Kentucky
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Scabies Prevention and Control

Scabies continues to be a problem in nursing homes, hospitals, and childcare settings. Scabies infestations in nursing homes can be a major problem among patients who are debilitated and require extensive hands-on care. A fact sheet (see contents below) and guidelines for scabies control were recently added to the Department for Public Health (DPH) website. These items may be accessed at http://publichealth.state.ky.us. Click on "Diseases or Conditions" and scroll down to "Scabies." Click on the guidelines at the end of the fact sheet. Both can be downloaded, printed, and photocopied.

What is scabies?

Scabies is a communicable condition caused by the burrowing of tiny *Sarcoptes scabiei* mites under the skin to lay eggs. Mites usually burrow into skin folds. Skin folds are generally between the fingers, wrists, elbows, armpits, breasts, waist, buttocks, knees, ankles, toes, and feet.

How is scabies spread?

Mites can be transmitted from an infested person to a susceptible person through direct skin-to-skin contact. It is also possible for mites to be transferred from the underwear, bedclothes, and bedding to another person who touches these items after the infested person has been in contact with them.

Who is at risk for scabies?

Any person exposed to an infested person, especially if there is prolonged, close, personal contact, is at risk, regardless of economic status, ethnic background, or personal hygiene.

What are the symptoms of scabies?

Symptoms include intense itching, skin redness, and, usually, raised skin rash. At night, the itching can be more intense. The rash can resemble eczema, dermatitis, poison ivy/oak, or chickenpox, and can start any place on the body. However, the rash usually does not appear on the face. Itching and rash may take up to 8 weeks to appear when first exposed; the average is 2-6 weeks. With reinfestations, symptoms usually occur within 1 to 4 days. Secondary bacterial infections can occur if there is constant scratching, producing skin abrasions, and allowing bacteria to enter.

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How is scabies diagnosed and treated?

For an accurate diagnosis, skin scrapings must be performed to identify mites and rule out other skin rashes. All household members and close contacts of someone with scabies should also be checked for rashes. Treat anyone who has had skin-to-skin contact with an infested person.

Permethrin 5%, a pesticide, is the drug of choice of most medical professionals for the treatment of scabies. However, lindane, crotamiton, and ivermectin are alternative drugs, which may be used. Scabicidal lotions or creams must be applied to the entire skin surface to be effective. In the elderly, babies, and the immunocompromised, it may be applied to the face, scalp, and behind the ears. Getting the scabicide into the eyes or mouth must be avoided. Fingernails and toenails should be clipped and scabicide applied under the nails. A second and third application may be necessary to be effective. However, itching may persist for 1-2 weeks after treatment due to dry skin and while the body absorbs eggs and fecal pellets left by the mites under the skin.

How can scabies be prevented?

Exclude infested persons from school or work until the day after treatment. Observe contact isolation for hospitalized individuals for 24 hours after treatment. Launder underwear, bedclothes, and bed linens in hot water and dry on the heat cycle of a dryer. Vacuum upholstered furniture, rugs, and other items which have been in close contact with the infested person and cannot be washed. Items that cannot be washed or dry cleaned may be placed inside a plastic bag and sealed for 10 days.

Scabies Prevention and Control

Epidemiologic Variables for Scabies[1,2]

1. Make a line list of room number, age, sex, symptoms, date of onset for:

Symptomatic persons with positive scrapings

Differentiate between conventional and Norwegian (keratotic or crusted) scabies.[1,2,3] (See Definitions of Scabies Infestations, opposite.)

Symptomatic persons with negative scrapings

Asymptomatic contacts of a symptomatic case.

These contacts should be on a totally separate line list. Close contacts are persons who have skin to skin contact, sleep in the same bed, or handle infested clothes and bed linens. Contacts of crusted scabies should be designated High Risk, Low Risk, and No Risk. Contact tracing should go back 2 months.

2. Ascertain the epidemic level: Proportion of affected persons (positive scrapings or symptomatic).[1] This information will determine whether persons in the whole facility, or just one section, are treated.

Determine percentage of affected persons (patients or residents) within the entire facility's population of patients or residents.

Determine percentage of affected employees within the entire facility's employee population.

Determine percentage of affected persons within each subgroup of a population, i.e., nursing home wing, hospital department.

3. Look for similarities or groupings in age and sex among affected persons.[1]

4. Ascertain type and frequency of secondary bacterial infections.[1,5]

5. Determine the mode of transmission, i.e., employees having close personal contact like bathing, bed making, applying skin lotions, frequent lifting/ repositioning of patients.[1,2] or exchanging clothing, sleeping on same linens, playing games involving close hand or skin contact[1,2] or sexual contact.[1,2]

--From Guidelines for Scabies Prevention and Control

Definitions of Scabies Infestations

Conventional scabies: average 10-15 mites at any given time, although only 1-2 mites may be recovered in scrapings (frequently none are observed); occurs in physically healthy persons.[1,2]

Severe scabies: Atypical crusted scabies; usually a total of 3-6 mites and 8-12 eggs observed on 5-7 slides; do not exhibit hyperkeratotic cutaneous response because of decreased cell mediated immunity; some lack pruritus; occurs in nursing home residents and elderly with coexistent chronic disease; moderate to high risk of transmission.[6]

Norwegian scabies: Typical crusted or keratotic; thousands of mites at any given time; multiple live mites, eggs, and scybala (fecal pellets) observed on almost every slide; have hyperkeratotic skin; occurs in debilitated, immunosuppressed, advanced chronic disease and mentally handicapped. Risk of transmission is high from skin and fomite contact. (Exfoliating skin scales harbor enormous numbers of mites which are shed onto linens, furniture, and carpeting.) [1,2,5,7]

Nodular scabies: pruritic nodules, apparently due to hypersensitivity persisting for weeks to a year or longer, despite scabicidal therapy, but eventually clear spontaneously; may regress with use of corticosteroids; surgical excision sometimes indicated if patient concerned and intralesional corticosteroids ineffective.[5]

Pseudoscabies: scrapings always negative; fostered by residual pruritus in effectively treated cases and by conversations between misinformed persons.[1,5]

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Hip Fracture

By Martha Graves, Health Policy Specialist, Health Policy Development Branch

Hip fracture is among the most common musculoskeletal injuries requiring surgical treatment in the United States. Although classified under one ICD9 code (236), a hip fracture can involve fractures of any aspect of the proximal femoral neck (just below the ball part of the ball and socket joint) and from the neck to the first 4-5 centimeters of the subtrochanteric area (outward-jutting upper femur).

Hip fractures account for more hospital days than any other single musculoskeletal injury. They also account for two-thirds of inpatient hospital days due to fracture injuries.[1] Hip fractures make up 30% of all hospitalized patients in the U.S. (includes direct fracture care and the post-fracture sequela).[1] Nearly 20% of hip fracture patients require long-term nursing home care—care which accounts for approximately half of the annual direct cost of hip fractures.[2] At least 60,000 nursing home admissions are attributed to hip fractures each year in the nation.

Hip fracture incidence increases with aging, along with reduction in bone strength. Almost 90% of all hip fractures are directly related to osteoporosis, which is the leading cause of reduced bone strength and is implicated in 70% of all types of fractures in persons aged 45 years and older. Hip fractures not directly related to osteoporsis are attributable to overwhelming trauma or specific local pathology, such as metastatic malignancy,[3] and account for nearly 10% of all hip fractures.

Falls

Falls are the leading cause of injury deaths among persons 65 years and older in the U.S.[7] In 1998, approximately 9600 people over the age of 65 died from fall-related injuries.[3] Of all fall deaths, more than 60% involved people 75 years or older, with fall-related death rates in the age group differing by gender and age—white men having the highest death rate, followed by white women, black men, and black women.[7] For adults 65 years or older, 60% of fatal falls occur at home, 30% happen in public places, and 10% occur in health care institutions.[2]

It has long been suspected that environmental factors have a role in the variation in hip fracture incidence. A study of over 20,000 counties in the U.S. demonstrated that the pattern of varying incidence rates is a complex interaction of many factors. When examining the end macro-analysis, the study demonstrated that hip fracture incidences were greater in urban areas than in rural areas, factors secondary to the lower bone density of urban dwellers. The study showed the age-adjusted incidence of hip fracture was negatively associated with latitude, water hardness, and mean hours of sunlight in January. Incidence was positively associated with poverty levels, proportion of land in farms, and proportion of population with non-fluoridated water.[4]

Kentucky: Hip Fracture and the Elderly

Kentucky hospital data for 2000[5] show there were 820 discharges of elderly hip fracture patients from acute and rehabilitation hospitals. Table 1 shows discharges for individuals 65 and over during that year.

Table 1.
Hip Fractures by Age and Gender/Kentucky 2000

AGE	FEMALE	MALE	TOTAL BY AGE
65-69	41	12	53
70-74	67	23	90
75-79	134	24	158
80-84	160	38	198
85+	276	45	321

Females between the ages of 65 and 85+ accounted for 82.7% of total hip fracture discharges in the age group, while males followed the national trend, making up 17.3% of the total age group.

Hospital Admission Sources: The acute care or rehabilitation hospital emergency room was the chief admission source for hip fracture patients (both males and females in each age cohort). Physician referral was the next greatest source of admission to the hospital.[5]

Average Length of Stay: The average length of stay (ALOS) in an acute care or rehabilitation hospital for all age cohorts was 4.1 days when the admission source was an emergency room. Physician referral admissions had an average length of stay of 5.9 days. The lengthiest stay was registered in the "transfer from a hospital" admission source with an average of 14.8 days.

(Continued on Page 4)

Hip Fracture

(Continued from Page 3)

Discharge Status: Table 2 shows discharges to placement for after-hospital care and the average length of stay for each male and female age cohort discharged (including deaths).[5]

The majority of hip fracture patients aged 75+ (males and females) were placed in skilled nursing facilities. Men and women patients 74 years and under were discharged to home or engaged a home health service. In Kentucky's 65+ female population, the incidence of hip fracture was 2.25 per 1000; in men of the same age group, it was 0.70 per 1000. Even though the rate per 1000 was 1.55 higher for women, the ALOS for women was 6.92 days, compared to 7.62 days for men. Only in the 75 to 79 age cohort did females have a greater average length of stay.

Within one year of a hip fracture, the excess mortality rate in the U.S. is 12% to 37% depending on the specific study.[6] In Kentucky in 2000 a total of 27 females and males in the 65-85+ age range died after sustaining a hip fracture. Not all age cohorts had deaths associated with hip fractures. No deaths were reported in the female 70 to 74 age group or in the male 75 to 79 group.

FEMALE (age groups)	NO.1 PLACEMENT	NUMBER PATIENTS	OTHER PLACEMENTS	TOTAL CASES	DAYS	ALOS	EXPIRED
65-69	Home	17	24	41	257	6.27	2
70-74	Home	23	44	67	414	6.18	0
75-79	SNF	39	95	134	1018	7.60	4
80-84	SNF	49	111	160	1012	6.33	3
85+	SNF	119	157	276	2019	7.32	6
TOTALS		247	431	678	4720	6.96	15
MALE (age groups)	NO.1 PLACEMENT	NUMBER PATIENTS	OTHER PLACEMENTS	TOTAL CASES	DAYS	ALOS	EXPIRED
65-69	Home	6	6	12	89	7.42	1
70-74	HHA	7	16	23	214	9.30	1
75-79	SNF	9	15	24	162	6.75	0
80-84	SNF	11	27	38	250	6.58	4
85+	SNF	16	29	45	367	8.16	6
TOTALS		49	93	142	1082	7.62	12

Table 2.
Hip Fracture Hospitalization and Placement/Kentucky 2000

Independent Risk Factors for Hip Fracture

A 1995 study on risk factors for hip fracture identified 16 independent risk factors for white women[4] (the racial/gender group most affected by hip fracture). Factors affecting those women with a relative risk of 1.5 or greater were:

- —Increased age
- —History of maternal hip fracture
- —Self-rated poor health
- —Previous hyperthyroidism
- —Current use of long-acting benzodiazepines
- —Current use of anticonvulsant drug
- —On feet fewer than 4 hours per day
- —Inability to rise from chair without using arms
- —Poor depth perception
- —Resting pulse rate greater than 80
- —Decreased calcaneal bone density

Factors which seem protective (relative risk significantly less than 1.0) included increase in weight since age 25 and walking for exercise. Some commonly believed risk factors, such as fair hair color, northern European ancestry, and earlier natural menopause, were not significant.[8]

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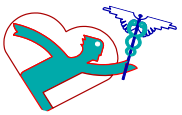
Cases of Selected Reportable Diseases in Kentucky
(YTD Through August for Each Year)

Disease	2002	2001	5 year median
AIDS	190	228	196
Chlamydia	5807	5999	5335
Gonorrhea	2422	2371	2243
Syphilis (Prim. and Sec.)	66	30	66
Group A Streptococcus	13	29	18
Meningococcal Infections	11	19	22
Haemophilus influenzae, invasive	4	2	6
Hepatitis A	40	73	40
Hepatitis B	38	36	36
E. coli O157H7	20	49	26
Salmonella	215	223	245
Shigella	88	379	183
Tuberculosis	95	82	95
Animal Rabies	18	17	18
Motor Vehicle Injury Deaths	601	531	532

Vaccine Preventable	2002-To Date	Total in 2001
Diphtheria	0	0
Measles	0	2
Mumps	4	3
Pertussis	57	96
Polio	0	0
Rubella	0	0
Streptococcus pneumoniae	12	28
Tetanus	0	0



Vector-Borne	2002-To Date	Total in 2001
Rocky Mountain Spotted Fever	3	2
Lyme Disease	13	23
Ehrlichiosis	1	2
Tularemia	1	4
Arboviral Encephalitis	10	0
Malaria	5	14

Head Lice Treatment Recommendations

The Department for Public Health's treatment recommendations for head lice (see fact sheet at http://chs.state.ky.us/publichealth/head_lice.htm) have been updated to include additional brand names of pyrethrins and to note that other medications are available by prescription. The most recent *Medical Letter* reference is April 2002. Recommended medications for treatment of head lice now include:

- The over-the-counter drug of choice, permethrin 1% (e.g., Nix);
- Pyrethrin (Rid, A-200, Barc, Blue Gel, Pronto, Pyrinyl, R & C, Tisit, Triple X), used if there appears to be a treatment failure with permethrin; and
- Other medications available by prescription.

Children & Environmental Health Hazards

Protecting children from environmental toxins is the focus of two training sessions scheduled this fall by the University of Kentucky Cooperative Extension Service. Planned as "train the trainer" workshops, the sessions will provide information and teaching ideas on a number of topics, with an emphasis on lead poisoning, asthma and environmental triggers, poison prevention, pesticide safety, and environmental tobacco smoke.

The sessions are scheduled for October 28-29 at the Clark County Extension office, Winchester, and November 19-20 at Lake Barkley State Resort Park, Cadiz. Agendas and registration forms are available at http://www.ca.uky.edu/enri/ceh.htm. For additional information, contact Kim Henken at 859-257-7775 or khenken@uky.edu.

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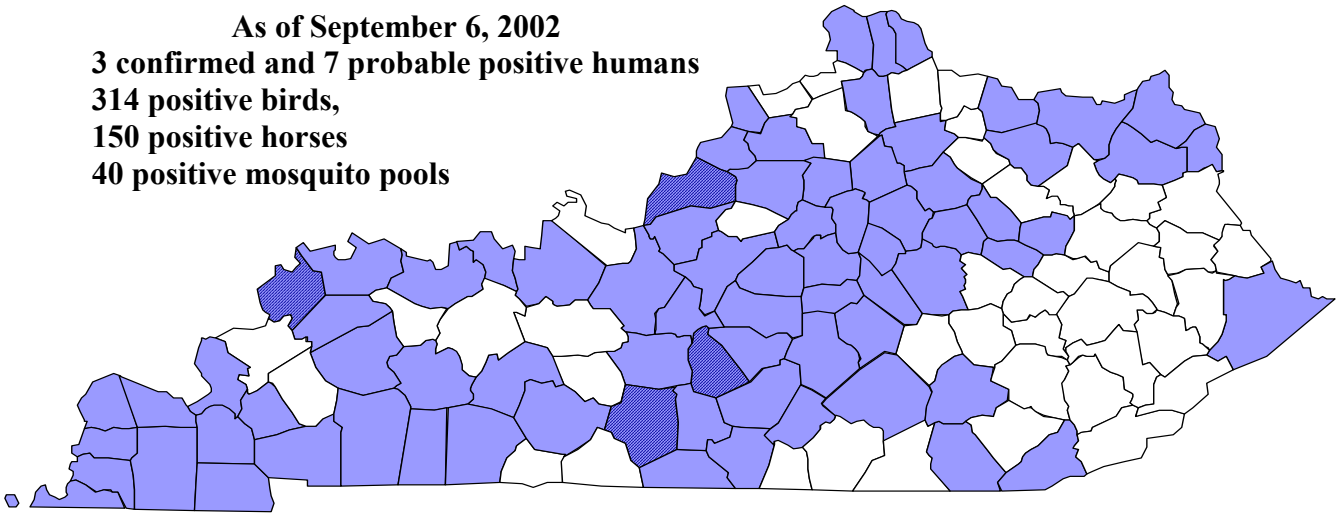
Kentucky Counties with Positive West Nile Virus Activity in 2002

As of September 6, 2002
3 confirmed and 7 probable positive humans
314 positive birds,
150 positive horses
40 positive mosquito pools



Counties with West Nile activity in both humans and animals:
3 confirmed positive humans and 7 probable positive humans in 4 counties

Counties with West Nile virus activity:
Horses: 150 positive horses from 44 counties
Birds: 314 positive birds from 72 counties
Mosquitoes: 40 positive mosquito pools from 8 counties

Centers for Disease Control and Prevention
West Nile Virus (WNV) Infection
Information for Clinicians

Clinical Features

Mild Infection

Most WNV infections are mild and often clinically unapparent.

- Approximately 20% of those infected develop a mild illness (West Nile fever).
- The incubation period is thought to range from 3 to 14 days.
- Symptoms generally last 3 to 6 days.

Reports from earlier outbreaks describe the mild form of WNV infection as a febrile illness of sudden onset often accompanied by

- malaise
- anorexia
- nausea
- vomiting
- eye pain
- headache
- myalgia
- rash
- lymphadenopathy

The full clinical spectrum of West Nile fever has not been determined in the United States.

Severe Infection

Approximately 1 in 150 infections will result in severe neurological disease.

- The most significant risk factor for developing severe neurological disease is advanced age.
- Encephalitis is more commonly reported than meningitis.

In recent outbreaks, symptoms occurring among patients hospitalized with severe disease include

- fever
- weakness
- gastrointestinal symptoms
- change in mental status

- A minority of patients with severe disease developed a maculopapular or morbilliform rash involving the neck, trunk, arms, or legs.
- Several patients experienced severe muscle weakness and flaccid paralysis.
- Neurological presentations included
  - ataxia and extrapyramidal signs
  - cranial nerve abnormalities
  - myelitis
  - optic neuritis
  - polyradiculitis
  - seizures

Although not observed in recent outbreaks, myocarditis, pancreatitis, and fulminant hepatitis have been described.

Clinical Suspicion

Diagnosis of WNV infection is based on a high index of clinical suspicion and obtaining specific laboratory tests.

- WNV, or other arboviral diseases such as St. Louis encephalitis, should be strongly considered in adults ≥50 years who develop unexplained encephalitis or meningitis in summer or early fall.
- The local presence of WNV enzootic activity or other human cases should further raise suspicion.
- Obtaining a recent travel history is also important.

Note: Severe neurological disease due to WNV infection has occurred in patients of all ages. Year-round transmission is possible in some areas. Therefore, WNV should be considered in all persons with unexplained encephalitis and meningitis.

Diagnosis and Reporting

Procedures for submitting diagnostic samples and reporting persons with suspected WNV infection vary among states and jurisdictions. Links to state and local websites are available at:
http://www.cdc.gov/ncidod/dvbid/westnile/city_states.htm

(Over)

Diagnosis and Reporting – *continued*

Diagnostic Testing

WNV testing for patients with encephalitis or meningitis can be obtained through local or state health departments.

- The most efficient diagnostic method is detection of IgM antibody to WNV in serum or cerebral spinal fluid (CSF) collected within 8 days of illness onset using the IgM antibody capture enzyme-linked immunosorbent assay (MAC-ELISA).
- Since IgM antibody does not cross the blood-brain barrier, IgM antibody in CSF strongly suggests central nervous system infection.
- Patients who have been recently vaccinated against or recently infected with related flaviviruses (e.g., yellow fever, Japanese encephalitis, dengue) may have positive WNV MAC-ELISA results.

Reporting Suspected WNV Infection

Refer to local and state health department reporting requirements: **www.cdc.gov/ncidod/dvbid/westnile/city_states.htm**

- WNV encephalitis is on the list of designated nationally notifiable arboviral encephalitides.
- Aseptic meningitis is reportable in some jurisdictions.

The timely identification of persons with acute WNV or other arboviral infection may have significant public health implications and will likely augment the public health response to reduce the risk of additional human infections.

Laboratory Findings

Among patients in recent outbreaks

- Total leukocyte counts in peripheral blood were mostly normal or elevated, with lymphocytopenia and anemia also occurring.
- Hyponatremia was sometimes present, particularly among patients with encephalitis.
- Examination of the cerebrospinal fluid (CSF) showed pleocytosis, usually with a predominance of lymphocytes.
- Protein was universally elevated.
- Glucose was normal.
- Computed tomographic scans of the brain mostly did not show evidence of acute disease, but in about one-third of patients, magnetic resonance imaging showed enhancement of the leptomeninges, the periventricular areas, or both.

Treatment

Treatment is supportive, often involving hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections for patients with severe disease.

- Ribavirin in high doses and interferon alpha-2b were found to have some activity against WNV in vitro, but no controlled studies have been completed on the use of these or other medications, including steroids, antiseizure drugs, or osmotic agents, in the management of WNV encephalitis.

For additional clinical information, please refer to Petersen LR and Marfin AA, "West Nile Virus: A Primer for the Clinician[Review]," Annals of Internal Medicine (August 6) 2002: 137:173-9.

For clinical and laboratory case definitions, see "Epidemic/Epizootic West Nile Virus in the United States: Revised Guidelines for Surveillance, Prevention, and Control, 2001,"at www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm