

# Suicide In Kansas

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Injury Prevention and Disability Program

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# Suicide in Kansas

Robert Moser, MD  
Secretary, KDHE

Paula Clayton, M.S., R.D., L.D.  
Director, Bureau of Health Promotion, KDHE

Lori Haskett  
Director of Injury Prevention and Disability Program  
Bureau of Health Promotion, KDHE

## Report Preparation

Ghazala Perveen, M.B.B.S, Ph.D., M.P.H  
Director of Science and Surveillance/Health Officer II  
Bureau of Health Promotion, KDHE

Dan Dao, M.P.H  
Epidemiologist  
Kansas Injury Prevention and Disability Program  
Bureau of Health Promotion, KDHE

## Contact Information

For additional information please contact

Bureau of Health Promotion  
Kansas Department of Health and Environment  
1000 SW Jackson STE 230  
Topeka, KS 66612

Phone: (785) 291-3742

## Suicide in Kansas: 2011 Report

In 2007, suicide was the 10<sup>th</sup> leading cause of death among Kansans of all ages. Nationally the Kansas age-adjusted suicide death rate was ranked 17<sup>th</sup> highest in the country among all adults and 13<sup>th</sup> highest suicide death rate among those 0-25 years old<sup>1</sup>.

Many believe that suicides are due to singular events or circumstances in a person's life but suicide is a complex issue<sup>2</sup>. Many approaches are needed to address the suicide. The Objectives of Healthy People 2020 are to reduce the suicide rate in adults and adolescents<sup>3</sup>. Other objectives related to reducing suicide in Healthy People 2020 are related to increasing mental health treatment for those with mental health disorders and increasing depression screening.

This report will describe trends and characteristics of suicide burden in Kansas and provide some resources for help. The summary table below shows the data that are provided in this report and some quick facts. Multiple data sources are used as the suicide attempts described by hospital discharges (stays in the hospital of more than 24 hours) and emergency department visits (stays in the hospital lasting less than 24 hours) are reported in the Kansas Hospital Discharge Database and Emergency Department Database. In addition, deaths are analyzed from the state mortality database. Multiple years are used to produce adequate numbers to conduct analysis for calculating scientifically reliable rates.

	<b>Emergency Department Visit (2007-2009)</b>	<b>Hospital Discharge (2005-2009)</b>	<b>Deaths (2006-2010)</b>
Suicide Related Events	3,251	7,692	1,891
% of all Injury Events	1%	9%	21%
Leading Cause of Suicide:	Poisoning	Poisoning	Firearm
Suicide Related Events	1,895	7,158	1,076
(% of all Suicide Related Events due to Leading Cause)	(58%)	(93%)	(57%)

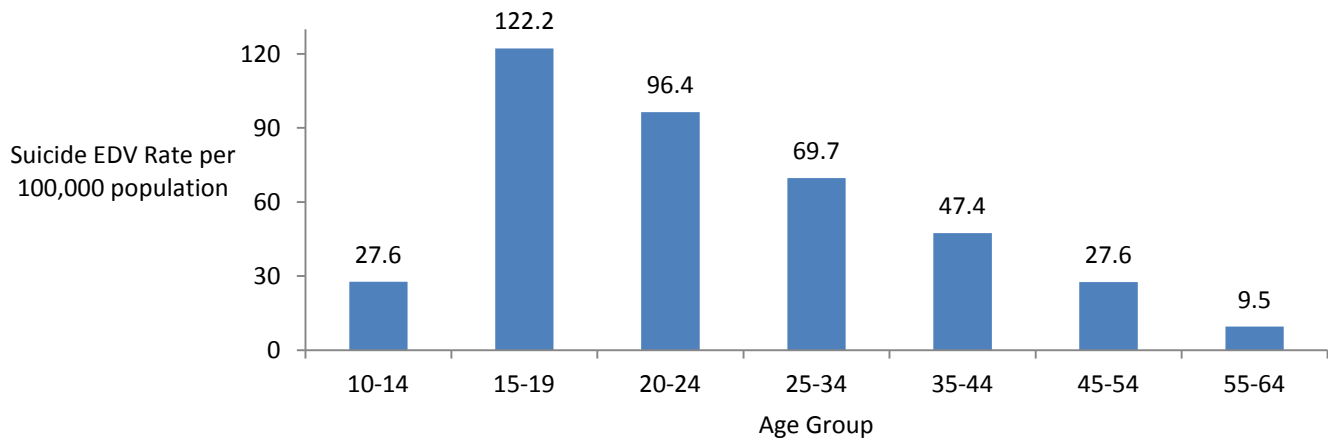
### Poisoning Suicides (Special focus)



Prescription drug abuse is the fastest growing drug problem in the United States and in Kansas<sup>4</sup>. Prescription medication makes up a majority of the suicide poisonings in Kansas. For poisoning related suicide hospital discharges the leading primary cause was poisoning using tranquilizers and psychotropic drugs (42%, n: 2,991, ICD-9 Code: E950.3)<sup>5</sup>. The second leading cause of suicide in hospital discharges was poisoning via analgesics, antipyretics, and antirheumatics (27%, n: 1,893, ICD-9 Code: E950.0).

## Emergency Department

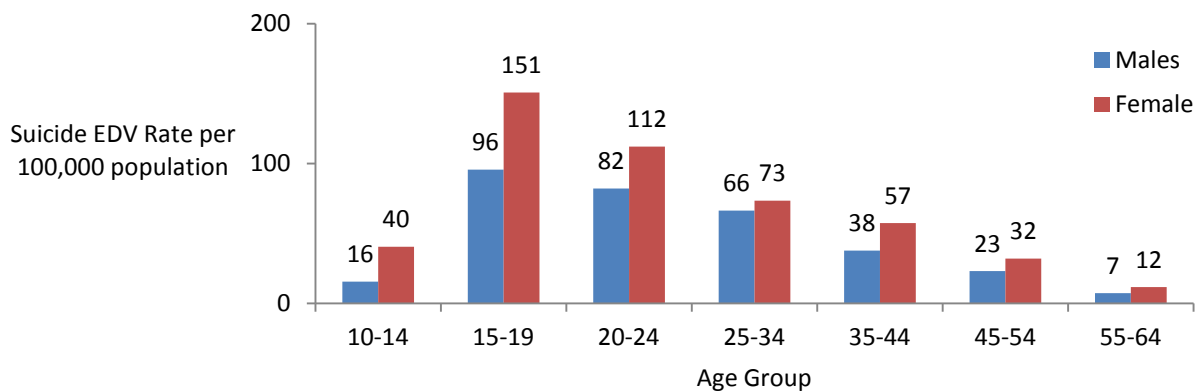
**Age-Specific Suicide Emergency Department Visit (EDV) Rate**  
Kansas 2007-2009



Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association.

- From 2007 to 2009
  - The age-specific suicide emergency department visit (EDV) rate was higher among those between the ages of 15 and 19 years old as compared to those 55-64 years old.
    - 15-19 years old: 122.2 suicide EDV per 100,000 population, 95% CI: 113.5-131.4
    - 55-64 years old: 9.5 suicide EDV per 100,000 population, 95% CI: 7.6-11.7

**Age-Specific Emergency Department Visit (EDV) Rate by Gender**  
Kansas 2007-2009

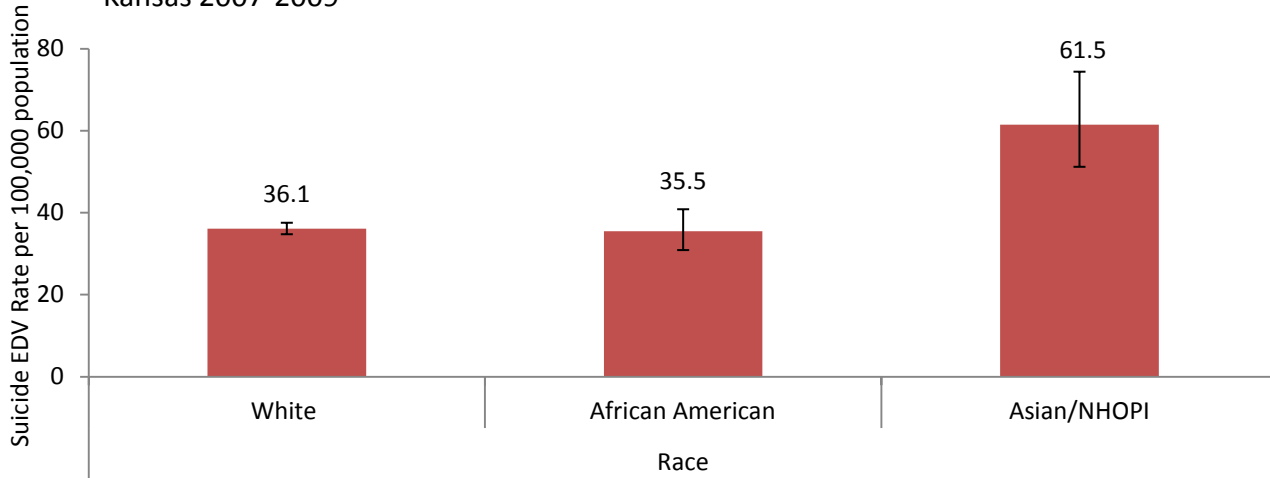


Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association.

- From 2007 to 2009
  - The age-specific suicide EDV rate for females was consistently higher than males across most of the age groups.
  - The highest suicide EDV rate for females was seen among persons aged 15-19 years.
    - 151.1 suicide EDVs per 100,000 population, 95% CI: 136.5-164.7
  - The suicide EDV rate peaks in males among those ages 15-19 and 20-24 years.
    - 15-19 years old: 95.7 suicide EDV per 100,000 population, 95% CI: 84.8-106.5
    - 20-24 years old: 82.1 suicide EDV per 100,000 population, 95% CI: 72.4-91.7

### Age-Adjusted Suicide Emergency Department Visit (EDV) Rate by Race

Kansas 2007-2009



NHOPI: Non-Hawaiian and other Pacific Islander

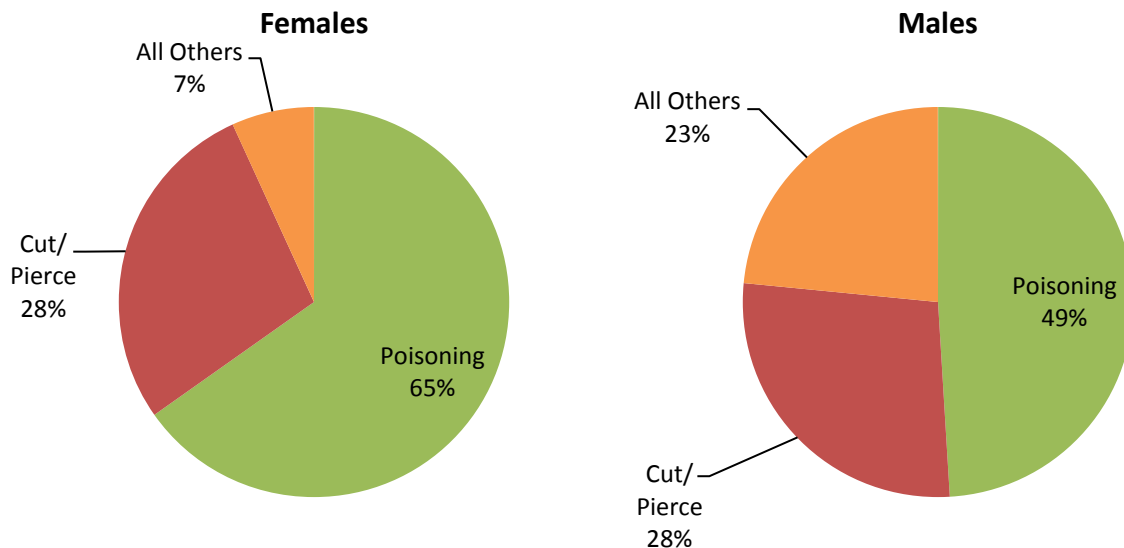
Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

- From 2007 to 2009

- Asian /NHOPI (Non-Hawaiian and other Pacific Islander) had the highest age-adjusted suicide EDV rate among Kansans and was statistically higher than Whites and African Americans:
  - Asian / NHOPI: 61.5 suicide EDV per 100,000 population, 95% CI: 51.2-74.4
  - Whites: 36.1 suicide EDV per 100,000 population, 95% CI: 34.8-37.6
  - African Americans: 35.5 suicide EDV per 100,000 population, 95% CI: 30.9-40.8

### Cause of Suicide Emergency Department Visit by Gender

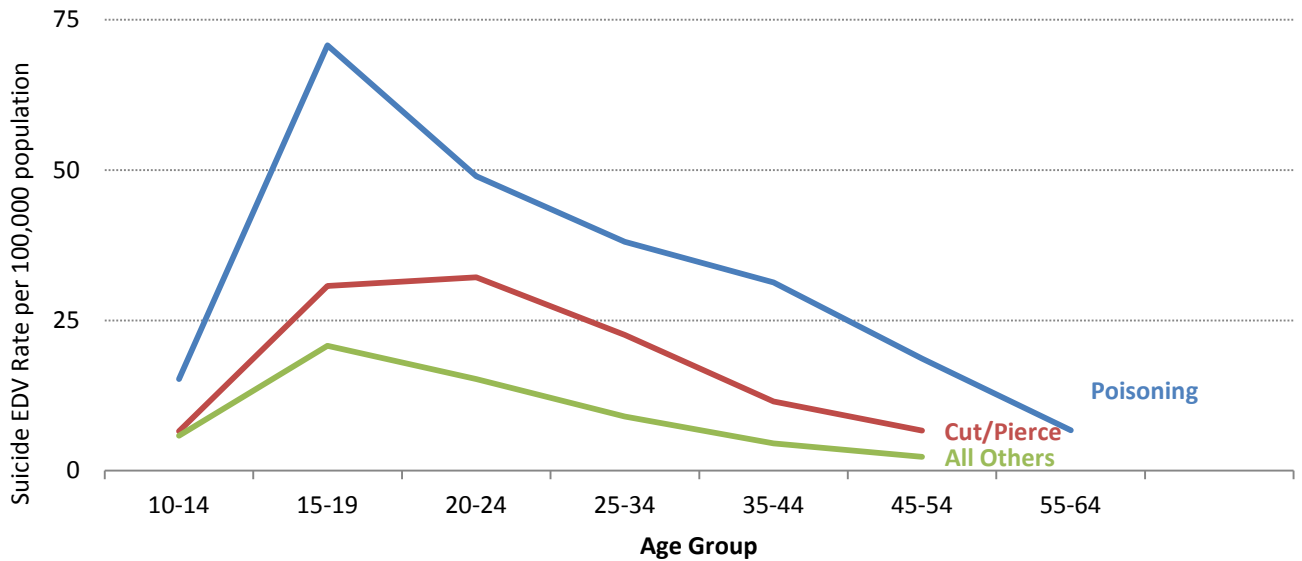
Kansas 2007-2009



Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association.

- From 2007 to 2009
  - Poisoning is the leading cause of suicide EDV among both gender groups.
  - 65% of all suicide EDV among women were due to poisoning.
  - 49% of all suicide EDV among men were due to poisoning.

**Age and Cause Specific Suicide Emergency Department Visit (EDV) Rate\***  
 Kansas 2007-2009



Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association.

\*Note: Due to small numbers, rates are not calculated for all age groups

- From 2007 to 2009
  - The poisoning suicide rate is significantly higher among the 15-19 year age group compared to all other age groups.
  - The cut/pierce suicide EDV rate was significantly lower among age groups 10-14 years as compared to age groups for 15-44 years.
  - “All others” suicide EDV rate was significantly lower among age groups 10-14 years as compared to age groups for 15-34 years.
  - 95% Confidence Intervals for age-specific suicide EDV rates can be found in Table ED1.

**Table ED1. Age and Cause Specific Suicide Emergency Department Visit (EDV) Rates, Kansas 2007-2009**

Age Group	Poisoning			Cut / Pierce			All Other		
	# EDV	EDV Rate*	95% CI**	# EDV	EDV Rate*	95% CI**	# EDV	EDV Rate*	95% CI**
05-09							5		
10-14	86	15.2	12.2- 18.8	37	6.6	4.6- 9.0	33	5.8	4.0- 8.2
15-19	426	70.7	64.2- 77.8	185	30.7	26.5- 35.5	125	20.8	17.3- 24.7
20-24	315	49.0	43.7- 54.7	207	32.2	27.9- 36.9	98	15.2	12.4- 18.6
25-34	418	38.1	34.5- 41.9	248	22.6	19.9- 25.6	99	9.0	7.3- 11.0
35-44	337	31.3	28.1- 34.8	124	11.5	9.6- 13.7	49	4.6	3.4- 6.0
45-54	227	18.6	16.3- 21.2	81	6.7	5.3- 8.3	28	2.3	1.5- 3.3
55-64	62	6.8	5.2- 8.7	14			11		
65-74	11								
75+	9								

\*Suicide EDV Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

**Table ED2. Gender Specific Age-Adjusted Suicide Emergency Department Visit (EDV) Rate by Year Kansas 2007-2009**

Year	Gender	Suicide EDV		
		#EDV	Rate*	95% CI**
<b>2007</b>	Female	744	55.8	51.8- 60.0
	Male	582	41.4	38.0- 44.9
	Overall	1,326	48.3	45.7- 51.0
<b>2008</b>	Female	552	41.1	37.7- 44.8
	Male	401	28.6	25.8- 31.6
	Overall	953	34.7	32.5- 37.0
<b>2009</b>	Female	561	41.9	38.5- 45.6
	Male	411	29.1	26.3- 32.1
	Overall	972	35.3	33.1- 37.7

\*Suicide EDV Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

- It is hard to make any year to year determinations of increasing or decreasing suicide EDV trends due to the numbers of years for which database are available
- Females have had significantly higher rates of suicide EDV compared to males for all years we have measured (Table ED2).

**Table ED3. Emergency Department Section Review Table**

Suicide Emergency Department Visit (EDV) Rate by Selected Demographic groups, Causes of Suicide, and Risk Factors, Kansas 2007-2009

Demographic Groups	#EDV	EDV Rate*	95% CI**
Overall	3,251	39.4	38.1- 40.8
<b>Gender</b>			
Female	1,857	46.3	44.2- 48.4
Male	1,394	33.0	31.2- 34.8
<b>Age Groups (Age Specific)</b>			
05-09	8	.	
10-14	156	27.6	23.5- 32.3
15-19	736	122.2	113.5-131.4
20-24	620	96.4	89.0-104.3
25-34	765	69.7	64.8- 74.8
35-44	510	47.4	43.4- 51.7
45-54	336	27.6	24.7- 30.7
55-64	87	9.5	7.6- 11.7
65-74	14	.	
75+	16	.	
<b>Race</b>			
White	2,634	36.1	34.8- 37.6
African American	221	35.5	30.9- 40.8
Asian	134	61.5	51.2- 74.4
Native American	19	.	
<b>Cause</b>			
Poisoning	1,894	23.1	22.1- 24.2
Cut/Pierce	903	10.9	10.2- 11.6
All Other	454	5.4	5.0- 6.0
<b>Risk Factors</b>			
Alcohol	428	5.3	4.8- 5.8

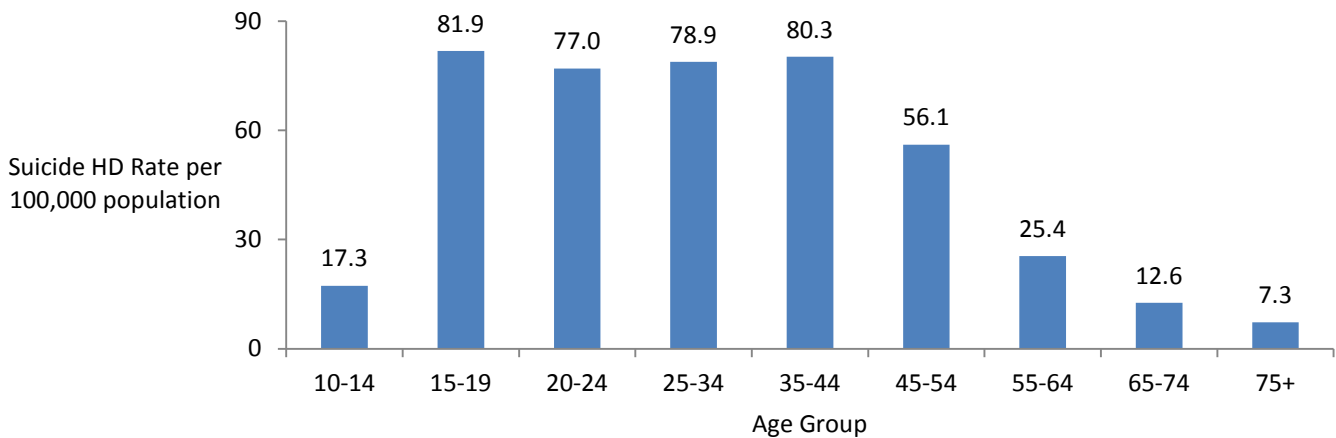
\*Suicide EDV Rate is per 100,000 population. \*\*95% CI are calculated around rate. All rates are age-adjusted unless noted otherwise.

Source: 2007-2009 Kansas Emergency Department Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.



## Hospital Discharges:

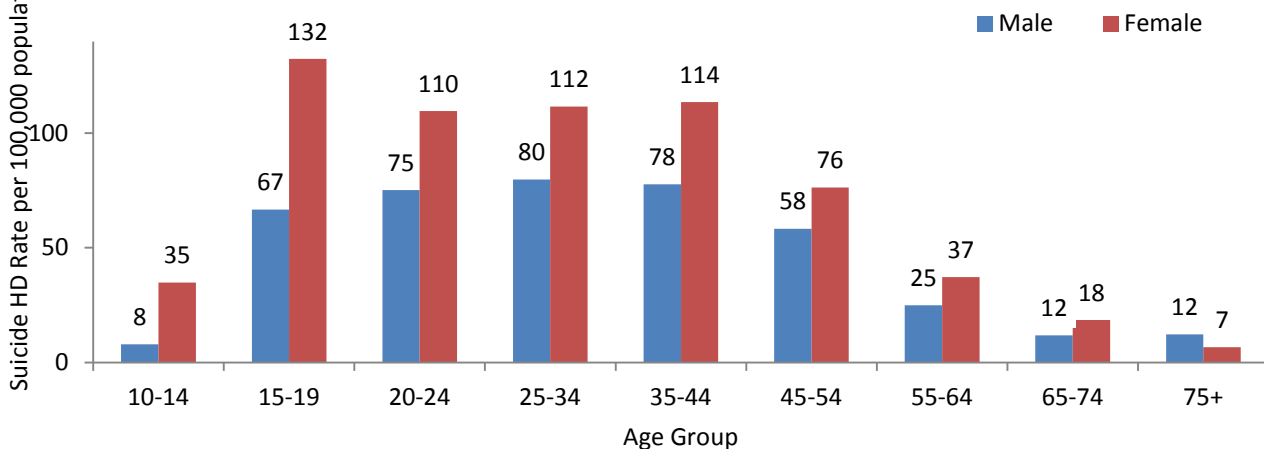
**Age-Specific Suicide Hospital Discharge (HD) Rate**  
Kansas 2005-2009



Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association.

- From 2005 to 2009
  - The suicide hospital discharge (HD) rate is higher in the 15-64 year age groups.
    - The suicide hospital discharge HD rate was lower among age group for 10-14 years as compared to age groups for 15-64 years.
    - The suicide HD rate was lower among age group for 65 years and older as compared to age groups for 15-64 years.
  - 95% Confidence Intervals for age-specific suicide HD rate can be found in Table HD3.

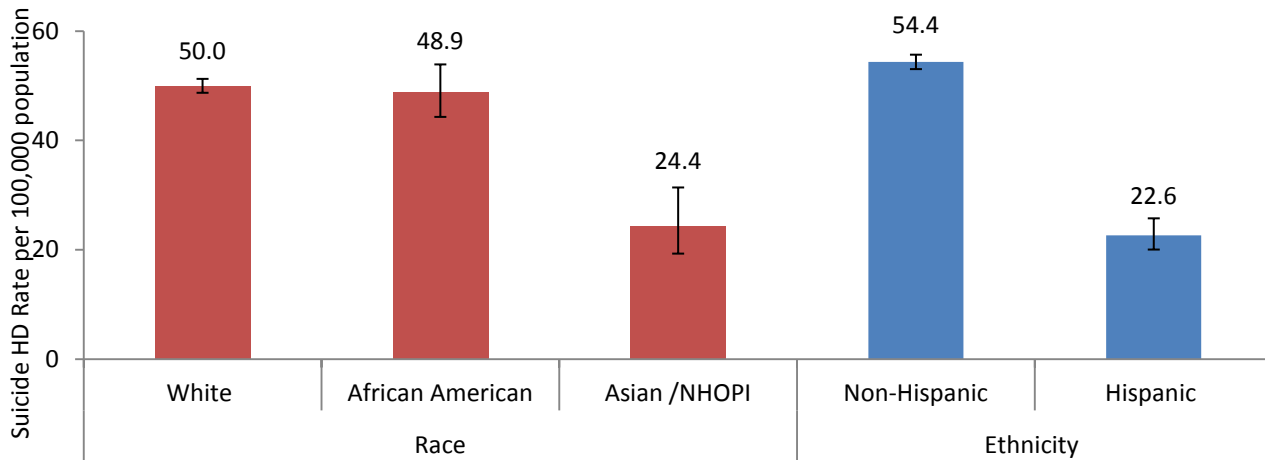
**Age-Specific Hospital Discharge (HD) Rate by Gender**  
Kansas 2005-2009



Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association.

- From 2005 to 2009
  - Females made up 59% of all suicide HD (n=4,562) and males made up 41% (n=3,130).
  - The age-specific suicide HD rate of females was consistently higher than compared to males across most age groups.
  - The highest suicide HD rate in females was seen among 15-19 years olds
    - 15-19: 132.4 suicide HD per 100,000 population, 95% CI: 122.4-143.0
  - The suicide HD rate is nearly nine times higher among males 15-19 years old as compared to males 10-14 years old.
    - 15-19: 66.7 suicide HD per 100,000, 95% CI: 59.9-74.1
    - 10-14: 7.8 suicide HD per 100,000, 95% CI: 5.6-10.8

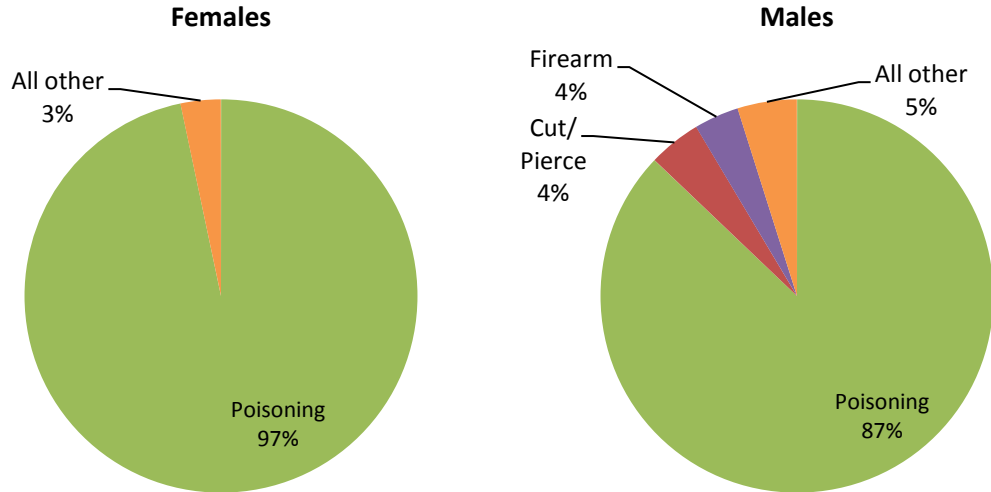
**Age-Adjusted Suicide Hospital Discharge (HD) Rate by Race & Ethnicity**  
Kansas 2005-2009



NHOPI: Non-Hawaiian and other Pacific Islander. Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

- From 2005 to 2009
  - The age-adjusted suicide HD rates were not significantly different among Whites and African Americans.
    - Whites: 50.0 suicide HD per 100,000 population, 95% CI: 48.7-51.3
    - African Americans: 48.8 suicide HD per 100,000 population, 95% CI: 44.3-53.9
  - Non-Hispanics had a higher age-adjusted suicide HD rate compared to Hispanics.
    - Non-Hispanics: 54.4 suicide HD per 100,000 population, 95% CI: 53.1-55.7
    - Hispanics: 22.6 suicide HD per 100,000 population, 95% CI: 20.0-25.8

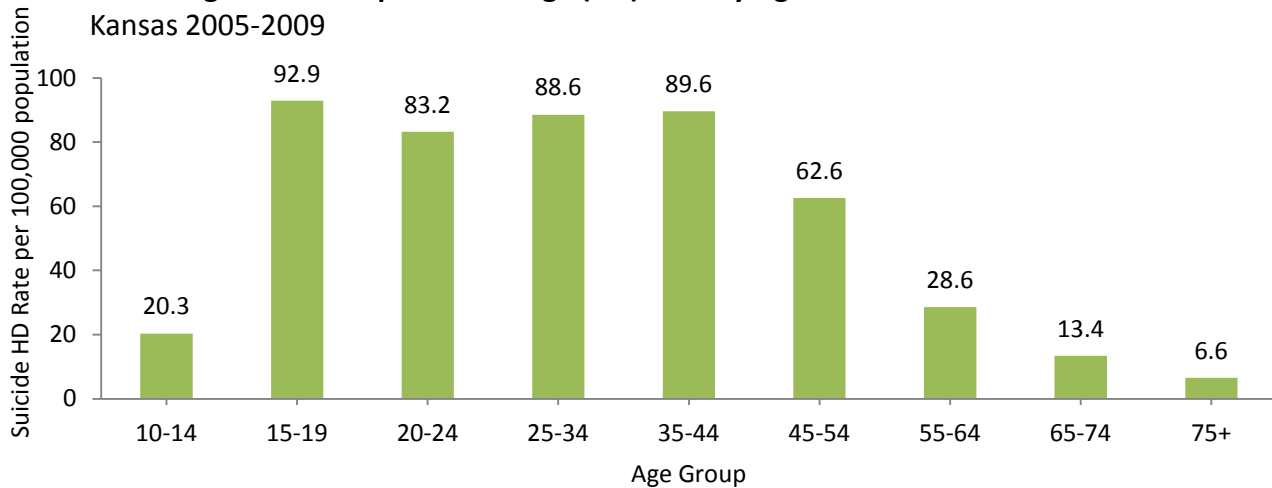
### Cause of Suicide Hospital Discharge by Gender Kansas 2005-2009



Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association.

- From 2005 to 2009
  - Poisoning was the leading cause of suicide HD among both genders.
  - 97% of all suicide HD in women were due to poisoning.
  - 87% of all suicide HD in men were due to poisoning.

### Poisoning Suicide Hospital Discharge (HD) Rate by Age Kansas 2005-2009



Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association.

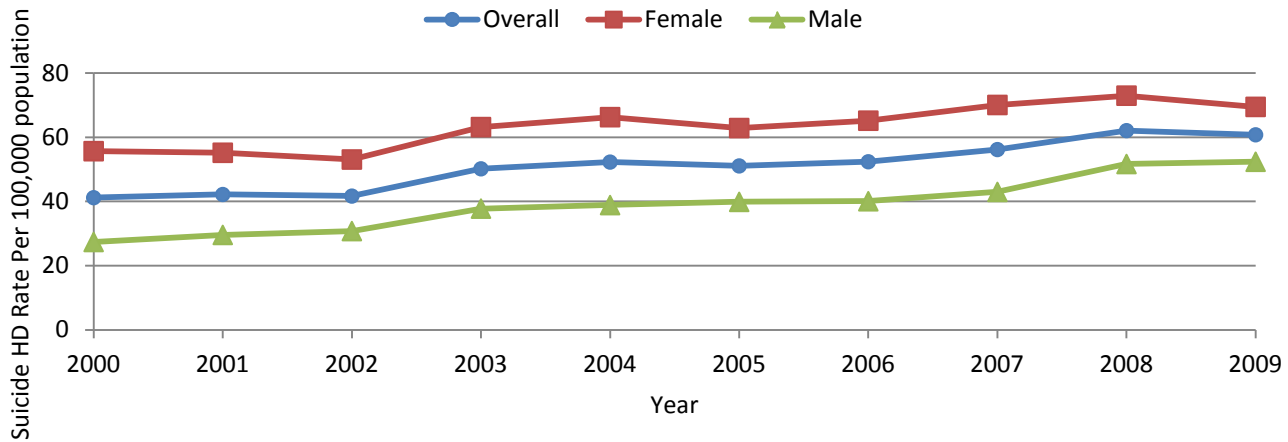
- From 2005 to 2009
  - The poisoning suicide HD rate is lower among age groups 55 years and older compared to age group 15-54 years.
  - 95% Confidence Intervals for age-specific rates can be found in Table HD1.

**Table HD1. Age and Cause Specific Suicide Hospital Discharge (HD) Rates, Kansas 2005-2009**

Demographic	Poisoning			Cut/Pierce			All Other		
	# HD	HD Rate*	95% CI**	# HD	HD Rate*	95% CI**	# HD	HD Rate*	95% CI**
05-09	5	.		.	.		.	.	
10-14	192	20.3	17.6- 23.4	.	.		.	.	
15-19	935	92.9	87.0- 99.0	23	2.3	1.4- 3.4	33	3.3	2.3- 4.6
20-24	890	83.2	77.8- 88.9	37	3.5	2.4- 4.8	54	5.0	3.8- 6.6
25-34	1,609	88.5	84.3- 93.0	43	2.4	1.7- 3.2	79	4.3	3.4- 5.4
35-44	1,643	89.6	85.3- 94.1	39	2.1	1.5- 2.9	68	3.7	2.9- 4.7
45-54	1,264	62.6	59.2- 66.1	35	1.7	1.2- 2.4	62	3.1	2.4- 3.9
55-64	421	28.6	25.9- 31.4	14	.		24	1.6	1.0- 2.4
65-74	118	13.4	11.1- 16.1	8	.		9	.	
75+	61	6.6	5.0- 8.4	7	.		13	.	

\*Suicide HD Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association.

**Age-Adjusted Suicide Hospital Discharge (HD) Rate by Gender**  
Kansas 2000-2009



\*Suicide HD Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

- From 2000 to 2009
  - The age-adjusted suicide HD rate in Kansas steadily increased by 50%. In 2000 the age-adjusted suicide HD rate was at 41.2 suicide HD per 100,000 population (95% CI: 38.8-43.7) and in 2009, rose to 60.8 suicide hospital discharges per 100,000 population (95% CI: 57.9-63.8).
  - Increase in suicide HD rates was seen in both males and females (Table HD2).

**Table HD2. Age and Gender Specific Suicide Hospital Discharge (HD) Rates by Year**  
 Kansas 2005-2009

Year	Gender	#HD	HD Rate*	95% CI**
2000	Female	741	55.7	51.8- 59.9
	Male	370	27.4	24.6- 30.3
	Overall	1,111	41.2	38.8- 43.7
2001	Female	737	55.2	51.3- 59.3
	Male	404	29.6	26.8- 32.6
	Overall	1,141	42.2	39.7- 44.7
2002	Female	713	53.1	49.2- 57.1
	Male	422	30.8	27.9- 33.9
	Overall	1,135	41.7	39.3- 44.3
2003	Female	843	63.2	59.0- 67.7
	Male	513	37.8	34.6- 41.2
	Overall	1,356	50.2	47.6- 53.0
2004	Female	887	66.3	62.0- 70.8
	Male	537	38.9	35.6- 42.3
	Overall	1,424	52.3	49.6- 55.1
2005	Female	844	62.9	58.7- 67.3
	Male	547	39.9	36.6- 43.4
	Overall	1,391	51.1	48.4- 53.9
2006	Female	865	65.2	60.9- 69.7
	Male	551	40.1	36.8- 43.7
	Overall	1,416	52.4	49.7- 55.3
2007	Female	934	70.1	65.6- 74.8
	Male	589	43.0	39.5- 46.6
	Overall	1,523	56.2	53.4- 59.1
2008	Female	979	73.0	68.4- 77.7
	Male	717	51.7	47.9- 55.7
	Overall	1,696	62.1	59.1- 65.1
2009	Female	940	69.5	65.1- 74.2
	Male	726	52.4	48.6- 56.4
	Overall	1,666	60.8	57.9- 63.8

\*Suicide HD Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

**Table HD3.Hospital Discharge Section Review Table**

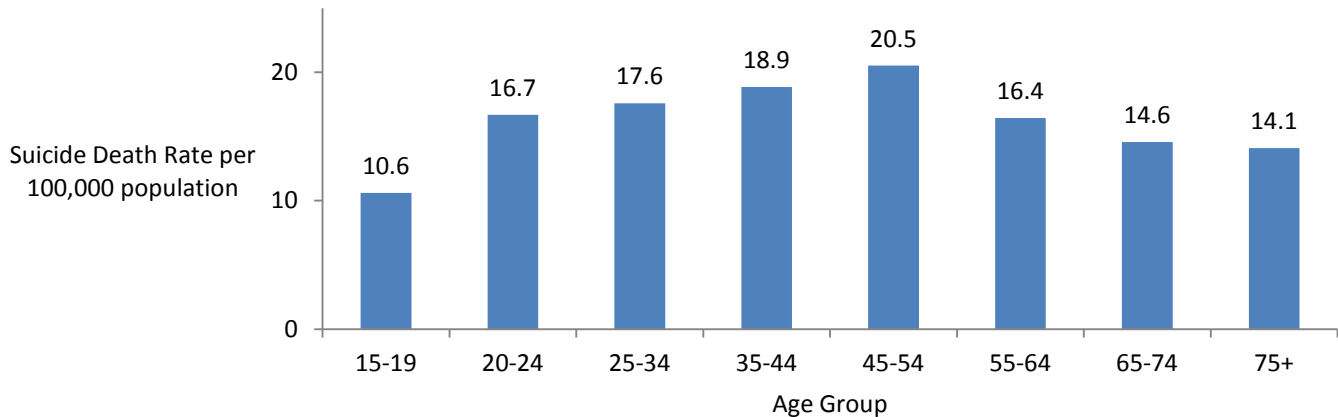
Suicide Hospital Discharge (HD) Rate by Selected Demographic groups, Causes of Suicide, and Risk Factors, Kansas 2007-2009

Demographic Groups	# HD	HD Rate*	95% CI**
Overall	7,692	56.6	55.3- 57.8
<b>Gender</b>			
Female	4,562	68.2	66.2- 70.2
Male	3,130	45.4	43.8- 47.1
<b>Age Groups (Age Specific Rates)</b>			
05-09	5	.	
10-14	198	21.0	18.2- 24.1
15-19	991	98.4	92.4-104.8
20-24	981	91.7	86.1- 97.6
25-34	1,731	95.3	90.8- 99.9
35-44	1,750	95.5	91.0-100.0
45-54	1,361	67.4	63.8- 71.1
55-64	459	31.1	28.4- 34.1
65-74	135	15.4	12.9- 18.2
75+	81	8.7	6.9- 10.8
<b>Race</b>			
White	6,077	50.0	48.7- 51.3
African American	436	48.9	44.3- 53.9
Asian / NHOPI	85	24.4	19.3- 31.4
Native American	21	11.4	7.0- 19.2
<b>Ethnicity</b>			
Non-Hispanic	6,708	54.4	53.1- 55.7
Hispanic	302	22.6	20.0- 25.8
<b>Cause</b>			
Poisoning	7,138	52.5	51.3- 53.8
Cut/Pierce	208	1.5	1.3- 1.7
All Other	346	2.5	2.2- 2.8
<b>Risk Factors</b>			
Alcohol	1,979	14.7	14.0- 15.4

NHOPI: Non-Hawaiian and other Pacific Islander \*Age-Adjusted Suicide HD Rate is per 100,000 population. All rates are age-adjusted unless noted otherwise. \*\*95% CI are calculated around rate. Source: 2005-2009 Kansas Hospital Discharge Database, Kansas Hospital Association. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

## Mortality Data

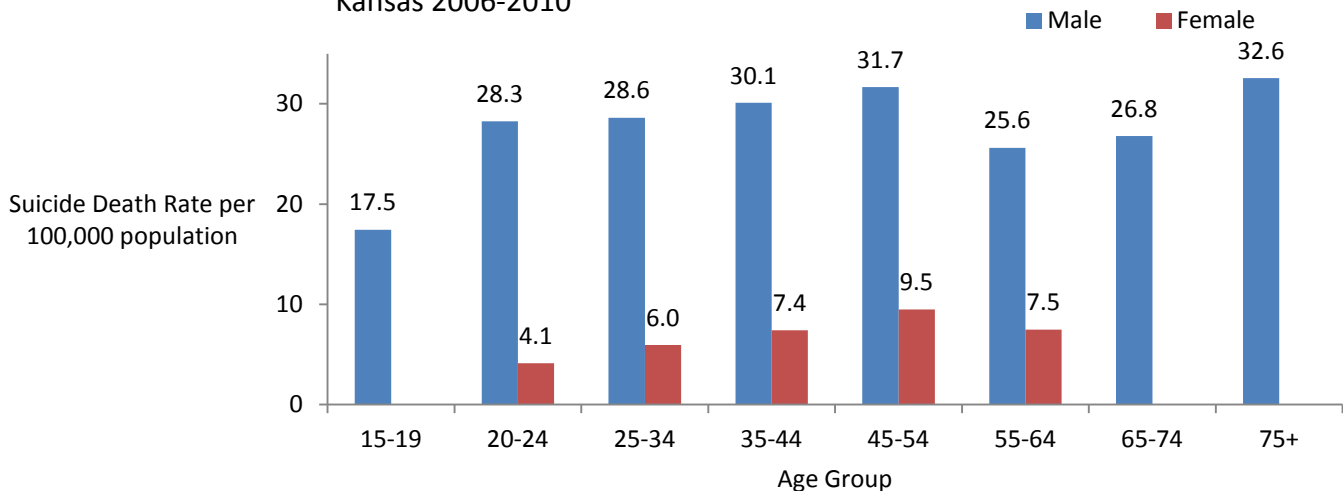
**Overall Suicide Death Rate by Age Group**  
Kansas 2006-2010



Source: 2000-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.

- From 2006 to 2010
  - The suicide death rate is higher in the 20-64 year age groups.
    - The suicide death rate is significantly lower among age groups for 15-19 years as compared to age groups for 20-64 years.
    - The suicide death rate is significantly lower among age groups for 65 years and older as compared to age groups for 20-64 years.
  - 95% Confidence Intervals for age-specific rates can be found in Table MD3.

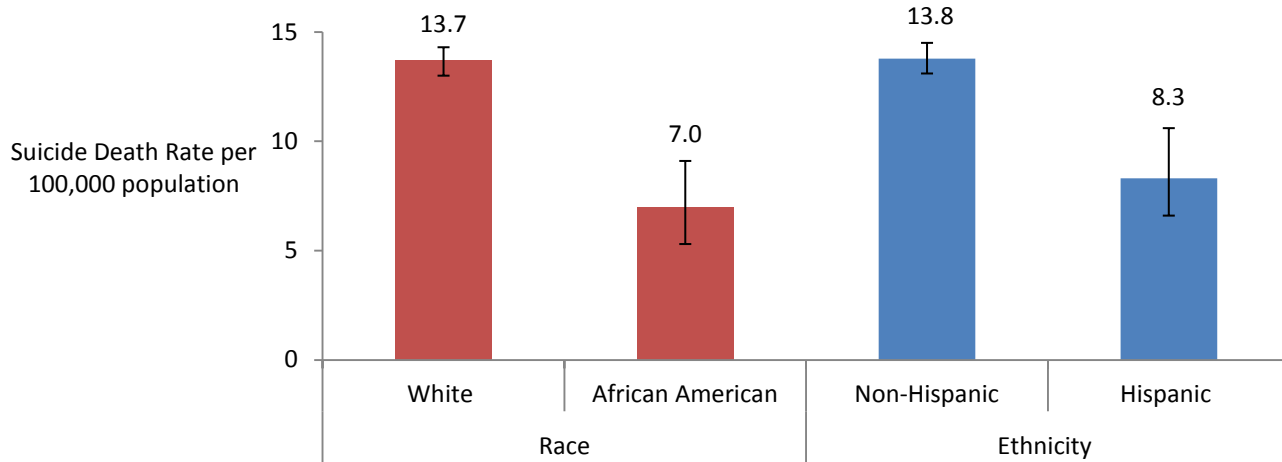
**Age-Specific Suicide Death Rate by Gender**  
Kansas 2006-2010



Source: 2000-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.

- From 2006 to 2010
  - Males made up 81% of all suicide deaths (n=1,540) and females made up 19% (n=351)
  - The age-specific suicide death rate for males was consistently higher compared to females across all age groups.
  - The age-adjusted suicide death rate for males was four times higher than compared to females (Table MD3).
    - Males: 5.0 suicide deaths per 100,000 population, 95% CI: 4.5-5.5
    - Females: 22.3 suicide deaths per 100,000 population, 95% CI: 21.2-23.5

**Age-Adjusted Suicide Death Rate by Race & Ethnicity**  
Kansas 2006-2010

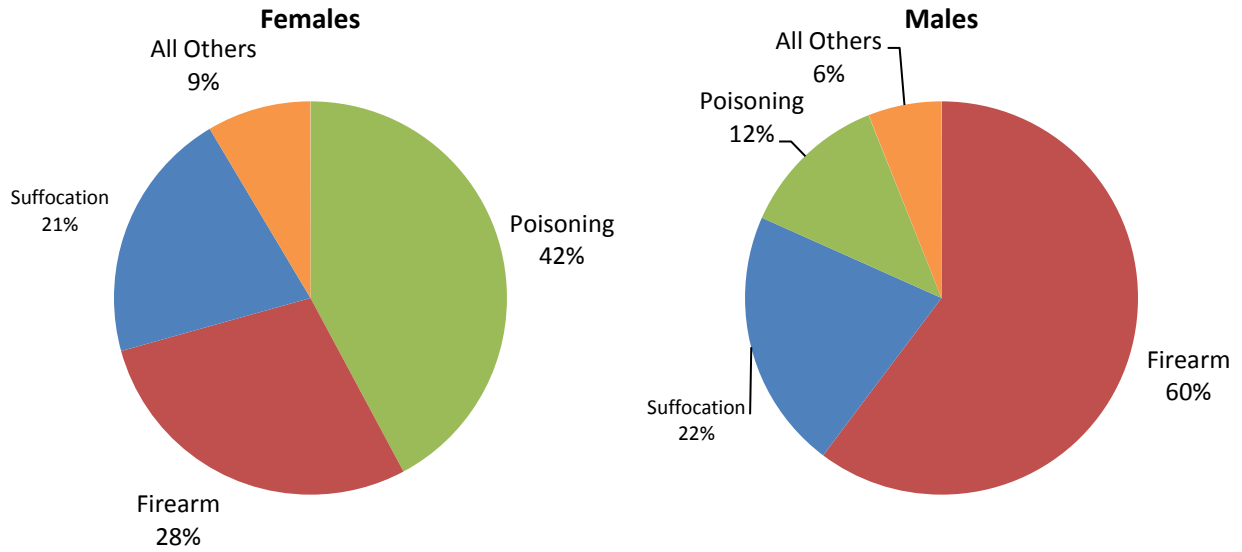


Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

- From 2006 to 2010
  - The age-adjusted suicide death rate was higher among Whites compared to African Americans.
    - Whites: 13.7 suicide deaths per 100,000 population, 95% CI: 13.0-14.3
    - African Americans: 7.0 suicide deaths per 100,000 population, 95% CI: 5.3-9.0
  - The age-adjusted suicide death rate was higher among Non-Hispanics compared to Hispanics.
    - Hispanics: 8.3 suicide deaths per 100,000 population, 95% CI: 6.6-10.6
    - Non-Hispanics: 13.8 suicide deaths per 100,000 population, 95% CI: 13.1-14.5



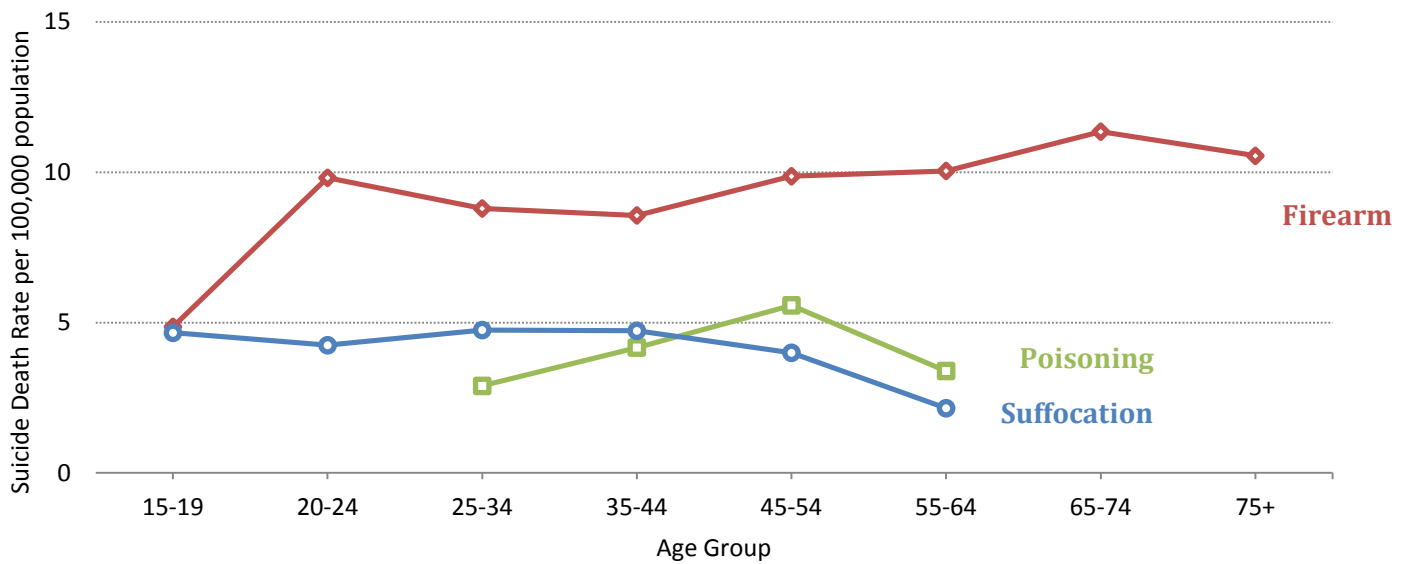
### Cause of Suicide Deaths by Gender Kansas 2006-2010



Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE

- From 2006 to 2010
  - 42% of all suicide deaths in women were caused by poisoning.
  - 60% of all suicide deaths in men were caused by firearm.

### Age and Cause Specific Suicide Death Rate Kansas 2006-2010



Not all rates calculated due to insufficient numbers. Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE .

- From 2006 to 2010
  - The firearm suicide death rate is significantly lower among age groups for 15-19 years compared to age groups 20 years and older.
  - The suffocation suicide death rate is significantly higher among age groups for 15-54 years as compared to those 65 years and older.

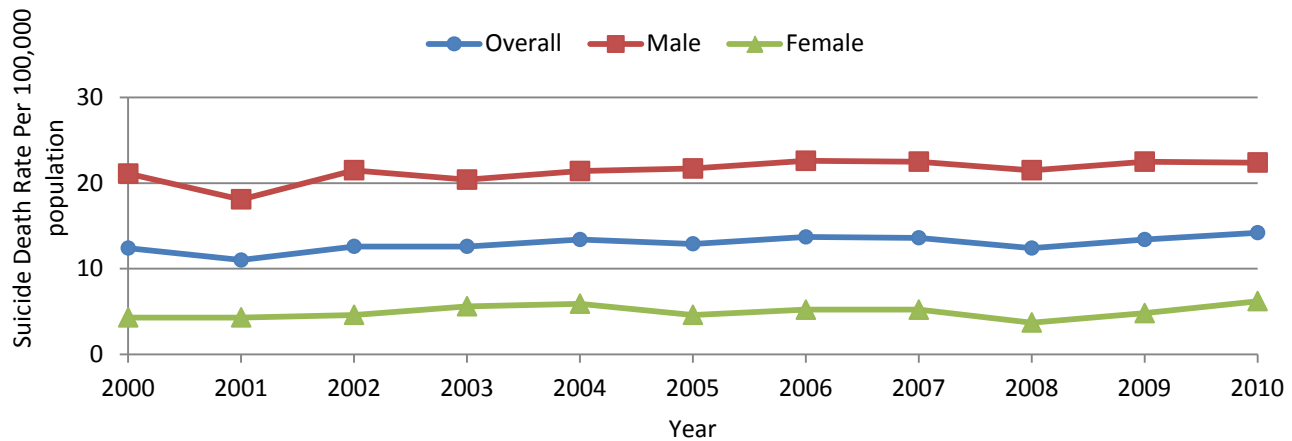
- The poisoning suicide death rate is significantly higher among age groups for 45-54 as compared to age groups 25-34 years.
- 95% Confidence Intervals for age-specific suicide death rates available in Table MD1

**Table MD1. Age and Cause Specific Suicide Death Rate, Kansas 2006-2010**

Age Group	Firearm			Suffocation			Poisoning		
	# Deaths	Death Rate*	95% CI**	# Deaths	Death Rate*	95% CI**	# Deaths	Death Rate*	95% CI**
10-14	6	.		5	.				
15-19	49	4.9	3.6- 6.4	47	4.7	3.4- 6.2			
20-24	104	9.8	8.0- 11.9	45	4.2	3.1- 5.7	11	.	
25-34	161	8.8	7.5- 10.3	87	4.8	3.8- 5.9	53	2.9	2.2- 3.8
35-44	154	8.6	7.3- 10.0	85	4.7	3.8- 5.8	75	4.2	3.3- 5.2
45-54	200	9.9	8.5- 11.3	81	4.0	3.2- 5.0	113	5.6	4.6- 6.7
55-64	154	10.0	8.5- 11.8	33	2.2	1.5- 3.0	52	3.4	2.5- 4.4
65-74	102	11.3	9.3- 13.8	8	.		16	.	
75+	98	10.5	8.6- 12.8	10	.		13	.	

\*Suicide Death Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.

**Age Adjusted Suicide Death Rate by Gender**  
Kansas 2000-2010



Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

- From 2000 to 2010 (Table MD2)
  - The age-adjusted suicide death rate is higher among males than females.
  - The overall age-adjusted suicide death rate has remained fairly consistent between 11 and 14 suicide deaths per 100,000.

**Table MD2. Age-Adjusted Gender Specific Suicide Death Rates by Year, Kansas 2006-2010**

Year	Gender	#Deaths	Death Rate*	95% CI**
<b>2000</b>	Female	57	4.3	3.3- 5.6
	Male	274	21.1	18.6- 23.7
	Overall	331	12.4	11.1- 13.8
<b>2001</b>	Female	56	4.3	3.3- 5.6
	Male	241	18.1	15.9- 20.6
	Overall	297	11.0	9.8- 12.4
<b>2002</b>	Female	60	4.6	3.5- 5.9
	Male	286	21.5	19.1- 24.2
	Overall	346	12.6	11.3- 14.0
<b>2003</b>	Female	75	5.6	4.4- 7.0
	Male	269	20.4	18.0- 23.0
	Overall	344	12.6	11.3- 14.0
<b>2004</b>	Female	79	5.9	4.6- 7.3
	Male	289	21.4	19.0- 24.1
	Overall	368	13.4	12.1- 14.8
<b>2005</b>	Female	61	4.6	3.5- 5.9
	Male	295	21.7	19.2- 24.3
	Overall	356	12.9	11.6- 14.3
<b>2006</b>	Female	70	5.2	4.1- 6.7
	Male	307	22.6	20.2- 25.4
	Overall	377	13.7	12.3- 15.2
<b>2007</b>	Female	71	5.2	4.0- 6.6
	Male	309	22.5	20.1- 25.2
	Overall	380	13.6	12.2- 15.0
<b>2008</b>	Female	53	3.7	2.8- 4.9
	Male	297	21.5	19.1- 24.1
	Overall	350	12.4	11.1- 13.8
<b>2009</b>	Female	67	4.8	3.7- 6.1
	Male	309	22.5	20.0- 25.2
	Overall	376	13.4	12.0- 14.8
<b>2010</b>	Female	90	6.2	5.0- 7.7
	Male	318	22.4	20.0- 25.1
	Overall	408	14.2	12.9- 15.7

\*Suicide Death Rate is per 100,000 population. \*\*95% CI are calculated around rate. Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

**Table MD3. Deaths Section Review Table**

Suicide Death Rate by Selected Demographics groups, Causes of Suicide, and Risk Factors, Kansas 2006-2010

Demographic Groups	#Deaths	Death Rate*	95% CI**
Overall	1,891	13.5	12.9- 14.1
<b>Gender</b>			
Female	351	5.0	4.5- 5.5
Male	1,540	22.3	21.2- 23.5
<b>Age Group (Age Specific)</b>			
10-14	14	.	
15-19	107	10.6	8.7- 12.8
20-24	177	16.7	14.3- 19.4
25-34	322	17.6	15.7- 19.6
35-44	339	18.9	16.9- 21.0
45-54	416	20.5	18.6- 22.6
55-64	252	16.4	14.5- 18.6
65-74	131	14.6	12.2- 17.3
75+	131	14.1	11.8- 16.7
<b>Race</b>			
White	1,734	13.7	13.0- 14.3
African-American	64	6.8	5.2- 8.9
Asian / NHOPI	11	.	
Native American	10	.	
<b>Ethnicity</b>			
Non-Hispanic	1,774	13.8	13.1- 14.4
Hispanic	102	8.5	6.7- 10.7
<b>Cause</b>			
Firearm	1,028	7.2	6.8- 7.7
Suffocation	403	2.9	2.7- 3.2
Poisoning	337	2.4	2.2- 2.7
All Other	123	0.9	0.7- 1.1
<b>Risk Factors</b>			
Alcohol	51	0.4	0.3- 0.5

NHOPI: Non-Hawaiian and other Pacific Islander. \*Suicide Death Rate is per 100,000 population. All rates are age-adjusted unless noted otherwise. \*\*95% CI are calculated around rate. Source: 2006-2010 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE. Rates were age-adjusted to the U.S. 2000 Standard population using the direct method. See Technical Appendix for details on how rates were calculated.

## Technical Appendix

### Cause Coding:

Causes are determined by using an injury matrix that is recommended by Safe States Alliance. This is a system that uses the diagnosis code (ED data and HD data) and underlying cause (Mortality Database) to give a cause and intent to an injury.

Data are selected and coded for hospital discharges according to the *Consensus Recommendations for Using Hospital Discharge Data for Injury Surveillance* from the Safe States Alliance. This method codes injuries based on e-codes using the injury matrix provided by the CDC<sup>6</sup>. Data for emergency departments is similar to hospital discharge but closely follows the selection method from *State Injury Indicators: Instructions for Preparing 2005 Data* from the Centers for Disease Control and Prevention. Mortality Data is coded using the ICD-10 injury matrix provided by the CDC<sup>7</sup>. This is similar to the method described in *Instructions for Preparing 2005 Data* but uses a different coding scheme.

Suicide ICD Codes were defined as follows:

**ICD-9:** E950-E959  
**ICD-10:** U03, X60-X84

### Counts:

Counts are the actual number of events that occurred. Counts below five are not displayed in this report.

### Rates:

Age-Specific rates are calculated by dividing the number of events by the population in that specific age group. By using rates, two differently sized communities/regions can be compared to each other. Note that rates in which the number of events is below 20 are not calculated as rates calculated for numbers less than 20 are inaccurate and scientifically unreliable.

Age-specific rates are calculated by dividing the number of events by the population of Kansas or by Kansas subpopulation of interest. Population denominators are taken from estimates produced by the U.S. Census Bureau. To be consistent with other KHDE publications, 2000-2009 midyear population estimates produced for each year are used, rather than using the most recent estimate. For example, a 2005 rate will be based on the Kansas population estimate published in 2005 (2005 vintage), rather than using the most recent 2005 population estimate (2009 vintage). For 2001, the 2002 vintage estimates were used. For 2000, the census 2000 populations were used. For 2010, the census 2010 populations were used.

### Age adjusted rates:

Age adjustment is a statistical method for standardizing rates for groups that have different underlying age distributions to be more comparable. Age-adjusted rates should be used to compare Kansas with the United States as a whole, or for comparing two groups, or the same group over time, if the underlying population distribution is different or changes (for example, comparing rates for Hispanics and Non-Hispanics). Age-adjusted rates should be understood as relative indices, not as actual measures of burden, and should not be compared to unadjusted rates.

All age-adjusted rates in this report are computed using the direct method. Briefly, rates are first computed within each age group stratum. The products of each age-specific rate multiplied by the proportion of the 2000 U.S. Standard Population in that age category are summed across the age group strata. Age-specific rates

are based on 10 age groups: 0 to 4, 5 to 9, 10 to 14, 15 to 19, 20 to 24 ,25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 to 74, 75 years and older.

**Confidence intervals:**

All rates, proportions and prevalence estimates presented in this report can be thought of as estimates of a theoretical true value, or population parameter. These estimates are subject to random variation. To characterize this variability, some of the statistics presented in this report include 95% confidence intervals. This can be thought of as a range of values that will contain the population parameter (theoretical true value) 95% of the time. To compute confidence intervals presented in this report, events were assumed to follow a Poisson distribution. If the number of events was 100 or higher, confidence limits were produced using the normal approximation. If the number of deaths or discharges was fewer than 100, limits are taken directly from the Poisson distribution. Age-adjusted confidence intervals were calculated using gamma method described by the Washington Department of Health<sup>8</sup>.

**Databases:**

The three databases used for the purposes of this document are the hospital discharge database, the emergency department database, and the mortality database. See table below for detailed information on all three databases.

Database	Who's Counted?	Coding System Used	Years Provided In this Report
<b>Emergency Department Database*</b> Kansas Hospital Association**	A person who is admitted for less than 24 hours to a non-federal, short stay community or general hospital who is reporting emergency department visits to Kansas Hospital Association.	ICD-9	2007-2008
<b>Hospital Discharge Database*</b> Kansas Hospital Association**	A person who is admitted for at least 24 hours to a non-federal, short stay community or general hospital who is reporting hospital discharge data to Kansas Hospital Association.	ICD-9	2005-2009
<b>Mortality Database</b> Kansas Department of Health and Environment	Any persons who dies in the state of Kansas, and also Kansans who die outside of the state.	ICD-10	2000-2010

**\*Special Focus, Unlinked Data:** The records in the Kansas emergency department and hospital discharge database are not unique. Records are not unique when they are unlinked. Suppose someone breaks their arm and goes to the emergency department but is then transferred to another emergency department due to a complication. In a linked system this one event can be tied together and counted as one event but with an unlinked system these are counted as two separate events. Serious injuries can inflate the counts if the person is transferred more than once. This is why we refer to events as hospital discharges (not unique).

\*\* Federal and specialty hospitals in Kansas do not report their discharges and emergency department visits to these databases. All non federal, short stay community or general hospitals in Kansas do not report their emergency department visits or hospital discharge data to Kansas Hospital Association, therefore these databases do not include 100% of emergency department visits and hospital discharges.

## References

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- <sup>2</sup> AFSP: About Suicide. (n.d.). *AFSP: About Suicide*. Retrieved January 11, 2012, from [http://www.afsp.org/index.cfm?fuseaction=home.viewPage&page\\_id=74295647-AAD5-B47F-340249697DAC238A](http://www.afsp.org/index.cfm?fuseaction=home.viewPage&page_id=74295647-AAD5-B47F-340249697DAC238A)
- <sup>3</sup> Mental Health and Mental Disorders. (2012, March 1). *Mental Health and Mental Disorders*. Retrieved March 13, 2012, from <http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=28>
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- <sup>5</sup> ingenix. (2005). *2006 Coder's Desk Reference* (3rd ed.).
- <sup>6</sup> CDC. (2011, August 10). CDC - Proposed Matrix of E-code Groupings - WISQARS - Injury. *CDC-code Groupings - WISQARS - Injury*. Retrieved January 12, 2012, from [http://www.cdc.gov/injury/wisqars/ecode\\_matrix.html](http://www.cdc.gov/injury/wisqars/ecode_matrix.html)
- <sup>7</sup> Arialdi M. Minino. (2006). Deaths: Injuries, 2002. *National Vital Statistics Report*, 54(10), 125.
- <sup>8</sup> Washington State Department of Health - Assessment Guidelines: Confidence Intervals. (2010, July 1). *Washington State Department of Health: Confidence Intervals*. Retrieved January 12, 2012, from <http://www.doh.wa.gov/data/guidelines/confintguide.htm>