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Environmental Health

The first significant efforts to improve the health of populations came from the sanitary movement that stressed, among other things, clean and safe food, beverages, and water, protection from contamination whether natural or made-made, and decent housing. Many of the efforts of the sanitary movement resulted in the interruption of communicable or infectious diseases and that linkage to protection from such diseases persists today in programs such as restaurant inspection and drinking water safety. Other efforts sought to make the environment cleaner and safer through the removal and proper disposal of garbage, industrial wastes, etc. And still others concentrated on living and working conditions in the home, in lodging facilities, and on the job. While most of these efforts were the focus of early public health departments, many of them eventually were separated from those agencies and the responsibilities assigned to others, such as garbage disposal, provision of safe drinking water, and weed control. Today, in Kansas City, multiple City agencies have responsibility for environmental programs that protect the health of the residents and visitors to the community.

The 2004 Health Assessment Survey commissioned by the Kansas City Health Department found that 79.1% of respondents felt that is very important for local public health departments to be involved in protecting against exposure to environmental risks, while 15.5% thought it is somewhat important.⁴¹⁴ More specifically, when asked about protecting the public against food poisoning, 83.2% felt it is a very important public health role and 13.9% felt it is somewhat important.

REPORTABLE CONDITIONS

The same City ordinances that require the reporting of infectious and communicable diseases also require the reporting of cases of injury, illness, or death due to environmental contaminants and, weather-related health problems. For the purposes of this report, the only reportable conditions that will be discussed are heat related illness and lead poisoning

In July 1980, Kansas City experienced a heat wave that led to 443 reported cases of heat related

⁴¹⁴ Kansas City Health Department. 2004. 2004 Health Assessment Survey. www.kcmo.org/health.



illness including 75 cases of heatstroke. Of these 443 cases, 157 persons (35.4%) died. Since that time, the Health Department has monitored weather conditions and alerted the citizens when the risk of heat-related illness could be expected to increase. Since 1981, 66 Kansas Citians have died from heat-related illness (Figure 107). Monitoring heat related illness has proven difficult over the past 20 years. The vast majority of persons who visit an emergency department for a heat-related illness are not reported to the Health Department (Table 106). Often even persons with heat-stroke are not reported.

Figure 107 Heat-related deaths, Kansas City, MO

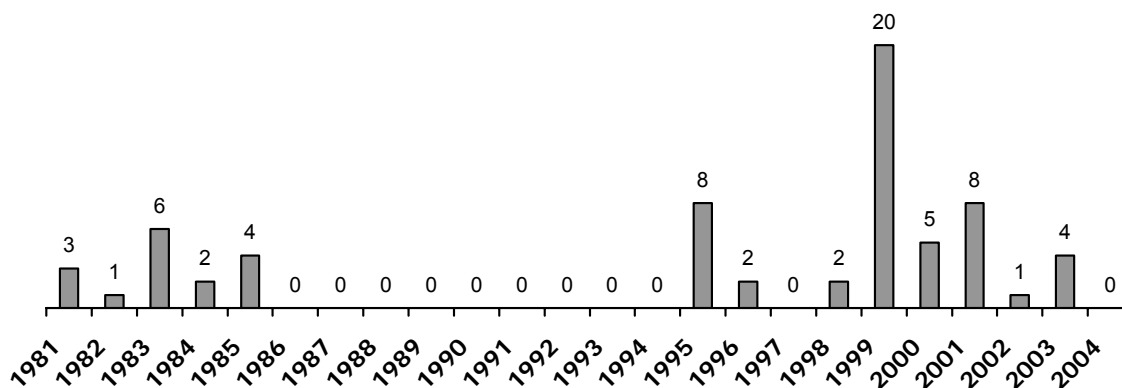


Table 106 Emergency department visits for heat related illness, Kansas City, MO

Year	Number of Visits
1999	88
2000	126
2001	170
2002	134
2003	138

During 1999-2003, a total of 3,442 deaths resulting from exposure to extreme heat were reported in the US with males accounting for 66% of deaths and outnumbering deaths among females in all age

ENVIRONMENTAL HEALTH



Public Health
Prevent. Promote. Protect.

Kansas City, MO, Health Dept.

groups.⁴¹⁵ Cardiovascular disease was the principal underlying cause of death (57% of cases) in which hyperthermia was a contributing factor. Approximately 70% of these heat-related cardiovascular deaths occurred among persons with reported chronic ischemic heart disease. The state with the highest average annual hyperthermia-related death rate during 1999-2003 was Arizona (1.7 deaths per 100,000 population), followed by Nevada (0.8) and Missouri (0.6). According to the Missouri Department of Health and Senior Services, between 1995 and 2004, 283 Missourians died from heat-related illness.⁴¹⁶

Increasing amounts of lead in the body can cause impaired neuro-behavioral development in children, increased blood pressure, kidney damage, and anemia. For children, the major sources of exposure to lead are from deteriorated lead-based paint and the resulting dust and soil contamination. In addition, uncommon sources of lead exist, including unglazed low-temperature-fired ceramic pottery, pewter drinking vessels, plumbing systems with lead-soldered joints, old paint removal, indoor gun ranges, jewelry, some imported candy, and nearby mining and smelting operations. In 2003, the Centers for Disease Control and Prevention lowered the national average for childhood lead poisoning from 4% to 2.2%.⁴¹⁷

The State of Missouri requires annual lead testing for children 6 m to 6 y of age who live in designated high risk areas and targeted screening in other zip codes. Day care centers in high risk zip codes are required to keep annual records proving children were tested. The high risk zip codes designated in Kansas City include: 64101, 64102, 64108, 64105, 64106, 64109, 64110, 64111, 64112, 64113, 64114, 64116, 64120, 64123, 64124, 64125, 64126, 64128, 64129, 64131, 64132, 64139, 64149, 64161, and 64165.

Lead poisoning in children in Kansas City remains a concern and the City was ranked 19th out the largest cities for lead poisoned children in 2004. Just under 80% of the housing stock in Kansas City was built before 1978, the year use of lead based paints in residential structures was banned. These

⁴¹⁵ Luber GE, Sanchez CA. 2006. Heat-related deaths – United States, 1999-2003. *MMWR* 55:796-798.

⁴¹⁶ Missouri Department of Health and Senior Services. 2005. Missourians Urged to Protect Themselves from the Heat This Summer. Press release, 6/9/05.

⁴¹⁷ Center for Disease Control and Prevention. 2003. 2nd National Report on Human Exposure to Environmental Chemicals. 257 p. www.cdc.gov.



older buildings may contain vestiges of lead paint that could be a source of exposure for young children.

In 2005, 5,264 Kansas City children <6 y of age were tested for lead poisoning, with 194 (3.7%) having elevated blood lead levels ≥ 10 μg lead/dL of blood. This suggests that >1,100 children in the City potentially have lead poisoning. The national prevalence rate for lead poisoning in children <6 y of age is 1.6%.⁴¹⁸

The 2006 Health Planning and Assessment Survey commissioned by the Kansas City Health Department had 15% of respondent households with children <6 y of age. Those households were asked if the children had been tested for lead poisoning. Fifty-seven percent said yes. Of the households that said the children had been tested, 3% reported a child had been diagnosed as having elevated blood lead levels.

FOOD PROTECTION

The Health Department is responsible for inspecting all food establishments in Kansas City, Missouri including restaurants, grocery stores, convenience stores, mobile units, push carts, temporary events, school cafeterias, hospital cafeterias, food pantries, and summer food service sites. There are over 3000 permits issued each year for food service of which 22% are for temporary events. In addition, annually, there are 100 summer feeding sites in Kansas City.

During 2005, the Health Department conducted 4,000 routine inspections of food establishments and 451 reinspections. During these inspections 7,588 critical and 10,898 non-critical violations were found resulting in 76 permits being suspended (Figures 108 and 109).

Food handler training for food establishment workers became mandatory on January 1, 2005. The purpose of the training is to reduce the possibility of foodborne illness by ensuring that food workers are properly trained and knowledgeable about food safety, foodborne illness and food handling. The training will be phased in over three years: in 2005, 30% of an establishment's workers must be

⁴¹⁸ Schwemberger JG et al. 2005. Blood lead levels – United States, 2003. *MMWR* 54:513-516.

ENVIRONMENTAL HEALTH



Public Health
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Kansas City, MO, Health Dept.

trained; in 2006, 60% of an establishment's workers must be trained; and in 2007, 90% must be trained. All new employees must be trained within 30 days of employment. More than 3,500 food handlers underwent training in 2005 (Figure 110).

Between 2001 and 2005, consumer complaints about food establishments declined 55% (556 in 2001, 527 in 2002, 369 in 2003, 289 in 2004 and 252 in 2005).

In 2005, 184 food establishments were given Food Quality Awards for meeting the Health Department's strict criteria based on risk, type of food served, population served and number of violations.



Figure 108 Food establishment inspections, Kansas City, MO

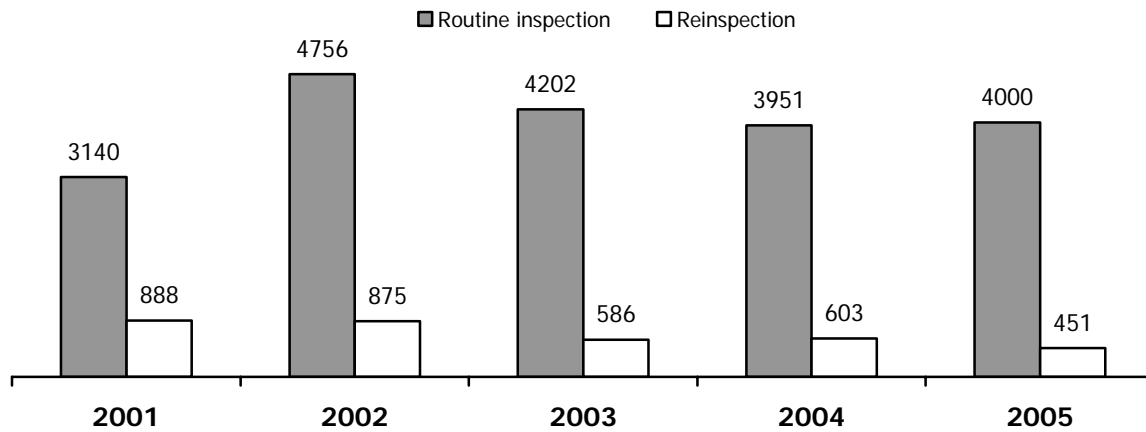
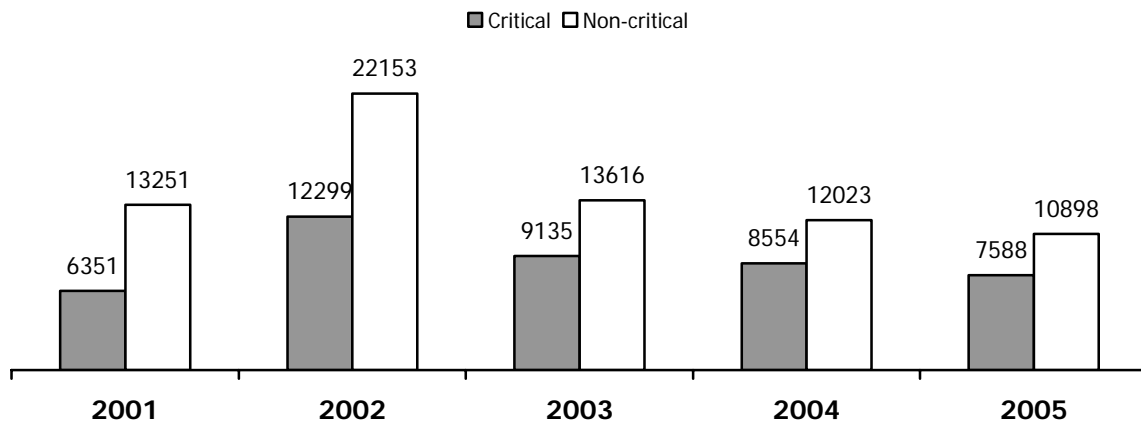


Figure 109 Type of violations found upon inspection of food establishments, Kansas City, MO





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Prevent. Promote. Protect.

Kansas City, MO, Health Dept.

Figure 110 Food handler training by job category, Kansas City, MO



WATER

The Kansas City Water Services Department is responsible for drinking water, wastewater, industrial waste, and storm water. The primary source of drinking water is the Missouri River (94%), with the balance from wells in the Missouri River aquifer. The Water Services Department processes and delivers 115 million gallons of high-quality water that exceeds all federal and state water quality standards. The Environmental Protection Agency requires testing for >180 regulated compounds, yet the Water Services Department tests for >300 compounds; performing >25,000 tests monthly. There never has been a violation of contamination levels or other water quality regulations. The Water Services Department's most recent annual reports on water quality can be found at <http://www.kcmo.org/water>.

The Water Services Department functions as a regional water provider selling water to a number of communities in both Missouri and Kansas. Thus, the quality of the water produced for the City has regional implications. The March 2004 issue of Men's Health Magazine ranked Kansas City's tap water as grade A and placed it in the top 10% of communities surveyed.



The City is served by 8 waste water treatment plants, 5 staffed and 3 automated. These plants serve the City proper and some neighboring communities. The only interconnected plants are the main facility (70 million gallons per day capacity) and two smaller staffed facilities (20 million gallons per day capacity, each). The reclaimed water is purified and returned to local waterways. Some sewage sludge (biosolids) is applied to crop lands that are then leased to local farmers. This sludge meets the Environmental Protection Agency's standards for protecting the public's health.

WATER RECREATIONAL FACILITIES

Water recreational facilities that are open to the public are permitted and inspected by the Health Department. There are approximately 133 facilities that operate year around and 384 that operate during the spring and summer. In 2005, there were 144 closures: 39 for safety reasons, 55 for water quality, 47 for both safety and water quality, and 3 for administrative reasons. No disease outbreaks were associated with regulated swimming pools in 2005.

Water quality at swimming beaches of lakes and ponds within the City is not monitored.

ENVIRONMENTAL MANAGEMENT

Environmental issues such as garbage, trash, recycling, hazardous materials, and property abatement, were handled by the Environmental Management Department. That Department assured that all city facilities are in compliance with all federal, state, and other laws relating to environmental management. It also provides 24-hour emergency response to spills impacting the environment and public safety, and provides spill cleanup. In addition, the Department cleaned up waste found in drug houses. In the City budget year beginning in May 2005, the Environmental Management Department was dissolved and its functions assigned to other City agencies, such as Public Works.

AIR QUALITY

Beginning in September 2003, the Missouri Department of Natural Resources assumed the responsibility for operating air quality monitors in the Kansas City area. The Kansas City Health

ENVIRONMENTAL HEALTH



Public Health
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Kansas City, MO, Health Dept.

Department's Air Quality Program continues to permit and inspect two hundred sources that emit a variety of pollutants into the metropolitan area air shed to ensure that pollution levels are kept as low as possible (Table 107). The Health Department also responds to complaints concerning outdoor air.

Federal, state and local regulations are enforced by the Health Department. The Air Quality Program operates under a certificate of authority from the State, which also is a delegated program with authority under the Clean Air Act.

Table 107 Reported air emissions, Kansas City, MO

Tons of emissions	2000	2001	2002	2003	2004
PM10	726	762	753	622	701
CO	952	959	928	2597	2526
VOC	1390	1428	1264	1132	1140
NOx ^a	2851	2834	3493	3534	2916
SOx ^b	7930	7952	7641	7012	6237

^a NOx increase from 2000 to 2003 is mostly attributed to the new coal-fired Unit #5A at KCPL power plant and SCR operation problems.

^b SOx increase from 2000 to 2001 is mostly attributed to the new coal fired Unit #5A at KCPL power plant.

For all regulated pollutants, Kansas City has attained compliance with the federal air quality standards. In 2005, the Health Department issued 40 notices of air quality violations to businesses. Ozone is a perennial contender for the issue of greatest concern.

The Health Department also inspects businesses and large residential dwellings when asbestos is being removed to guarantee removal is conducted properly and that there is no threat to respiratory health during the removal. By permitting contractors that remove this material, the Air Quality Program ensures that proper removal practices are followed and that releases of asbestos fibers are minimal. In 2005, 290 inspections were conducted.

CHILDCARE & LODGING FACILITIES

Childcare and lodging facilities are both regulated and permitted by the State of Missouri. Under a

COMMUNITY HEALTH ASSESSMENT 2006
Kansas City, Missouri

Page 294 of 295



Public Health
Prevent. Promote. Protect.

Kansas City, MO, Health Dept.

contract from the Missouri Department of Health and Senior Services, the Kansas City Health Department, in 2005, inspected 350 childcare facilities and 98 lodging facilities.

ENVIRONMENTAL HEALTH