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Firearm Suicide and Homicide in Kentucky

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During the five-year period 1993-1997, Kentucky averaged 750 violent deaths (suicides and homicides) each year, an annual death rate of 18.4 per 100,000 Kentuckians. The majority of these deaths were suicides (67%). For both suicides and homicides, the most common mechanism was a gun. Of the 5-year average 502 suicides per year, 374 were committed by using a firearm (74.5%). Of the 248 homicides, a firearm was involved in 170 (68.5%). It is important to understand the epidemiology of these violent firearm deaths so preventive programs can be designed specifically for each component of the problem.

Firearm Suicides

On average, 374 suicides occurred per year from 1993 through 1997 among Kentucky residents with a firearm used as the mechanism of death (Table 1). Eighty-six percent of these deaths were men. The suicide death rate among men (17.3/100,000) was 6.9 times the rate for women (2.5/100,000). However, there was a substantial difference by race. The suicide death rate for Caucasian-American (white) residents (10.2/100,000) was over twice the rate for African-American (black) residents (4.1/100,000). Among all Kentuckians, the highest suicide death rate was 57.6 deaths per 100,000 for white men 75 years of age and older.

Among all Kentucky residents, the average annual suicide rate for the 5-year period was 9.7 deaths per 100,000 (Table 1). While the highest number of deaths by age (71) occurred among persons 35 to 44 years of age, the highest rates of death occurred among the oldest age groups. These rates were 14.3 among persons 65-74 years of age and 20.2 among persons 75 years of age and older.

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Table 1: Average Annual Number of Suicides and Suicide Rates Due to Firearms By Age, Race, and Sex— Kentucky Residents 1993-1997

Age	White						Black						Total					
	Male		Female		Total		Male		Female		Total		Male		Female		Total	
	#	R	#	R	#	R	#	R	#	R	#	R	#	R	#	R	#	R
<1-9	2	1.9	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0
10-14	1	1.1	1	0.7	2	0.9	0	0	0	0	0	0	1	1.0	1	0.2	3	1.0
15-19	5	3.5	1	0.9	6	2.3	12	83.7	1	8.1	13	48.1	17	11.0	2	1.1	21	7.2
20-24	10	7.4	3	2.7	13	5.0	11	84.1	1	10.2	12	48.2	20	13.9	5	2.4	30	10.7
25-29	10	8.0	4	3.5	14	5.7	6	58.2	1	9.1	7	32.5	16	11.7	5	2.2	33	12.3
30-34	12	8.8	4	3.0	16	5.9	5	45.1	1	8.3	6	25.5	17	11.4	5	4.0	38	12.8
35-44	25	9.0	6	2.2	32	5.6	4	18.6	2	8.5	6	13.2	29	9.6	8	4.6	71	11.5
45-54	15	6.7	5	2.2	20	4.4	3	23.8	0	0	3	10.8	18	7.6	5	3.5	53	11.0
55-64	7	4.4	2	1.3	9	2.8	1	7.4	0	0	1	4.3	8	4.6	2	3.1	43	12.6
65-74	3	2.8	2	1.1	5	1.9	0	0	0	0	0	0	3	2.8	2	2.6	39	14.3
75+	2	3.4	1	0.5	3	1.5	0	0	0	0	0	0	2	3.5	1	1.7	43	20.2
Total	91	5.3	30	1.7	121	3.4	40	30.4	8	4.9	48	17.1	132	7.0	38	2.5	374	9.7

R= rate. Rates are numbers of deaths per 100,000 population.

Firearm Suicide and Homicide in Kentucky (continued)

As can be noted in Table 2, the annual number of self-inflicted firearm deaths among Kentucky residents ranged from a low of 358 in 1995 to a high of 409 in 1993. The corresponding death rate ranged from a low of 8.4/100,000 deaths in 1996 to a high of 9.3/100,000 in 1993. For all of the five years from 1993 to 1997, the firearm suicide rates for Kentucky were well above the U.S. death rates for this cause of death (Table 2). The Kentucky annual average was 8.7/100,000 while the U. S. rate was 6.5/100,000 during this time period. This discrepancy is not as large for all suicides where the rates are 11.8 and 11.2 respectively. These data indicate the greater propensity of Kentuckians to use a firearm to commit suicide than other citizens of the U.S. One explanation may be the greater availability of firearms in the homes of Kentucky families as shown by the Behavioral Risk Factor Surveillance System.

The geographic distribution of firearm suicides by area development district (ADD) was Kentuckiana (64), Bluegrass (61), Northern Kentucky (28), and Cumberland Valley (28). Those with the highest rates were Purchase (13.3), Buffalo Trace (13.0), Lake Cumberland (12.5) and Cumberland Valley (12.1). The lowest rates of firearm suicides per 100,000 residents occurred in Kentuckiana (7.8) and Northern Kentucky (7.8).

Table 2: Number of Suicides and Suicide Rates Due to Firearms By Year of Death, Kentucky and U.S. Residents 1993-1997

Year	Number		Rate/100,000	
	Kentucky	U.S.	Kentucky	U.S.
1993	409	19,590	9.3	6.8
1994	389	20,540	9.0	6.9
1995	358	18,503	8.4	6.5
1996	360	18,166	8.4	6.3
1997	374	17,566	8.5	6.1

Firearm Homicides

An average of 170 homicides per year occurred among Kentucky residents from 1993 through 1997 as a result of firearms (Table 3). Seventy-seven per cent of these deaths (132) occurred among male residents. For men, the age groups most affected were those between 15 and 54. This age group accounted for 88% of firearm homicides.

The homicide rate for all Kentucky residents resulting from guns was 4.4 deaths per 100,000 residents (Table 3). Rates for black men (30.4), black women (4.9), all black residents (17.1), and all male residents (7.0) exceeded this overall rate. Death rates among black males in each age group from 15 to 64 years of age, white men aged 20 to 54, and black women from 15 to 44 years of age also exceeded the total Kentucky firearm homicide rate.

Overall, the firearm homicide rate for black Kentuckians (17.1) was more than 4 times higher than the rate for white Kentuckians (4.4). Rates for black men (30.4) were over 5 times higher than the rate for black women (4.9). From Table 4, it can be noted that the annual number of homicides among Kentucky residents due to firearms, from 1993 through 1997, ranged from a low of 158 in 1996 to a high of 186 in 1993. The corresponding

Table 3: Average Annual Number of Homicides and Homicide Rates Due to Firearms By Age, Race, and Sex— Kentucky Residents 1993-1997

Age	White						Black						Total					
	Male		Female		Total		Male		Female		Total		Male		Female		Total	
	#	R	#	R	#	R	#	R	#	R	#	R	#	R	#	R	#	R
<1-9	2	1.9	0	0	2	0	0	0	0	0	0	0	2	0	0	0	2	0
10-14	1	1.1	1	0.7	2	0.9	0	0	0	0	0	0	1	1.0	1	0.8	2	0.9
15-19	5	3.5	1	0.9	6	2.3	12	83.7	1	8.1	13	48.1	17	11.0	2	1.6	19	6.5
20-24	10	7.4	3	2.7	13	5.0	11	84.1	1	10.2	13	48.2	20	13.9	5	3.5	25	8.8
25-29	10	8.0	4	3.5	14	5.7	6	58.2	1	9.1	7	32.5	16	11.7	5	3.9	21	7.7
30-34	12	8.8	4	3.0	16	5.9	5	45.1	1	8.3	6	25.5	17	11.4	5	3.5	22	7.4
35-44	25	9.0	6	2.2	32	5.6	4	18.6	2	8.5	6	13.2	29	9.6	8	2.7	38	6.1
45-54	15	6.7	5	2.2	20	4.4	3	23.8	0	0	3	10.8	18	7.6	5	2.1	23	4.8
55-64	7	4.4	2	1.3	9	2.8	1	7.4	0	0	1	4.3	8	4.6	2	1.3	10	2.9
65-74	3	2.8	2	1.1	5	1.9	0	0	0	0	0	0	3	2.8	2	1.2	5	1.9
75+	2	3.4	1	0.5	3	1.5	0	0	0	0	0	0	2	3.5	1	0.6	3	1.6
Total	91	5.3	30	1.7	121	3.4	40	30.4	4.9	4.9	48	17.1	132	7.0	38	1.9	170	4.4

R = Rate. Rates are numbers of deaths per 100,000 population.

Firearm Suicide and Homicide in Kentucky (continued)

Table 4: Number of Homicides and Homicide Rates Due to Firearms By Year of Death—Kentucky and U.S. Residents 1993-1997

Year	Number		Rate/100,000	
	Kentucky	U.S.	Kentucky	U.S.
1993	186	18,450	4.5	7.8
1994	171	17,190	4.3	7.5
1995	174	15,835	4.3	6.6
1996	158	14,321	4.0	5.9
1997	169	13,527	4.1	5.4

death rate ranged from a low of 4.0 per 100,000 in 1996 to a high of 4.5 per 100,000 in 1993. These firearm homicide rates were below the U.S. rates for each of the years between 1993 and 1997 (Table 4).

Six of the 15 Kentucky ADD experienced 10 or more deaths as a result of firearm assaults: Kentuckiana (51), Bluegrass (22), Cumberland Valley (15), Lake Cumberland (12), Kentucky River (11) and Pennyrile (10), accounted for 71% of these deaths. The highest rate of deaths per 100,000 residents occurred in the Kentucky River district (8.8) and the lowest in Northern Kentucky (1.7).

Guidelines for the Prevention and Management of Multidrug-resistant Organisms

Antimicrobial resistance is fast becoming a global concern with rapid increases in multidrug-resistant bacteria. Some pathogens are becoming untreatable. The Commonwealth of Kentucky, in collaboration with individuals expert in the areas of microbiology, clinical practice, infection control and epidemiology have developed guidelines for the prevention and management of multidrug-resistant organisms. This 24-page document offers assistance in dealing with the current intricate and difficult problems of managing these organisms. It is prudent to recognize that involvement across the continuum of patient care, including acute and non-acute care settings, outpatient care settings and the home, must occur in order to address this issue. Key points addressed in the document are as follows:

- **the importance of appropriate antimicrobial use**
- **the role of the microbiology laboratory**
- **infection prevention and control strategies**
- **training and continuing education**
- **examples of staff, patient and caregiver education guides.**
- **a glossary of definitions and terms.**

A copy of the document may be obtained at our Website: http://publichealth.state.ky.us

Questions concerning these guidelines should be directed to:

Division of Epidemiology and Health Planning
275 East Main Street, Mailstop HS2C-B
Frankfort, KY 40621-0001
502-564-3418

Inappropriate Antimicrobial Use for Respiratory Infections

Over the past two decades, the use of antimicrobials has increased dramatically, particularly among children. Between 1980 and 1992, the rate of outpatient antibiotic prescribing increased approximately 50%. Antimicrobial prescribing is the most important catalyst for the increase in resistant organisms. Recent antimicrobial treatment increases a child's risk of either being colonized with or developing an invasive infection from resistant pneumococci.

Respiratory infections (including colds, upper respiratory infections, bronchitis, pharyngitis, sinusitis, and otitis media) account for more than 70% of antibiotic prescriptions in the U.S. Data from several studies have demonstrated that 30 to 60% of these prescriptions are inappropriate. It is estimated that at least 50% of Kentucky residents who make office visits for a respiratory infection are prescribed antimicrobial agents.

Why is there such widespread and substantially inappropriate antimicrobial prescribing for the treatment of respiratory infections? There are two major factors involved that are clearly related to one another: patient expectation and physician practice. Several studies have shown that a patient's expectation of antimicrobial treatment is strongly associated with receipt of an antimicrobial agent, regardless of diagnosis.

Patients' expectations about antimicrobial treatment are partly due to misconceptions about the role of antimicrobials in the treatment of several common medical conditions. First, many individuals incorrectly believe that bacteria, not viruses, cause acute bronchitis. In addition, much of the public believes that green or yellow nasal discharge indicates the need for antimicrobial treatment. Improved patient knowledge would lead to decreased prescribing of antimicrobials.

Inappropriate Antimicrobial Use for Respiratory Infections (continued)

Nationwide interventions focusing primarily on physicians also have reduced antimicrobial use and levels of antimicrobial resistance. In Iceland, rates of penicillin-resistant S*treptococcal pneumoniae* (PRSP) rose from 0% in 1988 to 20% in 1993. An information campaign aimed mostly at physicians, coupled with regulatory changes that shifted the cost of prescription drugs to patients, led to declines in antimicrobial use and a subsequent decline in PRSP. This decline was especially marked among children attending daycare, where rates of PRSP declined from 20% in 1992 to 15% in 1995.

In Finland, macrolide use nearly tripled during the 1980s, and erythromycin resistance among Group A *Streptococcus* rose sharply in the early 1990s. A national campaign among physicians led to a 42% reduction in macrolide use, and erythromycin resistance in Group A *Streptococcus* fell from 17% to 9% between 1992 and 1996.

In addition to drug resistance, inappropriate use of antimicrobials can have adverse clinical consequences. Antimicrobial treatment of *Escherichia coli* O157:H7 infections increases the risk of developing hemolytic uremic syndrome. Recent antibiotic use increases patients' risk of acquiring *Salmonella* during outbreak situations. Most *Clostridium difficile* infections are associated with recent antibiotics use.

Other adverse impacts of antimicrobial treatment include allergic reactions. Finally, antimicrobials contribute substantially to the cost of pharmaceutical benefits for health insurers and health maintenance organizations. Money invested on unnecessary antimicrobials increases cost and decreases access to health care.

Source: This article is modified from the Minnesota Department of Health, Disease Control Newsletter, Volume 28, Number 7 (pages 57-60).

Footnotes will be furnished upon request.

Abbreviated Guidelines for Appropriate Antibiotic Use in Respiratory Infections

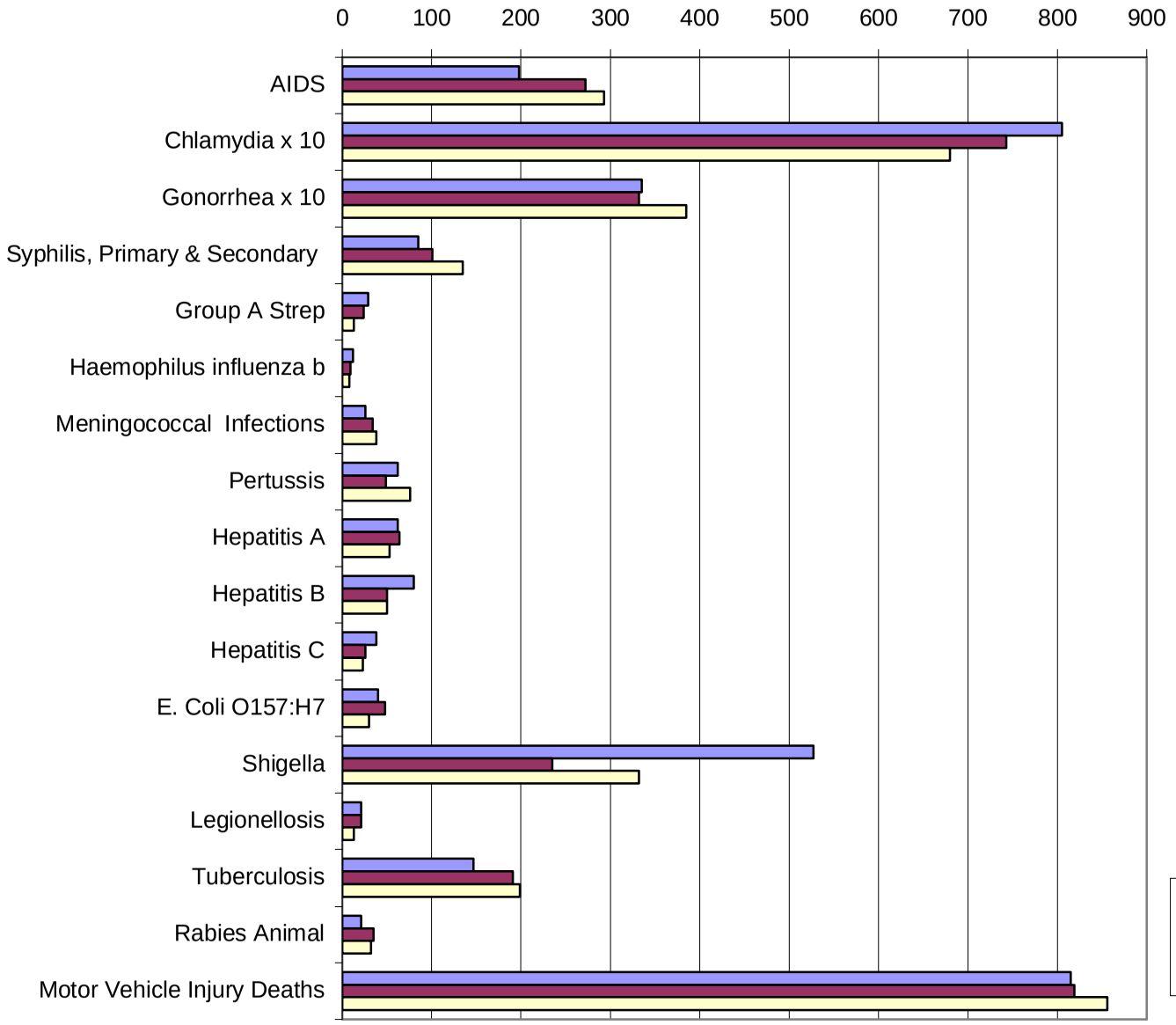
The Centers for Disease Control and Prevention have made recommendations for appropriate antimicrobial prescribing. These recommendations are summarized as follows:

- **Colds/Upper Respiratory Infections** – Colds and upper respiratory infections are caused by viruses and should not be treated with antimicrobial agents.
- **Bronchitis** – Acute bronchitis generally is caused by viral agents and should not be treated with antimicrobial agents. A possible exception is patients with chronic lung diseases (excluding asthma), for which antimicrobial agents may be of possible benefit.
- **Pharyngitis** – Antimicrobials are recommended for treatment of pharyngitis caused by Group A *Streptococcus* (GAS). However, less than 20% of acute pharyngitis is caused by GAS; viral infections cause most pharyngitis. Antimicrobial treatment for pharyngitis generally should be proceeded by either a positive rapid strep test of a GAS-positive throat culture.
- **"Purulent Rhinitis"** – The common cold and other upper respiratory infections normally are associated with green or yellow nasal discharge, especially after several days illness. Green or yellow nasal discharge alone is not a reason to prescribe antimicrobials.
- **Sinusitis** – Sinus abnormalities, such as congestion and discomfort, occur frequently with viral upper respiratory infections. Antimicrobial use generally should be restricted to patients with fever, facial pain, or prolonged symptoms.

- **Otitis Media** – Antimicrobial treatment for otitis media should be limited to acute otitis media. Antimicrobials should not be prescribed for otitis media with effusion (OME); in OME antibiotics do not hasten symptom improvement of fluid removal from the inner ear.

Source: Dowell SF. Principles of judicious use of antimicrobial agents for pediatric upper respiratory tract infections. Pediatrics 1998; 101 (Suppl): 163-184.

CASES OF SELECTED REPORTABLE DISEASE IN KENTUCKY, YEAR TO DATE* (YTD) THROUGH NOVEMBER 2000



Diseases Of Low Frequency Occurance	2000 YTD	1999 Annual Totals
Diphtheria	0	0
Measles	0	2
Mumps	1	0
Polio	0	0
Rubella	1	0
Tetanus	1	0
VECTOR-BORNE DISEASES		
Arboviral encephalitis	2 LAC	1 LAC
Lyme Disease	13	19
Malaria	18	7
Rocky Mountain spotted fever	4	3
Tularemia	3	3

*As of February 1, 2001

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Oops
We made a mistake. In the January 2001 issue we incorrectly reported the telephone number for Celeste Worth of the Brown Cancer Center, Louisville. The correct number is: 502-582-6318