

# EPI Update

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## Flu Vaccine for the Upcoming Flu Season

On October 5<sup>th</sup>, the CDC and the Tennessee Department of Health notified the Knox County Health Department and the East Tennessee Regional Office that the Chiron Corporation, manufacturer of Fluvirin flu vaccine, would not be able to deliver its flu vaccine product. The Chiron Corporation had its license suspended to make Fluvirin by the United Kingdom's equivalent to the United States' FDA. This means that the United States will have available approximately half of the expected supply of trivalent inactivated vaccine (flu shot) for the 2004-5 influenza season. The remaining supply of influenza vaccine expected to be available in the United States this season is nearly 54 million doses of Fluzone manufactured by Aventis Pasteur, Inc. In addition, approximately 1.1 million doses of live, attenuated influenza vaccine (LAIV/FluMist) manufactured by MedImmune will be available this season.

Both Knox County Health Department and the East Tennessee Public Health Region ordered vaccine supplies from Chiron. Both areas will instead receive Aventis Pasteur vaccine being redirected by the Tennessee Department of Health from other public health areas. Only limited amounts of vaccine will be available through our health departments.

Because of the urgent situation, CDC, in coordination with its Advisory Committee for Immunization Practices (ACIP) has issued interim recommendations for influenza vaccination during the 2004 – 1005 season. These recommendations take precedence over earlier recommendations:

**The following priority groups for vaccination with inactivated influenza vaccine this season are:**

- **People 65 years and older**
- **People who live in nursing homes and other long-term care facilities that house those with long-term illnesses;**
- **Adults and children 2 – 64 years with underlying chronic medical conditions**

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- **Children 6 months to 18 years of age who are on long-term aspirin therapy. (If given aspirin while they have influenza, they are at risk of Reye syndrome.)**
- **Women who will be pregnant during the influenza season**
- **All children 6 to 23 months of age.**
- **Out of home caregivers and household contacts of children aged < 6 months**
- **Health Care Workers involved in direct patient care\***

**\*Tennessee Department of Health informed local health departments on October 6<sup>th</sup> that unless they are involved in the care of severely immunocompromised patients in special care units, such as bone marrow transplant patients, health care workers may receive live attenuated influenza vaccine rather than inactivated vaccine.**

## **Other Vaccination Recommendations**

Intranasally administered, live, attenuated influenza vaccine, if available, should be encouraged for health person who are aged 5 – 49 years and who are not pregnant, and for person caring for children aged < 6 months.

All children at high risk for complications from influenza, including those aged 6 – 23 months, who present for vaccination, should be vaccinated. However, doses of vaccine should not be held in reserve to ensure that 2 doses will be available. Instead, available vaccine should be used to vaccinate persons in priority groups on a first-come, first-serve basis.

Persons who are not included in one of the priority groups described above should be informed about the urgent vaccine supply situation and asked to forego or defer vaccination.

Person with a sever allergy to hen's eggs, or who have previously had onset of Guillain Barre syndrome during the 6 344ks after receiving influenza vaccine should not receive influenza vaccine.

Both the inactivated and live, attenuated vaccines prepared for the 2004–05 season will include **A/Fujian/411/2002 (H3N2)-like, A/New Caledonia/20/99 (H1N1)-like, and B/Shanghai/361/2002-like antigens.** These viruses will be used because of their growth properties and because they are representative of influenza viruses likely to circulate in the United States during the 2004–05 influenza season. Because circulating influenza A (H1N2) viruses are a reassortant of influenza A (H1N1) and (H3N2) viruses, antibody directed against influenza A (H1N1) and influenza (H3N2) vaccine strains will provide protection against circulating influenza A (H1N2) viruses. Influenza viruses for both the inactivated and live attenuated influenza vaccines are initially grown in embryonated hens' eggs. Thus, both vaccines might contain limited amounts of residual egg protein.

## Public Health Response to Hepatitis B

Hepatitis B infection (acute and chronic) continues to be a health concern in the United States, with an estimate of 73,000 new infections diagnosed in 2002. Most of the disease burden occurs in young adults ages 20-39, although approximately 5% of people in the United States have evidence of past infection. The two most common risk factors for acquiring hepatitis B are intravenous drug use and high risk sexual behavior. CDC defines acute hepatitis B as an illness with acute onset and/or jaundice and a positive serologic test for Hep B core antibody IgM (IGM anti-HBc) and/or antibody to surface antigen (HBsAg). Health care providers should order an acute Hepatitis panel along with serum transaminase levels (ALT) to confirm the diagnosis of acute Hepatitis B.

**In the 15 county East Tennessee Region, the number of acute Hepatitis B cases increased (258%) from 24 in 2002 to 62 in 2003.** Concurrent with the increase in cases was also an increase in the number of methamphetamine associated arrests and lab seizures. Noting that 42 of the 62 cases occurred in 5 counties, the focus was narrowed to those counties: Anderson, Roane, Jefferson, Hamblen, and Cocke. With the assistance of the Tennessee Department of Health, a plan of action was recommended. The initial step involved re-interviewing the 42 cases reported from these five counties to identify any common risk factors for acquiring Hepatitis B. Additionally, local county jail and prison records were reviewed to determine incarceration histories of the 42 cases.

Of the 42 cases targeted for reinterview, 19 (45%) interviews were conducted, 17 (40%) were not located, 4 (10%) refused, and 2 (5%) patients expired. **The common risk factor identified was a history of incarceration; 14 (74%) either have some history of time in jail/prison or were currently incarcerated.** Based on these findings, public health officials initiated a Hepatitis B intervention focusing on local county jails. To estimate the current disease burden, a point prevalence study was conducted in the Anderson and Hamblen County jails. The Hepatitis B serology results revealed the following:

	Disease, Recent/Chronic	Immune, Vaccine	Susceptible
Anderson County Detention Facility (n=80)	23%	11%	66%
Hamblen County Justice Center (N=109)	14%	11%	75%

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*Public Response to Hepatitis B ...continued*

Hepatitis B vaccine was administered in both of these jails to all inmates at no charge on the same visit of the point prevalence study. The vaccine is being administered using the accelerated schedule of 0, 1 month, and 4 months in an effort to complete the series prior to release.

Public health staff have completed administration of the 3 dose series to the first group of inmates at the ACDF. The second dose has been administered to the first group at HCJC. A tracking system is in place so inmates who are released prior to completing the series can continue their vaccinations at their local health departments. At HCJC, public health staff is now going twice monthly to offer vaccine to all new inmates. The goal is to establish an ongoing vaccination program in all 5 county jails.

The desired outcome of this effort is to reduce the number of new Hepatitis B infections in our region, reduce transmission of Hepatitis B in our communities, and reduce health care costs for new infections and chronic disease from Hepatitis B.

## LaCrosse Encephalitis Update



LaCrosse Encephalitis (LAC) is a viral infection that is transmitted by mosquitoes. Passive surveillance for LAC will continue until mosquito season ends usually at the end of October. As of October 1, 2004, ten cases (8 confirmed and 2 probable) have been reported for the state of Tennessee. Nine cases have been reported from the east Tennessee area: Blount 1 (probable), Campbell 1, Claiborne 3, Grainger 1, Knox 3 (1 probable). In addition, a single case was reported from Overton County in Upper Cumberland Region. **Typically the U.S. reports about 70 cases of LaCrosse annually, with Tennessee averaging 15 cases per year.** Illness from LAC may range from mild illness (headache, fever, nausea and vomiting, tiredness) to more severe illness (severe headache, nausea, stiff neck, drowsiness, seizures, disorientation) which may require supportive care. LAC may be under reported due to lack of testing related to only mild illness or lack of testing because there is no specific treatment or cure. Additionally, there may be a decreased awareness of the risk of mosquito-borne illnesses especially in children ages sixteen and under. Protection from mosquito bites and elimination of mosquito breeding sites are both key in preventing LaCrosse Encephalitis.



If you would like to receive EPI Update via e-mail  
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## A PRELIMINARY SNAPSHOT OF CHILD FATALITIES REVIEWED BY THE CHILD FATALITY REVIEW TEAM, KNOX COUNTY, 2002

The Child Fatality Review Team in Knox County, TN is composed of representatives from public health, law enforcement, medicine, social services, and other organizations. The team meets quarterly to review child fatalities that occur among children less than 18 years of age who live in Knox County. The review process investigates the circumstances and conditions surrounding each child's death.

### Overview

In 2002, 53 deaths were recorded among Knox County children under the age of 18 years. Figure 1 shows the number of Knox County child deaths by cause as determined by the review team. Over half (55%) of all child fatalities resulted from natural causes, whereas just under one-third (30%) occurred as a result of unintentional injury.

Figure 1. Number of Deaths by Manner of Death, Knox County, Tennessee, 2002 (N = 53)

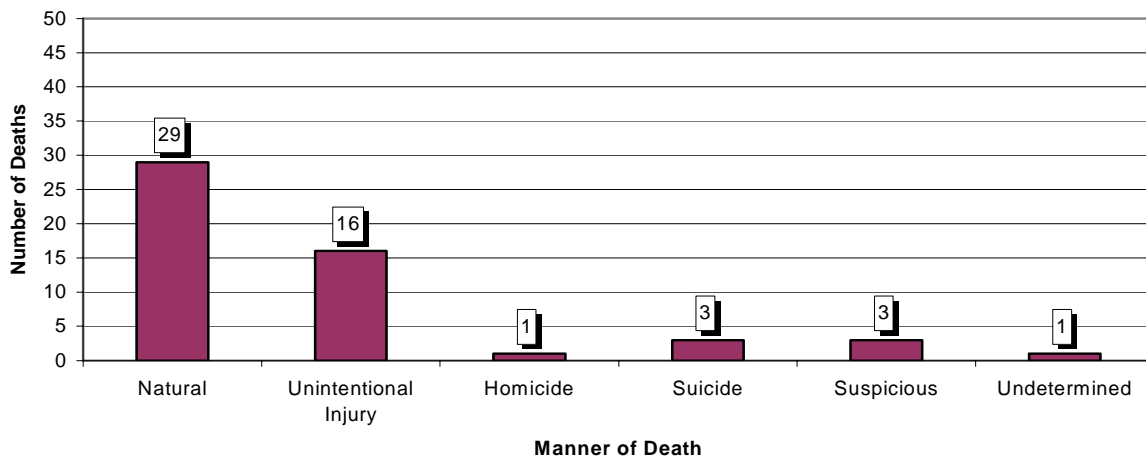


Table 1 shows detailed information regarding Knox County child fatalities in 2002 by cause according to age, sex, and race. Just under half (47%) of all child deaths occurred among children less than 1 year old. The vast majority (85%) of fatalities to children in this age group were from natural causes. Children aged 1-5 years were equally likely to have died from natural causes and unintentional injury (44%, respectively). Unintentional injuries accounted for the majority of deaths among children aged 6-12 years (67%) and among children aged 13-17 years (62%).

Regarding gender, nearly three-quarters (72%) of Knox County child deaths occurred among males. Over half (53%) of these deaths were from natural causes, whereas unintentional injuries

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## *Child Fatality ...continued*

accounted for about one-third (34%) of male fatalities. The majority (69%) of female fatalities also resulted from natural causes.

Table 2 provides details regarding the classification of child fatalities that occurred from natural causes and unintentional injuries. Most (62%) natural child deaths occurred as a result of illness. About one-third (34%) of child deaths from natural causes were related to prematurity. Only one natural death in 2002 occurred as a result of Sudden Infant Death Syndrome (SIDS). White children (72%), males (69%), and children less than one year old (72%) accounted for the majority of deaths from natural causes.

The vast majority (81%) of deaths from unintentional injuries involved motor vehicles (see Table 2). Vehicular deaths occurred primarily among children aged 13-17 years (54%), males (77%), and white children (77%). Other deaths from unintentional injury occurred as a result of suffocation (13%) and drowning (6%).

### **Summary**

This snapshot provides a preliminary examination of the conditions surrounding child fatalities in Knox County in 2002. The Child Fatality Review Team judged that most child fatalities during this year occurred due to natural causes and unintentional injuries. Although it is difficult to draw conclusions from an analysis limited to one year of data, it is clear that many child deaths (such as those due to unintentional injury) are preventable. Future reports will examine child fatality review data over several years so that more meaningful comparisons and recommendations can be made.

### **Judicious Antibiotic Information Available**

Antibiotic resistance rates in Tennessee continue to be among the highest in the nation. Consequently, CDC and the Tennessee Department of Health are still urging providers to be cautious about their use of antibiotics, especially as the cold and flu season approaches. More information on antibiotic resistance can be obtained at the following CDC website:  
<http://www.cdc.gov/drugresistance/community>.

We have included a brochure that can be given to patients or parents in lieu of antibiotics. It offers advice on when to call a health care provider and self-care tips for cold symptoms. If you would like to order more copies of the brochure, please contact Charity Merritt at the Knox County Health Department (865) 215-5098 or [charity.merritt@knoxcounty.org](mailto:charity.merritt@knoxcounty.org)

Providers should also receive a Get Smart Prescription Pad from the Tennessee Department of Health. The prescription pad is actually a checklist for physicians to describe symptomatic relief for the viral illness diagnoses. Additional pads can also be ordered directly from the CDC.

## Child Fatality Number and Percentage Chart

Table 1: Number and Percentage of Deaths by Manner of Death and Age, Race, and Sex, Knox County, TN: 2002

Manner of Death	N	%	Age (All Cases)					Sex		Race					
			(Detail of cases < 1 year)	<1 year	1-5 years	6-12 years	13-17 years	Male	Female	White	Black	Asian	Other		
Natural	29	54.7	8	6	7	21	4	2	20	9	21	6	1	1	
Unintentional Injury	16	30.2	0	0	0	0	4	4	8	13	3	13	2	0	
Homicide	1	1.9	0	0	1	1	0	0	0	1	0	1	0	0	
Suicide	3	5.7	0	0	0	0	0	0	3	2	1	3	0	0	
Suspicious	3	5.7	0	1	1	2	1	0	2	1	2	1	0	0	
Undetermined	1	1.9	0	0	1	1	0	0	0	0	1	1	0	0	
TOTAL	53	100.0	8	7	10	25	9	6	13	38	15	41	9	2	
Percent	100		32.0	28.0	40.0	47.2	17.0	11.3	24.5	71.7	28.3	77.4	17.0	1.9	3.8

Table 2: Detailed Number and Percentage of Deaths from Natural Causes and Unintentional Injury by Age, Race, Sex, Knox County, TN: 2002

Natural Causes	N	%	Age (All Cases)					Sex		Race				
			(Detail of cases < 1 year)	<1 year	1-5 years	6-12 years	13-17 years	Male	Female	White	Black	Asian	Other	
Illness	18	62.1	3	2	5	10	4	2	12	6	13	3	1	1
Prematurity	10	34.5	5	4	1	10	0	0	8	2	7	3	0	0
SIDS	1	3.4	0	0	1	1	0	0	0	1	1	0	0	0
TOTAL	29	100.0	8	6	7	21	4	2	20	9	21	6	1	1
Percent	100		38.1	28.6	33.3	72.4	13.8	6.9	69.0	31.0	72.4	20.7	3.4	3.4

Unintentional Injury	N	%	Age (All Cases)					Sex		Race					
			(Detail of cases < 1 year)	<1 year	1-5 years	6-12 years	13-17 years	Male	Female	White	Black	Asian	Other		
Vehicle	13	81.3	0	0	0	3	3	0	7	10	3	10	1	0	
Drowning	1	6.3	0	0	0	0	1	0	0	1	0	1	0	0	
Suffocation	2	12.5	0	0	0	1	0	0	1	2	0	2	0	0	
TOTAL	16	100.0	0	0	0	4	4	0	8	13	3	13	1	0	
Percent	100		0.0	0.0	0.0	25.0	25.0	0.0	50.0	81.3	18.8	81.3	6.3	0.0	6.3

## **NOROVIRUS OUTBREAK IN A LOCAL RESTAURANT**

On July 19, 2004 the Knox County Health Department (KCHD) was notified that that four people who had eaten lunch at a restaurant in Knoxville on July 15<sup>th</sup> had become ill the following day with nausea, vomiting and diarrhea. A second report was made later the same day of ten people who had become ill with similar symptoms over the weekend after eating at this restaurant on July 15<sup>th</sup> and 16<sup>th</sup>.

We began an investigation by visiting the restaurant to determine if any employees were currently ill or if any had been ill on Thursday or Friday. The week of the outbreak, ten employees had missed work because of reported illness with vomiting and diarrhea. One employee reported that he had returned to work on Monday (7/12) after vacationing in the tropics. His 4-year-old son, who had also been in the tropics, had been ill over the weekend (7/11) with vomiting and diarrhea. The employee reported becoming ill with similar symptoms on Tuesday (7/13) or Wednesday (7/14) evening. No employees were permitted to work while experiencing symptoms.

We also compared food items eaten by individuals who had become ill (cases) and those who had not become ill (controls) to try to identify a particular food item that may have caused illness. We identified 41 people who had eaten at the restaurant between July 13 through July 16 who had become ill with nausea, vomiting, and/or diarrhea roughly 36 hours after eating. However, only 15 people who had eaten with those who later became ill were identified because most of the individuals who reported illness ate in large groups, and the majority of individuals within a group later became ill. As a result, we were unable to conduct a meaningful comparison of food items.

Finally, we collected stool samples from four people who had been ill and submitted them to the state laboratory for analysis. Although these people were no longer ill, it is possible to identify certain viruses up to two weeks after symptoms have stopped. One of these stool samples resulted in a positive test for for norovirus. Other evidence such as symptom history and incubation period (average = 28 hours; see Figure 1) are also consistent with reported norovirus outbreaks.

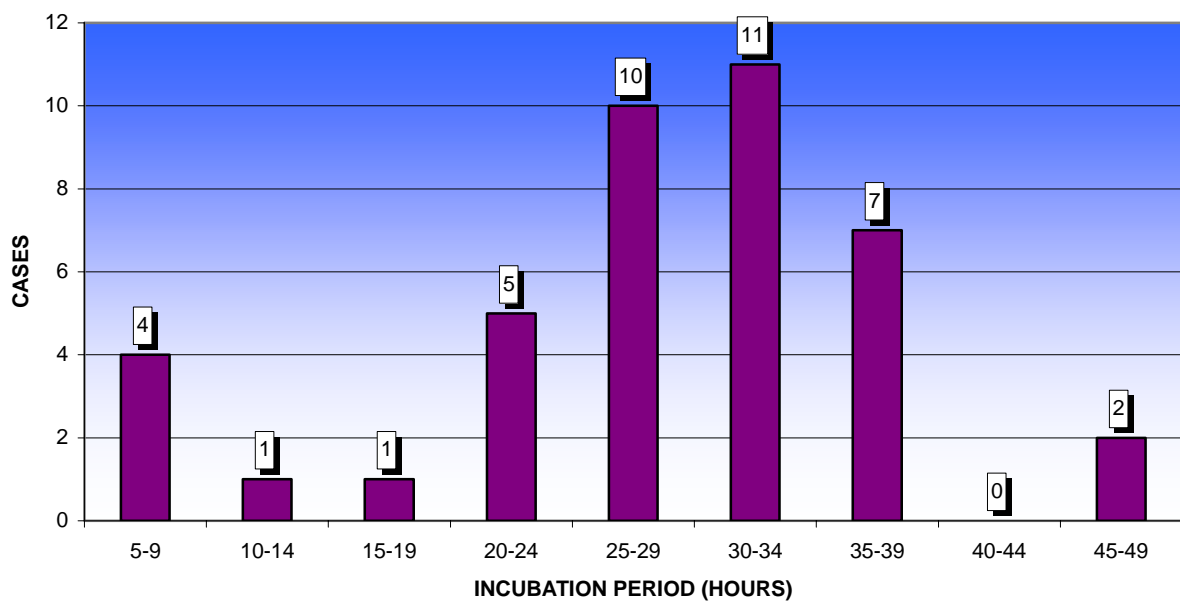
One possibility is that a norovirus was introduced into the restaurant by the employee who vacationed in the tropics with his son. Both became ill with symptoms of diarrhea after returning from vacation the week before the outbreak. Several employees became ill approximately 24 to 48 hours later, including those who reported consuming no food at the restaurant. The norovirus may have been transmitted to those who ate at the restaurant by a variety of routes, including raw foods such as salads, water, person-to-person, or environmental contamination.

Noroviruses are often referred to as “Norwalk-like viruses” and were noted in major news stories a few years ago as the source of several gastroenteritis outbreaks on cruise ships. Though there are several types of noroviruses, they all cause acute gastroenteritis in humans. They are highly contagious and are transmitted primarily through the fecal-oral route, either by consumption of fecally contaminated food or water or by direct person-to-person spread.

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Noroviruses are also quite resilient – they can withstand freezing and temperatures as high as 140 degrees Fahrenheit. However, food safety measures such as correct handling of cold (raw) foods and frequent hand washing may be the best defense against norovirus infection and spread.

**FIGURE 1: INCUBATION PERIOD (HOURS) OF PERSONS WHO BECAME ILL AFTER EATING  
ATA KNOXVILLE RESTAURANT BETWEEN TUESDAY JULY 13 AND FRIDAY JULY 16, 2004  
(N=41)**



# EPI Update

## Selected Diseases Reported by County, East TN January-September, 2004 Year-to-Date

Disease	Campylobacter	Salmonella	Shigella	Hep A	Hep B	DRSP	Pen Sen	Strep VRE	Chlamydia	Syphilis	Gonorrhea	AIDS/HIV	TB
<b>Knox County</b>													
YTD '04	31	52	12	4	4	6	35	16	1083	29	516	22/40	5
YTD '03	47	30	63	8	6	12	20	39	1057	15	480	16/19	7
<b>East Tennessee Region</b>													
Anderson	8	5	0	0	10	0	10	5	117	0	86	0/0	0
Blount	13	11	0	0	2	3	3	29	160	0	45	0/3	5
Campbell	0	3	0	0	4	2	3	7	35	0	4	1/2	0
Claiborne	1	5	0	1	1	0	1	2	24	0	5	1/1	0
Cocke	2	5	1	0	3	2	7	2	70	0	9	0/1	0
Grainger	2	4	0	0	0	0	2	3	12	0	3	0/0	0
Hamblen	1	6	1	2	4	0	1	4	98	0	24	1/1	0
Jefferson	5	5	6	0	2	2	1	6	63	0	6	0/0	1
Loudon	0	5	0	2	2	1	7	4	41	1	12	2/3	3
Monroe	1	3	0	0	0	1	2	2	57	0	20	1/2	0
Morgan	1	0	0	0	6	1	1	1	16	0	3	4/4	0
Roane	0	2	0	0	10	0	3	5	46	0	12	0/3	1
Scott	0	1	0	0	1	0	1	0	17	0	1	0/0	0
Sevier	5	13	0	0	0	2	7	5	93	1	21	3/4	4
Union	2	1	2	0	0	2	2	1	18	0	3	0/0	0
YTD '04	41	69	10	5	45	16	51	76	867	2	254	13/24	14
YTD '03	59	57	27	35	43	8	28	78	891	7	183	18/23	14

# EPI Update

The Knox County Health Department  
and  
East Tennessee Regional Office  
encourages your letters and  
contributions to EPI Update.  
Please send these to:  
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## Animals Tested for Rabies in East TN January-September, 2004



County	Bats	Skunks	Dogs	Cats	Raccoons	Foxes
Anderson	4	0	3	4	3	1
Blount	8	4	7	6	13	2
Campbell	1	0	2	1	1	3
Claiborne	0	1	2	1	0	0
Cocke	0	2	3	1	0	0
Grainger	2	0	4	6	0	0
Hamblen	0	1	1	1	1	0
Jefferson	1	0	1	1	1	0
Knox	17	8	75	56	123	15
Loudon	1	1	4	3	3	2
Monroe	0	0	2	1	2	0
Morgan	0	0	3	0	2	0
Roane	2	0	11	3	2	0
Scott	0	0	1	0	0	0
Sevier	6	2	13	13	10	0
Union	0	0	2	0	0	0
<b>Total</b>	<b>42</b>	<b>19</b>	<b>134</b>	<b>97</b>	<b>161</b>	<b>23</b>

### Positive Rabies Reports

Date	County	Animal	Variant
1/14/2004	Cocke	Skunk	NC Skunk
7/23/2004	Blount	Bat	Bat
8/3/2004	Sevier	Skunk	NC Skunk
8/12/2004	Sevier	Bat	Bat
9/2/2004	Cocke	Skunk	NC Skunk