

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 and infectious diseases. 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 2006 Health Assessment Survey commissioned by the Kansas City Health Department found that 27% of respondents felt that environmental services should receive the most emphasis by the Health Department.

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 illnesses and lead poisoning.

In July 1980, Kansas City experienced a heat wave that led to 443 reported cases of heat related illnesses 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 illnesses could be expected to increase. Over the past 10 years, 45 Kansas Citians have died from heat-related illnesses (Figure 119). Monitoring heat related illnesses has proven difficult as the majority of persons who visit an emergency department for a heat-related illness are not reported to the Health Department (Table 115). Often even persons with heat-stroke are not reported.

In Missouri, 160 persons died of heat-related illnesses between 2000 and 2006. And, during 1999-2003, Missouri had the 3rd highest average annual hyperthermia-related death rate (0.6 deaths per 100,000 population) in the nation behind Arizona (1.7) and Nevada (0.8).⁴⁴¹

⁴⁴¹ Luber GE, Sanchez CA. 2006. Heat-related deaths – United States, 1999-2003. *MMWR* 55:796-798.

Figure 119 Heat-related deaths, Kansas City, MO

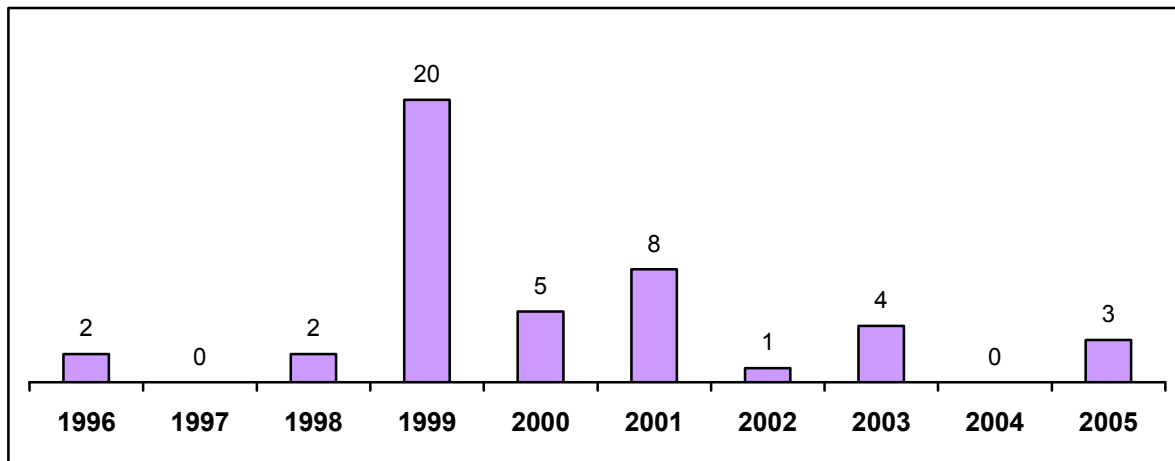


Table 115 Emergency department visits for heat related illnesses, Kansas City, MO

Year	Number of Visits
2001	170
2002	134
2003	138
2004	59
2005	109

Lead Poisoning

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.

The national prevalence rate for lead poisoning in children <6 y of age is 1.6%⁴⁴² and the 2010 national objective is that no children have an elevated blood lead level. In 2005, 2.3% of children <7 y of age in Missouri who were tested for blood lead levels were judged to have elevated lead levels (www.cdc.gov). During 2006, 1,147 Kansas City children <6 y of age were tested for lead poisoning, with 23 (2.0%) having elevated blood lead levels ≥ 10 μg lead/dL of blood.

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

⁴⁴² Schwemberger JG et al. 2005. Blood lead levels – United States, 2003. *MMWR* 54:513-516.

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. In 2006, zip code 64123 had the highest number of children newly diagnosed with elevated blood lead levels.

The Kansas City Health Department provides education and follow-up recommendations to families with children whose blood lead levels fall between 5 µg/dl and 9 µg/dl. Children with blood levels between 10 µg/dl and 14 µg/dl receive educational material, follow-up recommendations and may also receive a courtesy home visit. Children with blood lead levels 15 µg/dl and higher receive comprehensive case management which includes a lead risk assessment by a licensed lead risk assessor and home assessment, education and referrals by a public health nurse. Other resources for families may include: specialized cleaning demonstration, HEPA vacuums, cleaning kits, cooking pots, sand boxes, and lead hazard control services.

The 2004 Health Assessment Survey had 27% of respondent households with children <6 y of age. Those households were asked if the children had been tested for lead poisoning. Fifty-five percent said yes. Of the households that said the children had been tested, 5% 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 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 3,000 permits issued each year for food service of which approximately 10% are for temporary events. In addition, annually, there are 70 summer feeding sites in Kansas City.

During 2006, the Health Department conducted 3,200 routine inspections of food establishments and 400 reinspections. During these inspections 5,752 critical and 8,172 non-critical violations were found resulting in 85 permits being suspended (Figures 120 and 121).

Figure 120 Food establishment inspections, Kansas City, MO

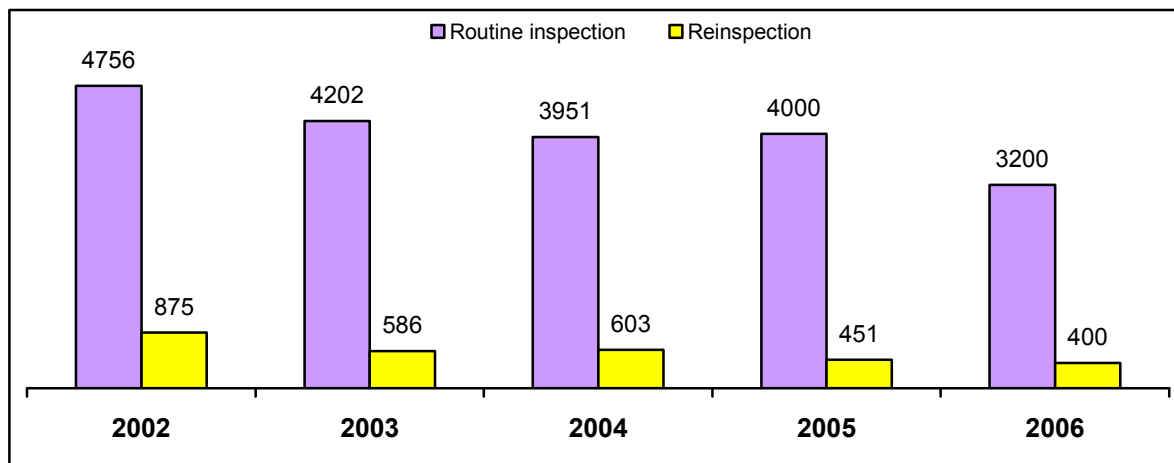
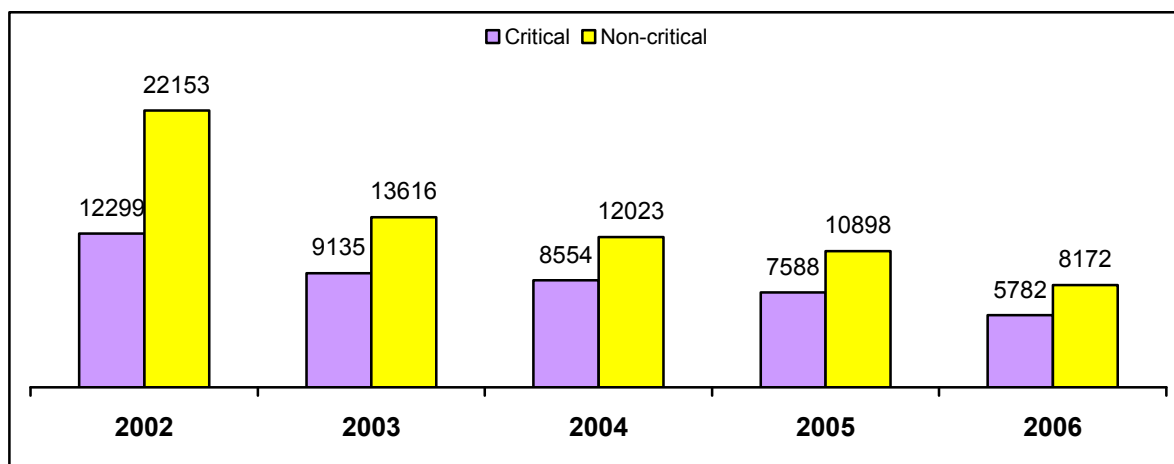


Figure 121 Type of violations found upon inspection of food establishments, Kansas City, MO



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 is being phased in over three years: in 2005, 30% of an establishment's workers had to be trained; in 2006, this requirement rose to 60%; and in 2007, 90% must be trained. All new employees must be trained within 30 days of employment. More than 9,000 food handlers and managers underwent training in 2006 (Figure 122). There were 155 training classes during the year – 143 for food handlers and 12 for food managers.

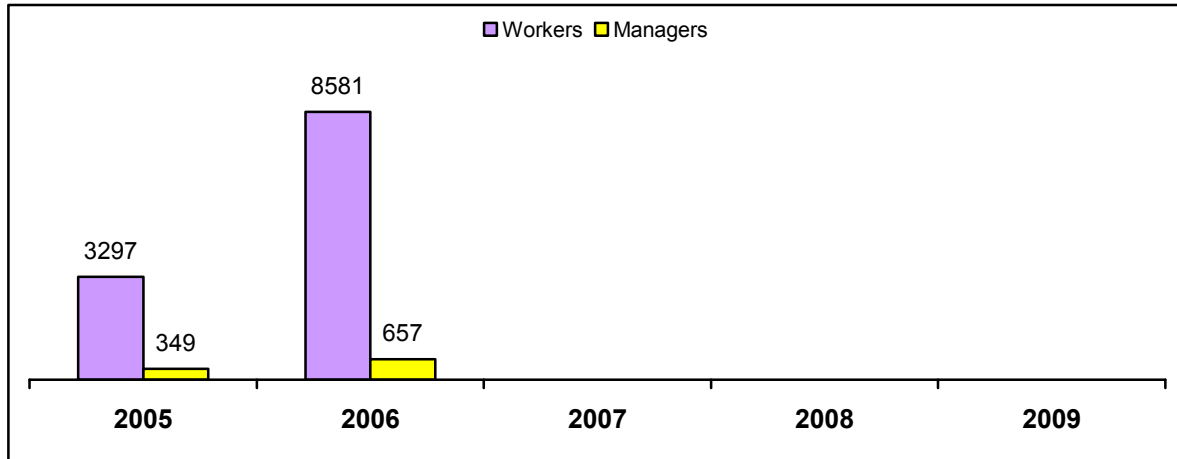
Between 2002 and 2006, consumer complaints about food establishments declined 56% (527 in

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2002, 369 in 2003, 289 in 2004, 252 in 2005, and 230 in 2006).

In 2006, 187 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 and number of food handlers and managers trained.

Figure 122 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 Department test 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 2007 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. In 2006, the Water Services Department received a #1 ranking for tap water quality from SustainLane.com.

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 135 facilities that operate year around and 391 that operate during the spring and summer. In 2006, there were 150 closures: 21 for safety reasons, 81 for water quality, 29 for both safety and water quality, and 19 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, are handled by various City departments. The Office of Environmental Quality in the City Manager's Office ensures all City government actions are performed in an environmentally responsible manner; promote City policies that encourage the private sector to preserve and enhance the environment; and collaborate with public and private partners on projects that preserve and enhance the environment.

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 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 116). 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. For all regulated pollutants Kansas City has attained compliance with the federal air quality standards.

In 2006, the Health Department issued 50 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 2006, 149 inspections were conducted.

Table 116 Reported air emissions, Kansas City, Mo

Tons of emissions	2001	2002	2003	2004	2005
PM10	762	753	622	701	646
CO	959	928	2597	2526	3,076
VOC	1428	1264	1132	1140	1,154
NOx ^a	2834	3493	3534	2916	2,544
SOx ^b	7952	7641	7012	6237	5,729

^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.

Childcare & Lodging Facilities

Childcare and lodging facilities are both regulated and permitted by the State of Missouri. Under a contract from the Missouri Department of Health and Senior Services, the Kansas City Health Department, in 2006, inspected 300 childcare facilities and 97 lodging facilities.