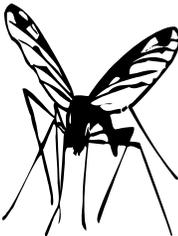


# Epi Monthly Report

Office of Epidemiology and Disease Control



**Current Knowledge, Practices and Attitudes of Miami-Dade Residents about West Nile Virus Disease and its Prevention**  
Leguen, F., Trepka, M.J., Zhang, G., Etienne, M.



West Nile virus (WNV) is an arbovirus that affects many animal species, including humans. In most areas, WNV has a mosquito-bird cycle. Migrating birds are believed to play an important role in transferring the virus over long distances. WNV activity has been identified in 42 states and the District of Columbia, with more than 3000 human cases reported during 2002. Miami-Dade County has a diverse population characterized by a high influx of immigrants from Latin America and the Caribbean, as well as other areas of the world who may not share the same level of knowledge, attitudes, and practices related to the prevention of WNV and other arboviral infections. There are no previous studies describing the level of knowledge, attitudes, and practices related to the prevention of WNV and other arboviral infections among Miami-Dade residents.

**Methods**

In the month of March 2003, Miami-Dade County Health Depart-

ment conducted a survey among 451 Miami-Dade County residents aged 18 years and older.

The survey was conducted by computer-assisted telephone interviewing using Computers for Marketing Corporation's (CfMC) computer-assisted telephone interviewing (CATI) software package.



Households were selected randomly from all telephone-equipped dwelling units in Miami-Dade County.

One eligible respondent was selected at random from each household included in the survey.

A survey instrument with versions in both English and Spanish was used to collect data for this project.

The survey collected data on knowledge, attitudes and practices related to West Nile virus and other arboviruses.

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## Results

Seventy-seven percent of respondents reported having heard about WNV in the past, 40% identified fever as a symptom related to WNV, 21% reported not knowing what the symptoms of WNV are. Mosquitoes were identified as a WNV vector by 77% of Respondents; 20% also associated mosquitoes with HIV transmission.

Fifty-three percent of respondents keep mosquito repellents at home. Fifty-seven percent of those respondents with history of recent travel reported using mosquito repellents during the trip.

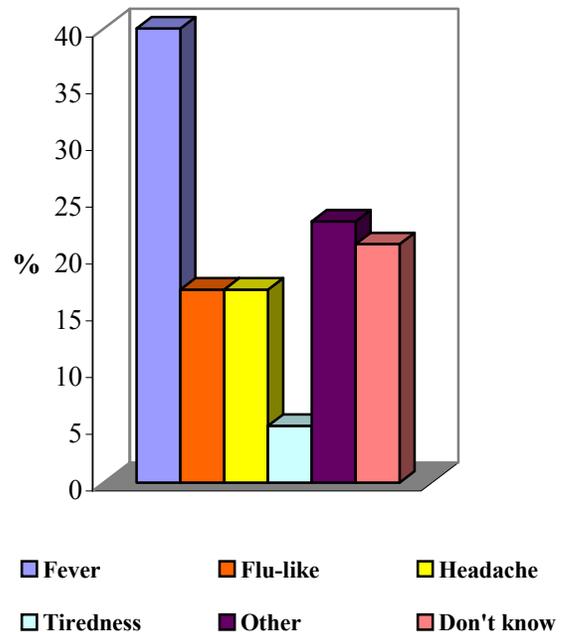
**Table 1. Demographic characteristics of participants, Miami-Dade County residents, 2003**

Characteristics	Number(%)
<b>Age (years)</b>	
18 – 49	54 (58.4)
50 – 64	15 (26.4)
≥ 65	66 (15.2)
Mean age 46.4 years (range 18 to 87)	
<b>Gender</b>	
Female	284 (63.0)
Male	167 (37.0)
<b>Race/Ethnicity</b>	
Non-Hispanic White	137 (30.9)
Non-Hispanic Black	67 (15.1)
Hispanic	222 (50.0)
Other	18(4.0)
<b>Predominant language spoken at home</b>	
English	254 (56.7)
Spanish	164 (36.6)
Creole	7 (1.6)
French	7 (1.6)
Other	16 (3.5)

Fifty-one percent of respondents identified the television as their source of WNV and mosquito-related information. Only 2.7% mentioned health department's documents as their source of information.

Compliance with personal protection against mosquito bites was as follows: 47% of respondents reported use of repellents while outdoors, 8% reported use of screens in doors and windows, 14% use of long-sleeves shirts and long pants while outdoors, and 18% avoidance of outdoor activities after dusk or before dawn. Twenty-two percent of respondents did not think that there was a serious risk of WNV infection in the community, but 37% thought it was as extremely serious. Infants (37%) and persons 50 years of age and older (41%) were identified as those with the highest risk of developing a severe illness due to WNV.

**Figure 1. Identification of symptoms associated with WNV, Miami-Dade County residents, 2003**



**Table 2. Knowledge and Attitudes about West Nile Virus and Other Arboviral Diseases, Miami-Dade County Residents, 2003**

	Number (%)
Ever heard of WNV	348 (77.2)
Ever heard of dengue	274 (60.8)
Ever heard of Saint Louis encephalitis	217 (48.1)
Believes that mosquitoes can transmit WNV	346 (76.7)
Believes that mosquitoes can transmit dengue	249 (55.2)
Believes that mosquitoes can transmit SLE	200 (44.3)
Believes that mosquitoes can transmit malaria	350 (77.6)
Believes that mosquitoes can transmit HIV/AIDS	89 (19.7)
Believes that mosquitoes can transmit hepatitis	100 (22.2)
Believes that WNV infection could be transmitted by	
Birds	171 (37.9)
Dogs	80 (17.7)
Cats	84 (18.6)
Horses	94 (20.8)

**Table 3. Exposure and Protective Measures Against Mosquitoes, Miami-Dade County Residents, 2003**

	Number (%)
Exposed to mosquitoes abroad (during last 12 months)	40 (8.9)
Used repellents during trip [N=40]	23 (57.5)
Have repellents at home	239 (53.0)
Exposed to mosquitoes in workplace [N=380]	38 (10.0)
Employer applies protection against mosquitoes [N=38]	14 (36.8)
Spends $\geq 2$ hours outdoors daily [N=411]	165 (40.1)
Number of mosquito bites last week [N=444]	
None	332(74.8)
1 – 5	89 (20.0)
6 – 10	16 (3.6)
> 10	7 (1.6)



**Table 4. Perception and attitudes about WNV,  
Miami-Dade County residents, 2003**

	Number (%)
<b>Seriousness of WNV risk of infection in the community [N=332]</b>	
Limited or not serious	4 (22.3)
Serious	135 (40.7)
Extremely serious	123 (37.0)
<b>Concern about WNV risk of infection in household members [N=337]</b>	
Limited concern	137 (40.6)
Concerned	97 (28.8)
Extremely concerned	103 (30.6)
<b>Highest risk of becoming severely ill with WNV* [N=422]</b>	
Infants	156 (37.0)
Young children	121 (28.7)
Young adults	57 (13.5)
Persons ≥ 50 years	172 (40.8)
Other	41 (9.7)

\* Some responders chose more than one answer to this question

**Table 5. Perception and Attitudes about WNV and  
other Arboviral Diseases, Miami-Dade County Residents, 2003**

<b>Actions if a family member becomes ill with WNV*</b>		<b>N=324</b>
Go to the emergency department		157 (48.5)
Go to a medical office		107 (33.0)
Call a physician		53 (16.4)
Call local health department		18 (5.6)
Call 911		12 (3.7)
Other		9 (2.8)
<b>Probability that somebody may die due to WNV</b>		<b>N=306</b>
Very likely		86 (28.1)
Somewhat likely		171 (55.9)
Not at all likely		49 (16.0)
<b>Personal actions to prevent WNV infection*</b>		<b>N=352</b>
Use repellents if outdoors		167 (47.4)
Use screens in doors and windows		29 (8.2)
Wear long-sleeve shirts, long pants if outdoors		49 (13.9)
Avoid outdoors activities after dusk or before dawn		62 (17.6)
Other actions		114 (32.4)
Do nothing		13 (3.7)
Don't know what to do		46 (13.1)
Use products to protect family and self from mosquitoes		159 (35.3)
Empties standing water at least once a week [N=298]		164 (55.0)

\* Some responders chose more than one answer to this question



## Conclusion

Miami-Dade County Health Department should implement an educational intervention among its residents to encourage the use of personal protective measures against mosquito bites.

The development of partnerships with local media, especially Miami area TV stations will be of paramount importance to the dissemination of educational information about WNV and other arboviral diseases among Miami-Dade residents.

Miami-Dade County Health Department should identify specific educational needs related to arboviral diseases among communities with a higher risk of exposure to mosquito bites due to travel or cultural issues.

## Acknowledgments

*We would like to show our appreciation to all staff members of the Office of Epidemiology and Disease Control, Miami-Dade County Health Department for their outstanding support and participation on multiples activities related to the implementation of this project and the surveillance and control of arboviral diseases in Miami-Dade County.*



Nearly 215 attendees at the 8th annual state seminar on Epidemiology gathered in Lake Mary June 3-4, 2003 to hear the latest on subjects ranging from maternal child health to strategic planning for public health and to network with old friends and new.

At the opening night poster session and reception, judges perused nearly 35 entries to determine winners for Best Chronic Disease, Best Infectious Disease, Best EIS Officer and Best Health Department presentations.

The Miami-Dade group presentation won for Best Health Department with their entry, ***"Current Knowledge, Practices and Attitudes of Miami-Dade Residents about West Nile Virus and its Prevention."***



### **To report diseases or for information:**

Office of Epidemiology and Disease Control  
Childhood Lead Poisoning (305) 623-3565  
Prevention Program  
Hepatitis (305) 324-2490  
Other diseases and outbreaks (305) 324-2413  
HIV/AIDS Program (305) 324-2459  
STD Program (305) 325-3242  
Tuberculosis Program (305) 324-2470  
Special Immunization Program (305) 376-1976  
**Nights, weekends, and holidays (305) 377-6751**



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## Update: Multistate Outbreak of Monkeypox --- Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003

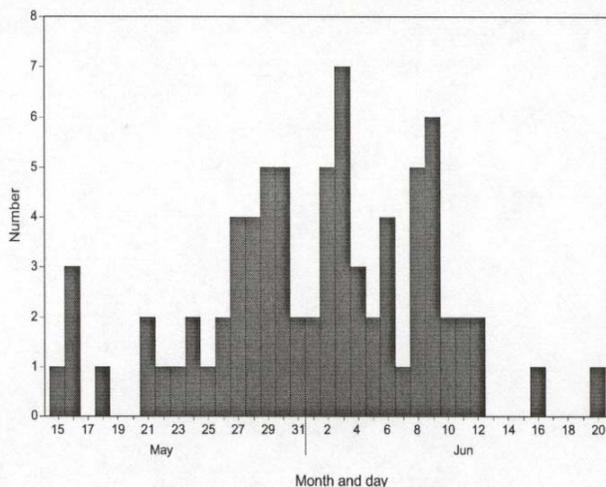
[ The following article was published on MMWR, a weekly publication by CDC (June 27, 2003 /vol. 52 / No. 25). The full article can be downloaded from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5225a4.htm>



CDC and state and local health departments continue to investigate cases of monkeypox among persons who had contact with wild or exotic mammalian pets or persons with monkeypox (1,2). This report updates epidemiologic, laboratory, and smallpox vaccine use data for U.S. cases.

As of June 25, a total of 79 cases of monkeypox had been reported to CDC from Wisconsin (39), Indiana (20), Illinois (16), Missouri (two), Kansas (one), and Ohio (one) (Figure); these include 29 cases laboratory-confirmed at CDC and 51 cases under investigation by state and local health departments (Table).

**FIGURE.** Number\* of persons with monkeypox, by date of first symptom onset — Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, May 15–June 20, 2003



\* N = 77. Includes laboratory-confirmed cases and cases under investigation. Dates of illness onset were not available for two patients.

**TABLE.** Number\* and percentage of laboratory-confirmed monkeypox cases, by selected characteristics — United States, 2003

Characteristic	No.	(%)
<b>State</b>		
Illinois	6	(21)
Indiana	7	(24)
Kansas	1	(3)
Missouri	1	(3)
Wisconsin	14	(48)
<b>Possible sources of monkeypox exposure</b>		
Prairie dog(s)	11	(38)
Prairie dog(s) and human case(s)	13	(45)
Premises with prairie dogs	5	(17)
<b>Age (yrs)</b>		
6–18	9	(31)
19–48	20	(69)
<b>Sex</b>		
Female	14	(48)
Male	15	(52)
<b>Clinical features</b>		
Rash	29	(100)
Fever	26	(90)
Respiratory symptoms†	23	(79)
Lymphadenopathy	21	(72)
<b>Hospitalized</b>		
	15	(52)
<b>Previous smallpox vaccination§</b>		
	7	(35)

\* N = 29.

† Includes one or more of the following symptoms: cough, sore throat, shortness of breath, and nasal congestion.

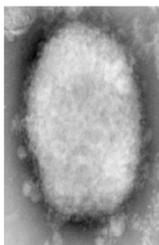
§ Information was available for 20 (69%) of the laboratory-confirmed cases.



A total of 19 cases were excluded from those reported in the previous update because they met the exclusion criteria outlined in the updated case definition (2), and 11 were added. Of the 79 cases, 37 (47%) were among males; the median age was 28 years (range: 1--51 years). Age data were unavailable for two patients. Among 75 patients for whom data were available, 19 (25%) were hospitalized. Two patients have had a serious clinical illness. The first patient was a child with a previously reported laboratory-confirmed case of severe monkeypox-associated encephalitis (1,2); the child subsequently improved and was discharged after requiring hospitalization for 14 days.



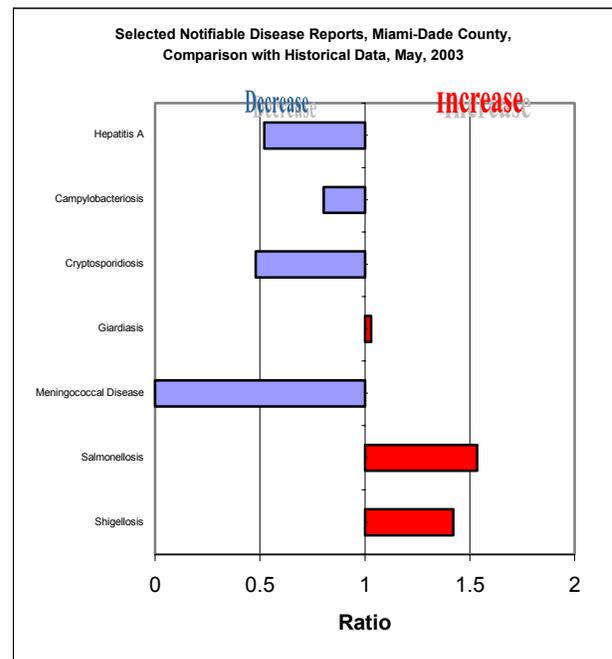
A second child, who was exposed to three ill prairie dogs, was hospitalized with profound painful cervical and tonsillar adenopathy and diffuse pox lesions, including lesions in the oropharynx. Although the child had difficulty breathing and swallowing, mechanical ventilation was not required. The adenopathy peaked 5 days after rash onset and 7 days after onset of initial prodromal symptoms of general malaise, myalgia, and fever. Preliminary testing of skin rash lesions was positive for orthopox virus; confirmatory testing for monkeypox virus is pending at CDC.



Of the 79 reported cases, 29 (37%) have been laboratory confirmed at CDC for monkeypox by detection of virus in skin rash lesions by using culture, polymerase chain reaction (PCR), immunohistochemical testing, and/or electron microscopy.

One patient had monkeypox virus detected by PCR and culture in throat and nasopharyngeal swabs obtained when the patient was ill with prodromal symptoms and a macular rash. In addition, an IgM response to orthopox viral antigen

was detected in an acute serum sample. For these laboratory-confirmed cases, dates of illness onset ranged from May 16 to June 11. All confirmed patients reported a rash and at least one other clinical sign or symptom, including fever, respiratory symptoms, and/or lymphadenopathy. The median incubation period (i.e., first exposure date to illness onset date) was 12 days (range: 2--26 days). The majority of confirmed patients reported exposure to wild or exotic mammals, including prairie dogs; some patients also had contact with other persons with monkeypox virus infection in a household setting. No cases of monkeypox that could be attributed exclusively to person-to-person contact have been confirmed.



\*Ratio of current month total to mean of 15 month totals (from previous, comparable, and subsequent month periods for the past 5 years).



[ The following article was published on MMWR, a weekly publication by CDC (June 20, 2003 /vol. 52 / No. 24). The full article can be downloaded from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5224a1.htm>

**BOX. Updated interim case definition for human cases of monkeypox, June 17, 2003**

**Clinical Criteria**

- Rash (macular, papular, vesicular, or pustular; generalized or localized; discrete or confluent)
- Fever (subjective or measured temperature  $\geq 99.3^{\circ}$  F [ $\geq 37.4^{\circ}$  C])
- Other signs and symptoms:
  - Chills and/or sweats
  - Headache
  - Backache
  - Lymphadenopathy
  - Sore throat
  - Cough
  - Shortness of breath

**Epidemiologic Criteria**

- Exposure\* to an exotic or wild mammalian pet† obtained on or after April 15, 2003, with clinical signs of illness (e.g., conjunctivitis, respiratory symptoms, and/or rash)  
or
- Exposure to an exotic or wild mammalian pet with or without clinical signs of illness that has been in contact with either a mammalian pet§ or a human with monkeypox  
or
- Exposure¶ to a suspect, probable, or confirmed human case

**Laboratory Criteria**

- Isolation of monkeypox virus in culture
- Demonstration of monkeypox virus DNA by polymerase chain reaction testing in a clinical specimen
- Demonstration of virus morphologically consistent with an orthopoxvirus by electron microscopy in the absence of exposure to another orthopoxvirus
- Demonstration of presence of orthopoxvirus in tissue using immunohistochemical testing methods in the absence of exposure to another orthopoxvirus

**Case Classification**

- Suspect case
  - Meets one of the epidemiologic criteria and
  - Fever or unexplained rash and two or more other signs or symptoms with onset of first sign or symptom  $\leq 21$  days after last exposure meeting epidemiologic criteria
- Probable case
  - Meets one of the epidemiologic criteria and
  - Fever and vesicular-pustular rash with onset of first sign or symptom  $\leq 21$  days after last exposure meeting epidemiologic criteria
- Confirmed case
  - Meets one of the laboratory criteria

**Exclusion Criteria**

- A case may be excluded as a suspect or probable monkeypox case if:
- An alternative diagnosis can fully explain the illness\*\*  
or
  - The case was reported on the basis of contact with an ill wild or exotic mammalian pet that was subsequently determined not to have monkeypox (e.g., another etiology fully explains the illness) provided other possible epidemiologic exposure criteria are not present  
or
  - The case was reported on the basis of contact with wild or exotic mammalian pet with or without signs of illness that had been in contact with an ill animal or person that was determined subsequently not to have monkeypox provided other possible epidemiologic exposure criteria are not present  
or
  - The case was reported on the basis of contact with a person who was subsequently determined not to have monkeypox provided other possible epidemiologic exposure criteria are not present  
or
  - A suspect case without a rash does not develop a rash within 6 days of initial identification or examination of the case

\* Includes living in a household, petting or handling, or visiting a pet holding facility (e.g., pet store, veterinary clinic, or pet distributor).

† Includes prairie dogs, Gambian giant rats, and rope squirrels. Exposure to other exotic or nonexotic mammalian pets will be considered on a case-by-case basis; assessment should include the likelihood of contact with a mammal with monkeypox and the compatibility of clinical illness with monkeypox.

§ Includes living in a household or originating from the same pet holding facility as another animal with monkeypox.

¶ Includes skin-to-skin or face-to-face contact.

\*\* Factors that might be considered in assigning alternate diagnoses include the strength of the epidemiologic exposure criteria for monkeypox, the specificity of the diagnostic test, and the compatibility of the clinical presentation and course of illness for the alternative diagnosis.



## Monthly Report

### Selected Reportable Diseases/Conditions in Miami-Dade County, May 2003

Diseases/Conditions	2003 this Month	2003 Year to Date	2002 Year to Date	2001 Year to Date	2000 Year to Date	1999 Year to Date
AIDS <sup>Provisional</sup>	92	476	492	599	602	653
Campylobacteriosis	12	49	39	39	36	33
Chancroid	0	0	0	0	0	0
<i>Chlamydia trachomatis</i>	304	1554	1875	1448	1323	1851
Ciguatera Poisoning	0	0	0	0	0	0
Cryptosporidiosis	1	5	3	7	1	5
Cyclosporiasis	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0
<i>E. coli</i> , O157:H7	0	0	0	0	0	0
<i>E. coli</i> , Other	0	0	1	0	0	0
Encephalitis	0	0	1	0	0	0
Giardiasis, Acute	21	61	71	93	12	31
Gonorrhea	157	711	857	717	882	1229
Granuloma Inguinale	0	0	0	0	0	0
<i>Haemophilus influenzae</i> B (invasive)	0	3	0	2	1	0
Hepatitis A	6	16	55	58	30	27
Hepatitis B	2	16	11	21	32	16
HIV <sup>Provisional</sup>	143	688	755	594	608	565
Lead Poisoning	29	81	96	78	168	95
Legionnaire's Disease	0	0	0	0	0	0
Leptospirosis	0	0	0	0	0	0
Lyme disease	1	1	0	1	3	0
Lymphogranuloma Venereum	0	0	0	0	0	0
Malaria	0	5	5	10	3	11
Measles	0	0	0	0	0	0
Meningitis (except aseptic)	1	3	5	2	9	6
Meningococcal Disease	0	3	8	9	11	5
Mumps	0	0	0	0	1	2
Pertussis	1	1	1	1	3	7
Polio	0	0	0	0	0	0
Rabies, Animal	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Salmonellosis	44	152	96	67	47	65
Shigellosis	31	132	77	33	38	43
<i>Streptococcus pneumoniae</i> , Drug Resistant	2	44	60	71	81	52
Syphilis, Infectious	20	81	77	78	60	29
Syphilis, Other	74	448	448	240	353	384
Tetanus	0	0	0	1	0	0
Toxoplasmosis	1	4	10	6	0	0
Tuberculosis <sup>Provisional</sup>	N/A	N/A	93	57	105	97

\* Data on AIDS are provisional at the county level and are subject to edit checks by state and federal agencies.

\*\* Data on tuberculosis are provisional at the county level.

