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Smoking During Pregnancy --- *UPDATE* Continuing to Place Kentucky's Children At Risk

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Introduction

Women who smoke during pregnancy increase the risk that their infants will suffer from low birth weight, intrauterine growth retardation, various respiratory diseases, and infant mortality. An article in the July 2003 issue of Epidemiologic Notes and Reports described this public health issue noting that approximately one in four pregnant women smoked during their pregnancy. The following update to that article shows that smoking during pregnancy actually increased in 2002, and the rates for low birth weight and SIDS continue to be higher for the infants of women who smoked during pregnancy compared to women who did not smoke.

Smoking among Women of Childbearing Age

An analysis of smoking among women of childbearing age provides valuable insight into the high prevalence of smoking among pregnant women. By smoking, women not only are increasing their own risk of developing cancer and other health problems but also are increasing the chance of harming the fetus if they become pregnant. Even if women stop smoking when they realize that they are pregnant, harm to the fetus may have already occurred.

Smoking continues to be highly prevalent among females in high school. According to data from the 2003 Kentucky Youth Risk Behavior Survey (YRBS), 33.4% of the high school females surveyed had smoked cigarettes on one or more days in the past month and 18.8% had smoked cigarettes on 20 or more days in the past month[1]. Among the 32 states participating in the YRBS, Kentucky ranked first among those females who had smoked cigarettes on one or more days in the past month and second among females who had smoked cigarettes on 20 or more days in the past month.

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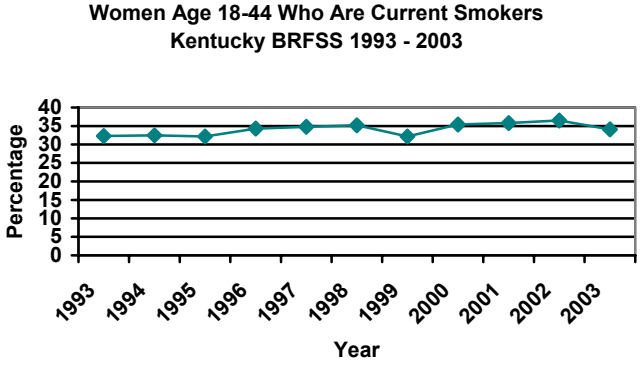
Data from the Kentucky Behavioral Risk Factor Surveillance System (BRFSS) are used to determine prevalence of current smoking among women age 18-44. The past report ended with data from 2001, which showed that 35.8% of Kentucky women age 18-44 were current smokers. This prevalence ranked Kentucky second in the nation. In 2002, the prevalence increased to 36.5%, and Kentucky still ranked second in the nation. The percentage dropped to 34.1% in 2003; however, Kentucky still remained second in the nation for current smokers among women age 18-44. See Figure 1 for the trend over the past decade[2].

Figure 1.



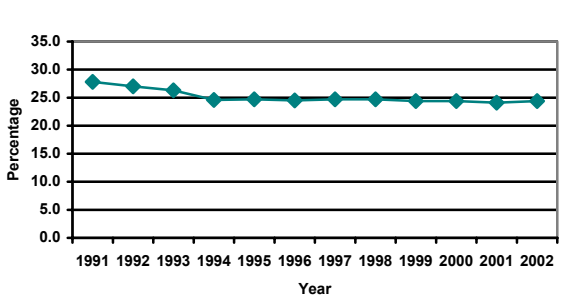
(Continued on Page 2)

Smoking During Pregnancy

According to data from Kentucky birth certificates, the percentage of women who smoke during pregnancy remains high with an increase from 24.1% in 2001 to 24.4% in 2002. See Figure 2[3,4]. This prevalence ranks Kentucky **second** highest in the nation in terms of pregnant women who smoke[5].

Table 1 (page 3) presents demographic characteristics of those women who smoked during pregnancy and gave birth in the years 1999 through 2002. For all years, the age group with the highest percentage of smokers was 15-19. Approximately one third of women in this age group smoked while pregnant. In 2002, White women had the highest prevalence of smoking, 26.0%, followed by women in the Other race category, 25.2%, and African American women, 19.3%. The percentage of women who smoked decreased with higher education level. In 2002, 45.8% of pregnant women without a high school education smoked compared to only 2.8% of those pregnant women with a graduate degree. In 2002, 36.2% of women who began their prenatal care in the third trimester smoked during their pregnancy compared to only 22.6% of women who began prenatal care in their first trimester. Among women with no prenatal care, 40.5% smoked while pregnant.

Figure 2.



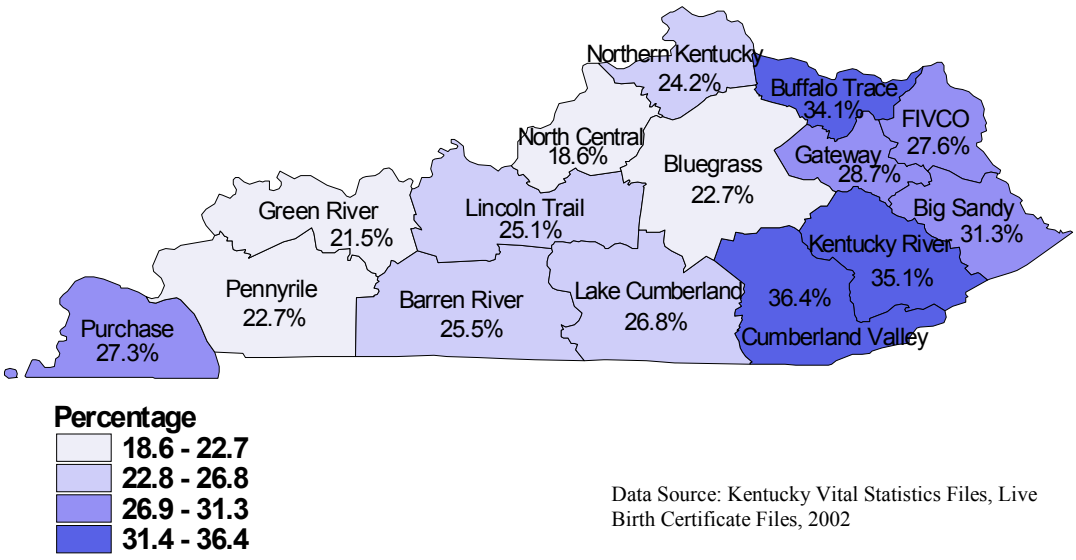
Data Source: Kentucky Vital Statistics Files, Live Birth Certificate Files, 1991-2002

Geographic Distribution

The geographic distribution of pregnant smokers varied widely throughout the state in 2002. See Map 1. The Area Development District (ADD) with the highest percentage of smokers was Cumberland Valley at 36.4%. The ADD with the lowest percentage was North Central at 18.6%.

Map 1.

Percentage of Kentucky Residents Who Smoked During Pregnancy By Area Development District; 2002



Data Source: Kentucky Vital Statistics Files, Live Birth Certificate Files, 2002

Table 1.

Percentage of Kentucky Resident Live Births+ to Women Who Smoked During Pregnancy by Selected Demographics; Kentucky Vital Statistics Files, Live Birth Certificate Files, 1999-2002

	1999 (%)	2000 (%)	2001 (%)	2002 (%)
Total	**24.4**	**24.4**	**24.1**	**24.4**
Age				
<15	25.9	23.0	13.2	16.8
15-19	35.0	34.3	33.0	34.9
20-24	30.0	30.7	31.5	32.0
25-29	20.1	20.4	19.6	20.0
30-34	15.6	15.2	14.8	14.6
35-39	18.9	18.4	18.3	17.4
40+	17.9	20.1	19.6	18.1
Race and Ethnicity				
White/ NH	25.6	25.7	25.5	26.0
African American/NH	17.6	18.0	18.0	19.3
Asian/ Pacific Islander/NH	4.9	5.2	6.3	3.6
Other/NH	26.8	24.7	30.6	25.2
Hispanic	7.1	5.8	5.3	4.0
Education				
< High School	46.1	45.9	44.3	45.8
High School	28.3	28.6	28.6	29.3
Some College	15.3	15.5	15.9	15.7
College	4.2	4.4	4.5	4.2
Graduate/Professional	3.1	3.8	2.9	2.8
Trimester Prenatal Care*				
First	22.6	22.6	22.4	22.6
Second	35.9	35.6	34.1	35.3
Third	32.7	36.8	35.1	36.2
No Prenatal Care	40.2	33.6	38.9	40.5

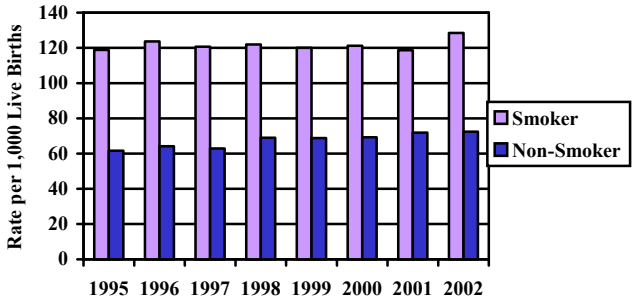
+Percentages may differ slightly from July 2003 report. In this report, unknown smoking status is excluded from analysis. The method of calculation was changed to match the method of the National Center for Health Statistics.
*Indicates the trimester of pregnancy in which prenatal care began.
Data Source: Kentucky Vital Statistics Files, Live Birth Certificate Files, 1999-2002

Infant Morbidity and Maternal Smoking– Low Birth Weight

The negative association of smoking and poor pregnancy outcomes has been documented previously in numerous studies, particularly that of low birth weight[6]. Infants born to women who smoke during pregnancy have a lower average birth weight and are more likely to be small for gestational age than are infants born to women who do not smoke[6]. While low birth weight is on the rise Nationally as well as in Kentucky, there continues to be a dramatic difference in low birth weight rates among women who smoked during pregnancy and those women who did not smoke. Birth certificate data for Kentucky residents who smoked during pregnancy indicate that the low birth weight rate increased from 118.8/1,000 live births in 1995 to 128.5/1,000 live births in 2002 (see Figure 3). This represents an 8% increase over the seven-year period. During the same time frame, the low birth weight rate among non-smoking women also increased but remained substantially lower than the rate for smoking women. Figure 3 also demonstrates that for year 2002 the low birth weight rate for smokers was nearly double that of non-smokers (128.5/1,000 live births vs. 72.5/1,000 live births respectively) clearly exhibiting one of the negative impacts of smoking during pregnancy.

Figure 3.

Low Birth Weight* Rate Among Kentucky Residents by Smoking Status; Kentucky 1995-2002**



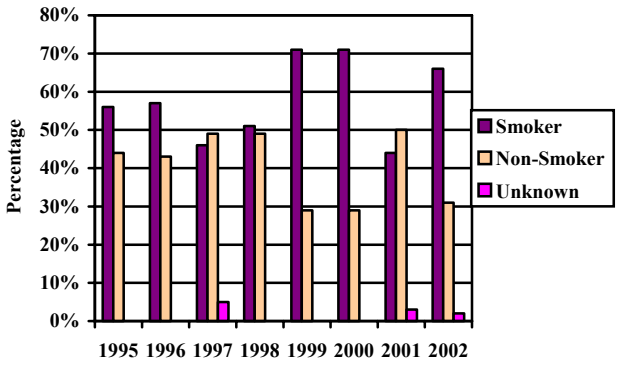
*Low Birth Weight is defined as any infant weighing <2500 grams at birth
**Rates are per 1,000 live births
Source: Kentucky Vital Statistics Files, Live Birth Certificate Files, 1995-2002

Infant Mortality and Maternal Smoking– SIDS

The risk for perinatal mortality and for Sudden Infant Death Syndrome (SIDS) is increased among the offspring of women who smoke during pregnancy[7]. Linked live birth and death certificate data for Kentucky demonstrates this association. From 1995 to 2002, the percentage of SIDS deaths to infants of women who smoked during pregnancy rose from 56% in 1995 to 66% in 2002, while SIDS deaths to non-smokers declined from 44% to 31% during the same time frame (see Figure 4.).

Figure 4.

Percentage of Kentucky Resident SIDS* Deaths By Smoking Status During Pregnancy; 1995-2002



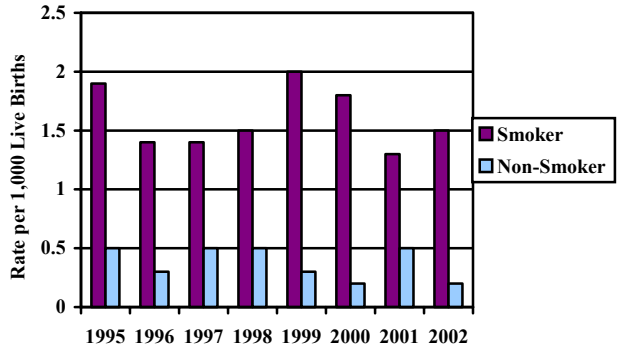
*SIDS deaths are based on ICD9 code 798.0 & ICD10 code R95
Source: Kentucky Vital Statistics Files; Linked Live Birth and Death Certificate Files; 1995-2002
Note: Death Certificates that could not be linked to a birth certificate were excluded from the analysis

The infant mortality rate for SIDS among women who smoked ranged from three to nine times higher than the rate among non-smokers with the largest gap occurring in year 2000 (see Figure 5.). While there were slight fluctuations in the rate of SIDS deaths among the non-smoking women, the rate was still much lower than that of the smoking women. Despite increased knowledge of the adverse health effects of smoking during pregnancy and cigarette smoking being the most preventable risk factor for SIDS, infant deaths due to SIDS among women who smoked during pregnancy continue to rise.

Continued on page 5

Figure 5.

Rate* of Kentucky Resident SIDS Deaths by Smoking Status During Pregnancy; 1995-2002**



*Rates are per 1,000 Live Births by Smoking Status
**SIDS deaths are based on the ICD9 code 798.0 & ICD10 code R95
Source: Kentucky Vital Statistics Files; Linked Live Birth and Death Certificate Files; 1995-2002
Note: Death Certificates that could not be linked to a birth certificate were excluded from the analysis

Conclusion

In Kentucky, approximately one out of every four pregnant women smokes. This behavior places their children at risk for low birth weight, SIDS, respiratory problems, and various other health conditions. Health care providers must place particular emphasis in counseling not only pregnant women, but also women of childbearing age on the benefits of smoking cessation. This counseling should continue even after the baby is born because second hand smoke can place the child at risk for respiratory illness, ear infection, asthma, and other illnesses[8].

The Kentucky Department for Public Health, through the Tobacco Prevention and Cessation Program is utilizing a comprehensive approach to address the increasing problem of pregnant women who smoke. This approach includes mass media campaigns, provider toolkits to encourage physician intervention*, collaboration with Medicaid, and Local Health Department client interventions. The Tobacco program is also collaborating with the March of Dimes, Kentucky Folic Acid Partnership, HANDS, Healthy Start Program, Prenatal Program, and KIDS NOW to insure a consistent message on tobacco use during pregnancy. For more information on these programs and other smoking cessation programs, contact your local health department.

*See page 6 for further details on this intervention.

References

[1]Centers for Disease Control and Prevention. *Surveillance Summaries*, May 21, 2004. MMWR 2004:53(No. SS-2).

[2]Centers for Disease Control and Prevention (CDC) and Kentucky Department for Public Health. *Behavioral Risk Factor Surveillance System Survey Data,* 1993-2003. (The definition of current smoking is those Kentuckians who have smoked at least 100 cigarettes in their lifetime and now smoke everyday or some days.)

[3]Kentucky Department for Public Health. Vital Statistics Branch. Vital Statistics, Live Birth and Death Certificate Files, 1991-2002. (Data from birth certificates are used to estimate the percentage of women who smoked during pregnancy. The certificate states whether or not the mother used tobacco during pregnancy and the average number of cigarettes smoked per day).

[4]Percentages may differ slightly from the July 2003 report. In this report, unknown smoking status is excluded from analysis. The method of calculation was changed to match the method of the National Center for Health Statistics.

[5]Matthews TJ. Unpublished data from 2002. National Vital Statistics System. Hyattsville, Maryland: National Center for Health Statistics, 2004.

[6]Martin JA, Hamilton BE, Ventura SJ, Menacker F, Park MM. Births: Final Data for 2000. National Vital Statistics Reports: Vol 49 No 7. Hyattsville, Maryland: National Center for Health Statistics, 2001.

[7]Centers for Disease Control and Prevention. Women and Smoking: A Report of the Surgeon General (Executive Summary). *MMWR* 2002; Vol 50 No RR-12.

[8]American Academy of Pediatrics Committee on Environmental Health. Environmental Tobacco Smoke: A Hazard to Children. *Pediatrics* April 1997 Vol 99 No 4 pp 639-42.

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New Smoking Cessation Toolkit Available

In fiscal year 2005, the Tobacco Prevention and Cessation Program is planning to reach Obstetricians/ Gynecologists to help women of childbearing age and pregnant smokers quit by offering a provider toolkit. The Providers Practice Prevention: Treating Tobacco Use and Dependence is a toolkit currently offered to medical providers through the Kentucky Cancer Program. The toolkit was developed through a contract with the University of Louisville, Kentucky Cancer Program and is based on the U.S. Public Health Service Guideline: Treating Tobacco Use and Dependence. The toolkit offers a video based self-study program which also includes detailed pharmacological recommendations, a quick reference guide for clinicians of the AHRQ guidelines, office reminder tools, reimbursement information, and community cessation resources for referral. Continuing education credits are offered free of charge to participants completing the program. Approximately 2600 toolkits have been distributed to medical and dental providers across the state. Partners in this project include: KMA, KDA, University of Louisville and University of Kentucky Schools of Medicine and Dentistry, Kentucky Academy of Family Physicians, American College of Physicians-KY Chapter, American College of Obstetricians and Gynecologists-KY Chapter, Kentucky Pediatric Society, Kentucky Osteopathic Medicine Association, and Kentucky Board of Dentistry. For more information on the provider toolkits contact the Kentucky Cancer Program at 502-852-6318.