Classification of Disease, 9th Revision Clinical Modification (ICD-9-CM). In this publication, the E Code describes the environmental events, circumstances, and conditions as to the cause of injury or poisoning. Prior to 1999, E codes as defined by ICD-9 were also used for injury deaths.

Starting with 1999 mortality data, injury deaths are coded according to ICD-10.

Injury

Damage to the body from exposure to thermal, mechanical, electrical, or chemical energy or from the absence of essentials such as heat or oxygen. Injury causes are classified by mechanism and intent.

Injury Frequency

Number of times an event or characteristic occurs in a given time.

Intent

Intent of Injury: The purpose and awareness of the risk of injury. There are two major categories of injury intentionality, "unintentional" and "intentional". Two smaller categories of intent include "legal intervention" and "undetermined".

Intentional Injuries

Deliberate injury, categorized as:

Assault/alleged abuse

Inflicted by one person on another. Considered homicide when the outcome is death.

Self-inflicted

Purposefully inflicted by a person on his/herself. Considered suicide when the outcome is death.

Unintentional Injuries

Occurs without purposeful intent.

Undetermined

Intent is not known or could not be identified

Legal Intervention

Occurs during legal intervention

Mechanism (or Cause)

Mechanism describes the cause of the injury. Explained as the agent, instrument, or activity involved in the incident, such as fall or poisoning.

Some terms used to describe mechanism/causes of injury:

Cut/Pierce

Death/injury caused by cutting or piercing instruments or objects.

Drown

Death/injury caused by a lack of oxygen resulting from insufficient air and ingestion of water.

Natural/Environmental

Death/injury due to excessive heat or cold, lightning, natural disasters, and other environmental factors.

Falls

Death/injury resulting from falling, tripping, stumbling, pushing, colliding, or diving from different levels or the same level.

APPENDIX: Glossary

Firearms

Death/injury resulting from discharge of a handgun, rifle, shotgun, larger firearm, or other and unspecified firearm.

Fire/Hot

Death/injury resulting from asphyxia or poisoning from conflagration or ignition, burning by fire, hot substances or objects, caustic/corrosive materials, and steam.

Motor Vehicle Crash

Death/injury resulting from motor vehicle crash occurring on a public street or roadway.

Suffocation

Death/injury resulting from inhalation and ingestion of objects causing obstruction of the respiratory tract (mechanical suffocation), hanging, or strangulation.

Struck By/Against

Death/Injury resulting from being hit by blunt object or person.

Miscellaneous

A category for injury mechanism classification that represents a combination of several groupings for simplicity in reporting. In the injury matrix “other” is used to describe specific causes of injury and cannot be used as a general category.

Ohio Trauma Registry

The central repository of trauma related data and information for the state of Ohio.

Rate

Statistical measure that allows comparisons between different populations, such as geographical area or age group. An injury rate is calculated by dividing the number of people injured in a given time by the size of the population from which they are drawn. The number is then multiplied by 100,000 to obtain a standard rate. There are three main types of rates used in this document, crude, age-specific, age-adjusted which are further described in the Technical Notes section.

Years of Potential Life Lost (YPLL)

A measure of the impact of premature mortality on a population. It is calculated as the sum of the differences between some predetermined end point and the ages of death for those who died before that end point. The two most commonly used end points are age 65 years and average life expectancy. Because of the way in which YPLL is calculated, this measure gives more weight to a death the earlier it occurs.

APPENDIX: Data

Sources of Data

Mortality:

Data relating to fatal injuries in Franklin County are from the State of Ohio Vital Statistics records. This report presents death certificate data from various years through 2012, as labeled in the chapters and tables.

Non-fatal Injuries (Injury Hospitalizations):

The data relating to non-fatal injuries, from various years through 2012, as labeled in the chapters and tables, is from the Central Ohio Trauma System Registry and its member hospitals.

Traumatic Brain Injuries (TBI):

This data are a subset of non-fatal injury hospitalizations from the Central Ohio Trauma System Registry. The patients included in this subset have one or more of the following ICD-9 nature of injury codes: 800.0-800.9, 801.0-801.9, 803.0-804.9, 850.0-854.1, 950.1-950.3, 959.01, or 995.55.

Population:

1. Hospitalization Rates and Mechanism of Injury Death Rates are from the National Center for Health Statistics. Vintage 2012 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2012), by year, county, single-year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of June 13, 2013, following release by the U.S. Census Bureau of the unbridged Vintage 2012 postcensal estimates by 5-year age group on June 13, 2013.
2. 2010-12 Franklin County, OH, Zip-Code Region Age-Specific and Age-Adjusted COTS Hospitalization Rates: 2010 U.S. Census Bureau Zip Code Tabulation Area population estimates.

Limitations of Data

The COTS data on injury hospitalizations includes:

- Injured patients admitted to the hospital for 48 hours or greater
- Injured patients transferred in and out of hospitals for further evaluation regardless of length of stay
- Injured patients who died after arrival to a hospital regardless of their length of stay

COTS data does not include patients treated in the emergency room and released. The entire scope of non-fatal injury in Franklin County would require injury data from every hospital, urgent care center, clinic, physician, Emergency Medical System (EMS) run, etc. Due to the limited data available, the numbers and figures in this monograph are not reflective of the total burden of injury in Franklin County but do reflect the more severe injuries.

Since it is most likely that the real numbers of injury are higher, the estimates provided in this monograph should be regarded as conservative and interpreted with caution.

APPENDIX: Analysis

Ranking Leading Mechanisms of Injury Hospitalizations, Injury Mortality and All Causes of Death

Leading causes of death, fatal injuries, and non-fatal injuries are ranked according to descending frequencies or percentages. For example, the cause with the largest count or percentage is ranked 1st, the next largest count or percentage is ranked 2nd, etc.

Rate Calculations

Different types of rates are presented in this report. They include crude, age-specific and age-adjusted.

Crude Rate

Crude rates are calculated by dividing the number of people who were injured during a given time period by the size of the population from which they were drawn. By convention, this number is then multiplied by 100,000 to show a whole number instead of a fraction. Rates based on the actual number of events in the total population during the given time period are known as crude rates. The formula for the crude rate is as follows:

$$CR = \frac{\sum X}{\sum Y} \times 100,000$$

where X is the number of hospitalizations or deaths and Y is the total population size from which the hospitalization or deaths are drawn.

Age-specific Rate

Age-specific Rates are calculated by dividing the appropriate aggregated number

of trauma hospital admissions or injury deaths (the numerator) for the age grouping and dividing by the population from that age grouping (the denominator). By convention, the computed number is multiplied by 100,000 to generate comparable rates. The general formula for the age-specific rates (ASR) used is as follows:

$$ASR = \frac{\sum X_i}{\sum Y_i} \times 100,000$$

where X is the number of hospitalizations or deaths and Y is the population size for the ith age group.

In addition, 95% Confidence Intervals (CI) for the age-specific rate were calculated using the approximation method formula based on the Poisson distribution:

Upper and Lower CI = $ASR \pm 2(SE)$

$$\text{Standard error (SE)} = \frac{ASR}{\sqrt{N}}$$

where N is the number of hospitalizations or deaths.

Age-Adjusted Rates

The direct method of age-adjustment was used in this report and is achieved by multiplying each age-specific rate in the population of interest with the proportion of persons in the corresponding age group within a reference or standard population. The sum of these numbers is multiplied by 100,000 and represents the rate of injury death or injury hospitalization in the population of interest, if it had the same age structure as the standard population.

Therefore, the influence of age, when comparing two age-adjusted rates, is controlled. (Note: Age-adjusted and crude rates should never be compared to one another.) The rates were adjusted according to the U.S. 2000 estimated population distribution. The general formula for the age-adjusted rate is as follows:

If the rate in the ith age class of area a is

$$r_{ia} = \frac{x_{ia}}{n_{ia}}$$

then DSR_a equals:

$$DSR_a = \frac{\sum_i r_{ia} n_{is}}{\sum_i n_{is}}$$

DSR_a = directly standardized rate for area a
n_{ia} = number of individuals in ith age class in area a

n_{is} = number of individuals in ith age class of standard area

x_{ia} = number of cases in ith age class of area a

APPENDIX: Analysis

Reliability

Rates, even when they are based on full population counts (as in this report), should be considered estimates and subject to error. The observed or crude hospitalization or death rate is an estimate of the true or underlying rate. Rates are subject to chance variation. The variation of the rate is directly related to the number of events used to calculate the rate. The smaller the number of events used to calculate the rate, the higher the variability of the rate. Rates based on unusually small numbers of events over a specified period of time or for a sparsely populated geographic area should be of particular concern and be used cautiously. When few events or small populations are evident in calculating/studying rates, multiple-year summary rates or average annual rates will sometimes provide a much better perspective by strengthening or enlarging the numbers used to calculate the rate.

An observed rate's variability can be estimated by its standard error (SE), which can be used to calculate a confidence interval (CI) to determine the range of probable values for the true or underlying rate (See above).

Note: Due to instability arising from small numbers the National Center for Health Statistics considers rates based on 20 or fewer cases to be statistically unreliable and to be regarded with caution. Rates presented in this document calculated from small numbers should be interpreted cautiously.

Franklin County Zip Code Tabulation Area (ZCTA) Regions and Average Age-Adjusted Rates

Small area rates, such as zip code based rates, are often produced by using few events or small numbers in the numerator or denominator, and thus are often unstable rates with large variability. Maps created using these small area rates are often prone to cartographic visualization errors, where the picture of the underlying data distribution is not accurate. One method to overcome the small area numbers problem and visualization error is to aggregate smaller geographic entities into larger ones. The drawback to the aggregation into larger areas is the loss of information and spatial granularity, thus information on high or low areas within these larger areas are masked. The zip code tabulation area regions presented in this document are derived from U.S. Census ZCTA boundaries.

(NOTE: these are different from the U.S. Postal Service Zip Code boundaries.) An explanation regarding ZCTAs and USPS Zip Codes can be found in <http://www.census.gov/geo/ZCTA/zcta.html>. The ZCTAs used to form Franklin County regions used in this document are as follows:

Northwest = 43002, 43016, 43017, 43026, 43085, 43202, 43210, 43212, 43214, 43220, 43221, 43235

Northeast = 43004, 43054, 43081, 43201, 43211, 43219, 43224, 43229, 43230, 43231

Southeast = 43068, 43110, 43125, 43137, 43203, 43205, 43206, 43207, 43209, 43213, 43217, 43227, 43232

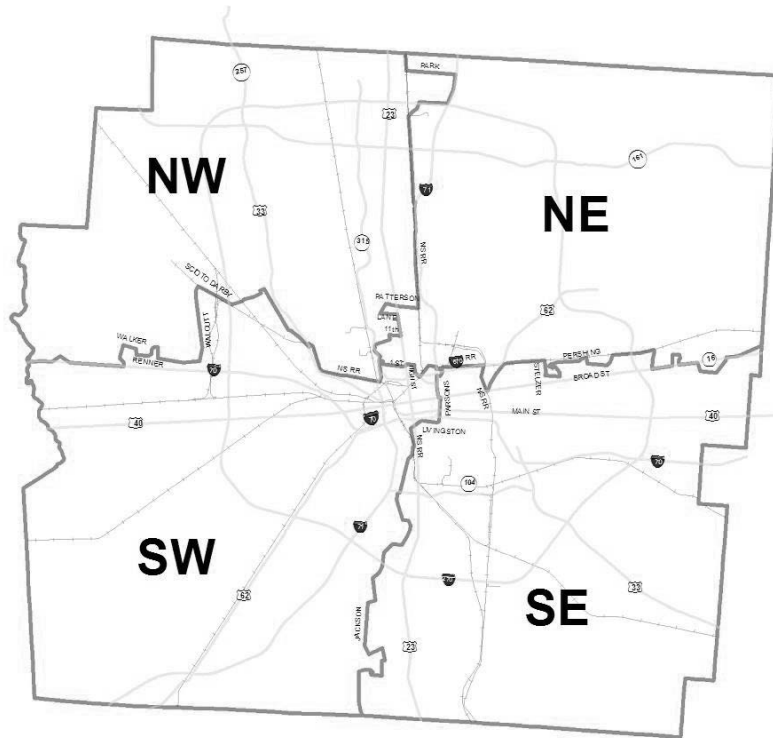
Southwest = 43119, 43123, 43146, 43204, 43215, 43222, 43223, 43228

Maps of the Franklin County ZCTA Regions are presented on the following page.

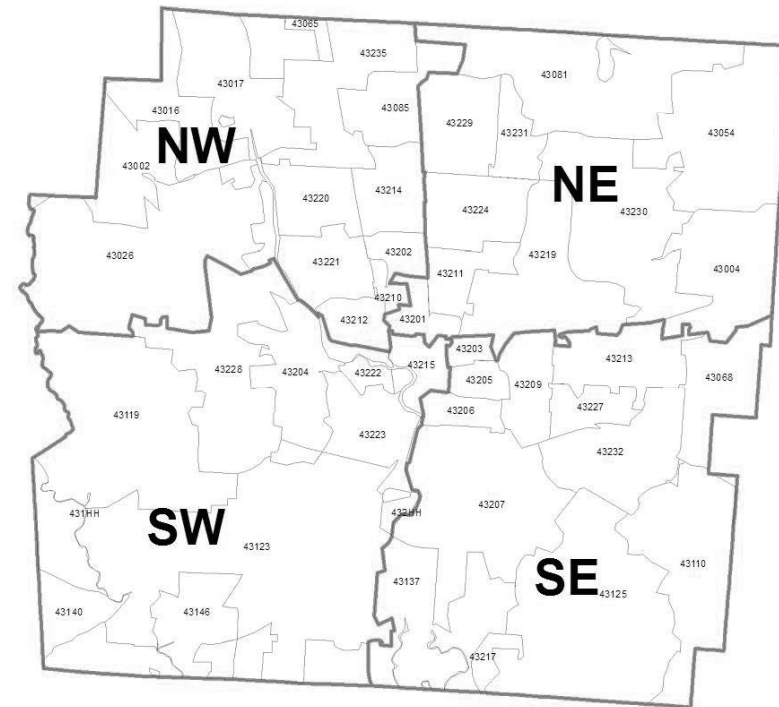
APPENDIX: Analysis

Franklin County Injury Hospitalizations Regions: Grouped U.S. Census Bureau Zip code Tabulation Areas (ZCTAs)

Regions with available corresponding named/identifiable boundaries



Regions with corresponding U.S. Census Bureau ZCTA Boundaries



APPENDIX: Analysis

Recommended framework of E-code groupings for presenting injury mortality and morbidity data (February 1, 2007)

This matrix contains the ICD-9 external-cause-of-injury codes used for coding of injury mortality data and additional ICD-9-CM external-cause-of-injury codes, designated in bold, only used for coding of injury morbidity data. In addition, a list of ICD-9-CM external-cause-of-injury codes that have been added since 1994 along with their descriptors is appended to the matrix.

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
Cut/pierce	E920.0-9	E956	E966	E986	E974
Drowning/submersion	E830.0-9, E832.0-9, E910.0-9	E954	E964	E984	
Fall	E880.0-E886.9, E888	E957.0-9	E968.1	E987.0-9	
Fire/burn ³	E890.0-E899, E924.0-9	E958.1,.2,.7	E961, E968.0,.3, E979.3	E988.1,.2,.7	
Fire/flame ³	E890.0-E899	E958.1	E968.0, E979.3	E988.1	
Hot object/substance	E924.0-9	E958.2,.7	E961, E968.3	E988.2,.7	
Firearm ³	E922.0-.3,.8,.9	E955.0-4	E965.0-4, E979.4	E985.0-4	E970
Machinery	E919 (.0-9)				
Motor vehicle crash ^{2,3}	E810-E819 (.0-9)	E958.5	E968.5	E988.5	
Occupant	E810-E819 (.0,.1)				
Motorcyclist	E810-E819 (.2,.3)				
Pedal cyclist	E810-E819 (.6)				
Pedestrian	E810-E819 (.7)				
Unspecified	E810-E819 (.9)				
Pedal cyclist, other	E800-E807 (.3), E820-E825 (.6), E826.1,.9, E827-E829(.1)				
Pedestrian, other	E800-807(.2), E820-E825(.7), E826-E829(.0)				
Transport, other	E800-E807 (.0.1,.8,.9), E820-E825 (.0-.5,.8,.9), E826.2-.8, E827-E829 (.2-.9), E831.0-9, E833.0-E845.9	E958.6		E988.6	
Natural/environmental	E900.0-E909, E928.0-2	E958.3		E988.3	
Bites and stings ³	E905.0-.6,.9, E906.0-4,.5,.9				
Overexertion	E927				
Poisoning	E850.0-E869.9	E950.0-E952.9	E962.0-9, E979.6,.7	E980.0-E982.9	E972
Struck by, against	E916-E917.9		E960.0, E968.2		E973, E975
Suffocation	E911-E913.9	E953.0-9	E963	E983.0-9	
Other specified and classifiable ^{3,4}	E846-E848, E914-E915, E918, E921.0-9, E922.4,.5 , E923.0-9, E925.0-E926.9, E928(.3-.5) , E929.0-5	E955.5,.6,.7,.9 E958.0,.4	E960.1, E965.5-9, E967.0-9, E968.4,.6, .7, E979 (.0-.2,.5,.8,.9)	E985.5,.6,.7 E988.0,.4	E971, E978, E990-E994, E996, E997.0-2
Other specified, not elsewhere classifiable	E928.8, E929.8	E958.8, E959	E968.8, E969, E999.1	E988.8, E989	E977, E995, E997.8 E998, E999.0
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
All injury ³	E800-E869, E880-E929	E950-E959	E960-E969, E979 , E999.1	E980-E989	E970-E978, E990-E999.0
Adverse Effects					E870-E879, E930.0-E949.9
Medical care					E870-E879
Drugs					E930.0-E949.9
All external causes					E800-E999

¹Includes legal intervention (E970-E978) and operations of war (E990-E999).

²Three 4th-digit codes (.4 [occupant of streetcar], .5 [rider of animal], .8 [other specified person]) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle traffic category, the sum of these categories can be derived by subtraction.

³Codes in bold are for morbidity coding only.

⁴E849 (place of occurrence) has been excluded from the matrix. For mortality coding, an ICD-9 E849 code does not exist. For morbidity coding, an ICD-9-CM E849 code should never be first-listed E code and should only appear as an additional code to specify the place of occurrence of the injury incident.

Note: ICD-9 E codes for coding underlying cause of death apply to injury-related death data from 1979 through 1998. Then there is a new ICD-10 external cause of injury matrix that applies to death data from 1999 and after. This can be found on the National Center for Health Statistics website.

APPENDIX: Analysis

Preliminary External Cause of Injury Mortality Matrix for ICD-10 (December 10, 2002, National Center for Injury Prevention and Control, CDC)

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other
Cut/pierce	W25-W29, W45	X78	X99	Y28	Y35.4
Drowning/submersion	W65-W74	X71	X92	Y21	
Fall	W00-W19	X80	Y01	Y30	
Fire/burn	X00-X19	X76-X77	X97-X98, *U01.3	Y26-Y27	Y36.3
Fire/flame	X00-X09	X76	X97	Y26	
Hot object/substance	X10-X19	X77	X98	Y27	
Firearm	W32-W34	X72-X74	X93-X95, *U01.4	Y22-Y24	Y35.0
Machinery	W24, W30-W31				
All Transport	V01-V99	X82	Y03, *U01.1	Y32	Y36.1
Motor vehicle crash	V02-V04 (.1,.9), V09.2, V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81.1, V82.1, V83-V86 (.0-.3), V87 (.0-.8), V89.2				
Occupant	V30-V39 (.4-.9), V40-V49 (.4-.9), V50-V59 (.4-.9), V60-V69 (.4-.9), V70-V79 (.4-.9), V83-V86 (.0-.3)				
Motorcyclist	V20-V28 (.3-.9), V29 (.4-.9)				
Pedal cyclist	V12-V14 (.3-.9), V19 (.4-.6)				
Pedestrian	V02-V04 (.1, .9), V09.2				
Unspecified	V80 (.3-.5), V81.1, V82.1,				
Pedal cyclist, other	V10-V11, V12-V14 (.0-.2), V15-V18, V19 (.0-.3, .8, .9)				
Pedestrian, other	V01, V02-V04 (.0), V05, V06, V09 (.0,.1,.3,.9)				
Other Land Transport	V20-V28 (.0-.2), V29 (.0-.3), V30-V39 (.0-.3), V40-V49 (.0-.3), V50-V59 (.0-.3), V60-V69 (.0-.3), V70-V79 (.0-.3), V80 (.0-.2, 6-.9), V81-V82 (.0,.2-.9), V83-V86 (.4-.9), V87.9, V88 (.0-.9), V89 (.0,.1,.3,.9)	X82	Y03	Y32	
Transport, other	V90-V99		*U01.1		Y36.1
Natural/environmental	W42, W43, W53-W64, W92-W99, X20-X39, X51-X57	E958.3		E988.3	
Overexertion	X50				
Poisoning	X40-X49	X60-X69	X85-X90, *U01.6-.7	Y10-Y19	Y35.2
Struck by, against	W20-W22, W50-W52	X79	Y00, Y04	Y29	Y35.3
Suffocation	W75-W84	X70	X91	Y20	
Other specified and classifiable	W23, W35-W41, W44, W49, W85-W91, Y85	X75, X81, *U03.0	X96, Y02, Y05-Y07, *U01 (.0, .2, .5)	Y25, Y31	Y35 (.1, .5), Y36 (.0, .2, 4-.8)
Other specified, not elsewhere classifiable	X58, Y86	X83, Y87.0	Y08, Y87.1, *U01.8, *U02	Y33, Y87.2	Y35.6, Y89 (.0, .1)
Unspecified	X59	X84, *U03.9	Y09, *U01.9	Y34, Y89.9	Y35.7 Y36.9
All injury	V01-X59, Y85-Y86	X60-X84, Y87.0	X85-Y09, Y87.1	Y10-Y34, Y87.2, Y89.9	Y35-Y36, Y89 (.0,.1)

Notes:

1. This framework was developed to be consistent with the framework developed based on ICD-9 external cause of injury codes as published in <http://www.cdc.gov/mmwr/PDF/rr/rr4614.pdf>
2. Drowning is the one external cause that has been redefined in this matrix. Codes for water transportation-related drowning, V90 and V92, are included in the transportation codes rather than with the drowning codes. In the ICD-9 version of the matrix, the comparable codes, E830 and E832, were included with drowning. This change was made to be consistent with other mechanisms involved with water transport-related injuries.
3. In this version, V81.1 and V82.1 were moved from the row for motor vehicle crash- occupant to the row for motor vehicle crash- other.
4. This version also contains the new ICD-10 codes for terrorism. The codes are bolded and are preceded with "**".



Central Ohio
Trauma System

1390 Dublin Road
Columbus, Ohio 43215

www.goodhealthcolumbus.org