

**Working Papers
Project on the Public and Biological Security
Harvard School of Public Health**

6.

WEST NILE VIRUS

**Robert J. Blendon, Harvard School of Public Health, Project Director
John M. Benson, Harvard School of Public Health
Catherine M. DesRoches, Harvard School of Public Health
Melissa J. Herrmann, ICR/International Communications Research
Elizabeth Mackie, Harvard School of Public Health
Kathleen J. Weldon, Harvard School of Public Health**

January 13, 2003

Many Americans in High-Mosquito Areas Think Their Family Likely to Get West Nile Virus Within Next 12 Months

Strong Public Support for Spraying Against Mosquitoes

For immediate release: Monday, January 13, 2003

BOSTON, MA — A new study by Harvard School of Public Health researchers suggests that a substantial number of people in high-mosquito areas of the United States will feel threatened by the West Nile virus next summer. The opening study of the Project on Biological Security and the Public finds that one-third (33%) of Americans who live in areas where there are a lot of mosquitoes think they or a family member is very (9%) or somewhat (24%) likely to get sick from the virus in the next 12 months. In addition, 32% of dog owners in high-mosquito areas are concerned that their dog might get the West Nile virus.

In those high-mosquito areas where there has been special spraying against mosquitoes to prevent the spread of the West Nile virus, nine in ten (91%) approve of the spraying. Nationwide, three-fourths (77%) of Americans said they would favor special spraying to prevent the spread of West Nile if it appeared in their area.

"The public has become sufficiently concerned about the West Nile virus that they are willing to take some risk on mosquito spraying, a controversial issue in many areas," said Robert J. Blendon, professor of Health Policy and Political Analysis at the Harvard School of Public Health. Some groups have protested against spraying, arguing that it aggravates respiratory problems and can cause environmental damage.

The findings were based on interviews with 1,001 Americans nationwide, including 516 who said there are a lot of mosquitoes where they live. Some 3,955 human cases of illness from West Nile have been reported, resulting in 252 deaths (as of January 8, 2003).

Precautions against Mosquito Bites

In high-mosquito areas, more than four in ten respondents (43%) report not having taken any precautions against mosquito bites during the past summer. Given the number of cases of West Nile, a virus that is mainly transmitted by mosquito bites, this finding raises an important public health concern.

The Centers for Disease Control and Prevention (CDC) recommend using mosquito repellent containing DEET, but only 43% of Americans living in high-mosquito areas say they used such a repellent (including the brands Off and Cutter) during the past summer. Three in ten (30%) used a mosquito repellent containing citronella, and 13% report using some other kind of mosquito repellent.

Fewer than half of Americans living in high-mosquito areas report that they took each of four other specific CDC-recommended precautions during the past summer. Four in ten (41%) report having removed standing water from spare tires, gutters, bird baths, kiddie pools, and other places where water collects. About one-third say they avoided going outdoors at the peak mosquito hours of dawn and dusk (32%) or wore long-sleeve shirts and other protective clothing outdoors (30%) during the past summer. One in five (20%) report having replaced or repaired window screens.

Much smaller numbers report having taken other precautions, such as using a “bug zapper” in their yard (7%) or buying mosquito netting (4%). Neither precaution has been recommended by the CDC.

The researchers could not conclude from the study results whether or not these precautions were taken specifically to protect against getting the West Nile virus. In high-mosquito areas, it is difficult to separate general precautions against mosquitoes from those aimed at dealing with a specific mosquito-borne threat. Many people living in high-mosquito areas, in order to prevent the annoyance of mosquito bites and probably aware of other dangers such as encephalitis, would take precautions in any case.

Not surprisingly, far fewer residents of areas where there are not very many mosquitoes took precautions against bites (33%, compared with 57% in high-mosquito areas). No more than one in five took any of the individual precautions, including using mosquito repellants that contain DEET (19%).

(For information about preventive measures, go to the CDC web site)<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>www.cdc.gov/ncidod/dvbid/westnile/index.htm

Public Knowledge and Beliefs about the West Nile Virus

Most residents of high-mosquito areas (83%) believe that recent cases of West Nile virus have happened naturally, rather than as the result of a terrorist attack (10%). Among all adults nationwide, three-fourths (78%) believe they have occurred naturally, while 12% think they are the result of bioterrorism.

The vast majority of residents of high-mosquito areas is aware that you can contract the West Nile virus from mosquito bites (96%). Of interest after media reports about cases where the West Nile virus was transmitted by blood transfusions and organ transplants, majorities of high-mosquito area residents know that the virus can be transmitted in these ways: 77% by blood transfusions, 62% by organ transplants.

However, half of high-mosquito area residents mistakenly believe that people can contract West Nile from contact with dead birds (54%) and drinking infected water (52%).

Only about one in 10 residents of high-mosquito areas believe, mistakenly, that you can contract the virus from shaking hands with (10%) or being in the same room (8%) as someone who has an active case of West Nile.

Only one in three residents of high-mosquito areas know that there is not an effective treatment for people who have contracted West Nile. About one-third overestimate how many people who get sick from the West Nile virus die: 19% believe one in four die and 14% think one-half do. According to CDC figures for 2002, 6% of those who got sick from the virus died.

Talking with Health Professionals, the Health Department, and Veterinarians

Only 6% of Americans who live in high-mosquito areas report having talked with their doctor or other health professional about the prevention or treatment of the West Nile virus during the past 12 months. During the same period, 3% have called their state or local health department or other government agency about preventing the spread of the virus. While these percentages are currently quite small, they could represent a serious strain on the health care and public health system in areas where cases are actually reported.

In high-mosquito areas, 13% of dog, cat, and horse owners report that they or someone in their household has at some time (not just in the past 12 months) talked with a veterinarian about how to protect their animal against West Nile virus. One-third of dog owners (32%) and 19% of cat owners say they are concerned that their animal might get West Nile virus.

This study was designed and analyzed by researchers at the Harvard School of Public Health. The project director is Robert J. Blendon of the Harvard School of Public Health. The research team also includes John M. Benson, Catherine M. DesRoches, Elizabeth Mackie, and Kathleen Weldon of the Harvard School of Public Health and Melissa J. Herrmann of ICR/International Communications Research. Fieldwork was conducted via telephone for the Project by ICR/International Communications Research of Media (PA) between November 8 and November 12, 2002. The project was funded through the federally-supported Center for Public Health Preparedness at HSPH.

Precautions Against Mosquito Bites

Residents of High Mosquito Areas (Past Summer)

Took precautions to avoid mosquito bites, past summer



Removed standing water



Avoided going out at peak hours, dawn/dusk



Wore long-sleeved shirts/other protective clothing outdoors



Replaced/repared window screens



Bought mosquito netting



Didn't take precautions



Harvard School of Public Health, West Nile Virus Survey, November 2002.

Use of Mosquito Repellants

Residents of High Mosquito Areas (Past Summer)

Off, Cutter or other mosquito repellent containing DEET



Skin-So-Soft or other mosquito repellent containing citronella



"Bug-zapper" in your yard



Some other kind



Table 1

Likelihood of and concern about getting sick from West Nile Virus			
		Live in areas with a lot of mosquitoes (self-described)	
	Total Public	Yes (n=516)	No (n=485)
Very/somewhat likely you /someone in family will get sick from West Nile virus in next 12 months	23%	33%*	13%
Concerned you/someone in family may get sick from West Nile virus in next 12 months	32%	38%*	24%
(If household has dog) Concerned that dog might get West Nile virus	25%	32%*	15%

Table 2

Spraying against mosquitoes			
		Live in areas with a lot of mosquitoes (self-described)	
	Total Public	Yes (n=516)	No (n=485)
Approve of spraying (whether area has been sprayed or not)	77%	81%*	72%
Has been special spraying in your area to prevent spread of West Nile virus	27%	36%*	18%
(If spraying in area) Approve of spraying	91%	91%	90%

Table 3

Precautions against mosquito bites			
		Live in areas with a lot of mosquitoes (self-described)	
	Total Public	Yes (n=516)	No (n=485)
Took precautions to avoid mosquito bites, past summer:			
Yes	45%	57%*	33%
No	54%	43%	66%*
Did the following things to avoid mosquito bites, past summer:			
Removed standing water from spare tires, gutters, bird baths, kiddie pools, other places water collects	31%	41%*	21%
Wore long-sleeve shirts/other protective clothing outdoors	24%	30%*	18%
Avoided going outdoors at peak hours, dawn/dusk	24%	32%*	15%
Replaced or repaired window screens	16%	20%*	12%
Bought mosquito netting	4%	4%	4%
Used following types of mosquito repellants, past summer:			
Off, Cutter, or other mosquito repellant containing DEET	31%	43%*	19%
Skin-So-Soft or other mosquito repellant containing citronella	21%	30%*	12%
“Bug-zapper” in your yard	7%	7%	6%
Some other kind	10%	13%*	7%

Table 4

Public knowledge and beliefs about West Nile			
		Live in areas with a lot of mosquitoes (self-described)	
	Total Public	Yes (n=516)	No (n=485)
Recent cases of West Nile:			
Happened naturally	78%	83%*	73%
Result of terrorist attack	12%	10%	14%
Think you can contact West Nile virus by:			
Mosquito bites	92%	96%*	88%
Blood transfusions	72%	77%*	69%
Organ transplants	56%	62%*	50%
Contact with dead birds	53%	54%	53%
Drinking infected water	50%	52%	48%
Being in the same room with someone with an active case of West Nile	12%	8%	16%*
Shaking hands with someone with an active case of West Nile	11%	10%	13%
Of people who get sick from West Nile virus, how many die?			
Almost none	14%	15%	13%
About one in ten	45%	46%	44%
About one in four	18%	19%	17%
More than half	14%	14%	15%
DK/Refused	8%	6%	11%
Is there an effective treatment for people who have contracted West Nile?			
Yes	47%	47%	46%
No	29%	33%*	25%
DK/Refused	24%	21%	28%*

Table 5

Talking with health professional, the health department, and veterinarians			
		Live in areas with a lot of mosquitoes (self-described)	
	Total Public	Yes (n=516)	No (n=485)
Talked with your doctor/other health professional about prevention or treatment of West Nile virus, past 12 months	4%	6%*	2%
Called state/local health department or other government agency to get information about preventing spread of West Nile virus, past 12 months	3%	3%	2%
(If household has cat, dog or horse) You/someone in household talked with vet about how to protect this animal against West Nile virus	11%	13%*	7%
(If household has dog) Concerned that dog might get West Nile virus	25%	32%*	15%
(If household has cat) Concerned that cat might get West Nile virus	15%	19%*	9%

**Project on Biological Security and the Public
Harvard School of Public Health**

WEST NILE VIRUS SURVEY

**November 8-12, 2002
N=1001 adults nationwide**

Research Team:

**Robert J. Blendon, Harvard School of Public Health, Project Director
John M. Benson, Harvard School of Public Health
Catherine M. DesRoches, Harvard School of Public Health
Melissa J. Herrmann, ICR/International Communications Research
Elizabeth Mackie, Harvard School of Public Health
Kathleen J. Weldon, Harvard School of Public Health**

Contact:

Robert J. Blendon, 617-432-4502



I N T E R N A T I O N A L C O M M U N I C A T I O N S R E S E A R C H

WEST NILE SURVEY
Harvard School of Public Health
 Topline Results

The West Nile Virus *Excel* insert was conducted by telephone November 8-12, 2002 among a nationally representative sample of 1001 adults, age 18 and older. Field work completed by ICR/International Communications Research of Media, Pa.

A. LEVEL OF CONCERN

Asked of one-half of total respondents; N=500

WN-1. I'm going to read you a list of things and ask you how likely it is that each of them will happen to you or someone in your immediate family **DURING THE NEXT 12 MONTHS**. First, (READ FIRST ITEM)? Do you think that it is very likely to happen to you or someone in your immediate family, somewhat likely, not very likely, or not at all likely? How about (READ NEXT ITEM)?

a. Getting the flu

	LIKELY			NOT LIKELY			Don't know	Refused
	Net	Very	Somewhat	Net	Not very	Not at all		
11/12/02	77	30	47	22	13	8	1	--
10/28/01*	73	32	41	25	18	8	1	--
12/3/01**	69	28	41	30	17	13	1	--

*Trend HSPH/RWJF National Bioterrorism Study #1, n=1015

**Trend HSPH/RWJF National Bioterrorism Study #2, n=1009

b. Contracting anthrax

	LIKELY			NOT LIKELY			Don't know	Refused
	Net	Very	Somewhat	Net	Not very	Not at all		
11/12/02	10	4	6	85	34	52	5	*
10/28/01*	14	4	10	82	43	39	4	--
12/3/01**	9	3	6	88	34	54	3	--

*Trend HSPH/RWJF National Bioterrorism Study #1, n=1015

**Trend HSPH/RWJF National Bioterrorism Study #2, n=1009

c. Contracting smallpox

	LIKELY			NOT LIKELY			Don't know	Refused
	Net	Very	Somewhat	Net	Not very	Not at all		
11/12/02	8	1	7	89	34	56	2	*
10/28/01*	9	3	6	88	38	50	3	--
12/3/01**	8	2	6	89	27	62	2	--

*Trend HSPH/RWJF National Bioterrorism Study #1, n=1015

**Trend HSPH/RWJF National Bioterrorism Study #2, n=1009

d. Getting sick from the West Nile virus

	LIKELY			NOT LIKELY			Don't know	Refused
	Net	Very	Somewhat	Net	Not very	Not at all		
11/12/02	23	6	17	73	39	33	5	*

WEST NILE INTRO: Now I'm going to ask you some questions about the West Nile virus, which can cause West Nile Fever and other complications.

Asked of one half of total respondents; N=501

WN-2. Are you concerned that you or someone in your immediate family may get sick from the West Nile virus DURING THE NEXT 12 MONTHS, or aren't you concerned about that?

	Yes, concerned	No, not concerned	Don't know	Refused
11/12/02	32	65	3	--

Asked of those concerned; N=148

WN-2a. How concerned are you? Are you very concerned, somewhat concerned, or not very concerned?

One half of total respondents; N=501

Q2/2a West Nile Concern Combination Table

	CONCERNED OF WEST NILE				Not Concerned of West Nile	Don't know	Refused
	Net	Very	Somewhat	Not very			
11/12/02	32	11	18	2	65	3	--

B. KNOWLEDGE AND BELIEFS ABOUT WEST NILE

WN-3. I'm going to read you a list of some ways people can get a disease. As I read each one, please tell me whether or not you think you can contract the West Nile virus that way. (INTERVIEWER, IF R SEEMS HESITANT OR UNSURE, ASK: If you don't know, just tell me.) First (READ FIRST ITEM). To the best of your knowledge, can you contract the West Nile virus that way, or not? How about (READ NEXT ITEM)?

a. Mosquito bites

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	92	6	3	*

b. Blood transfusions

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	72	18	9	*

c. Organ transplants

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	56	30	14	--

d. Being in the same room with someone who has an active case of the West Nile virus

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	12	77	11	--

e. Drinking infected water

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	50	39	12	--

f. Contact with dead birds

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	53	34	13	*

g. Shaking hands with someone who has an active case of the West Nile virus

	Yes, can contract West Nile virus that way	No, cannot contract West Nile virus that way	Don't know	Refused
11/12/02	11	80	9	*

WN-4. Of people who get sick from the West Nile virus, about how many do you think die from the disease?

	Almost None	About 1 in 10	About 1 in 4	More than half	Don't know	Refused
11/12/02	14	45	18	14	8	*

WN-5. To the best of your knowledge, is there an effective treatment for people who have contracted the West Nile virus, or doesn't such a treatment exist?

	Yes, there is an effective treatment	No, such a treatment doesn't exist	Don't know	Refused
11/12/02	47	29	24	*

WN-6. Do you believe that recent cases of the West Nile virus in the United States (are the result of terrorist attacks, or do you think they have happened naturally)/(have happened naturally, or do you think they are the result of terrorist attacks)?

	Result of terrorist attacks	Have happened naturally	Don't know	Refused
11/12/02	12	78	10	*

C. PRECAUTIONS

WN-7. Where you live, are there a lot of mosquitoes around during the summer, or aren't there very many mosquitoes?

	A lot of mosquitoes	Not very many mosquitoes	Don't know	Refused
11/12/02	52	46	2	*

WN-8. During the past summer, did you take any precautions to avoid getting mosquito bites, or not?

	Yes, took precautions	No, did not take precautions	Don't know	Refused
11/12/02	45	54	1	*

WN-9. During the past summer, did you do any of the following things to avoid getting mosquito bites? Did you (INSERT ITEM)?

a. Wear long-sleeved shirts or other protective clothing outdoors

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	24	21	--	*	55

b. Replace or repair window screens

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	16	29	*	--	55

c. Avoid going outside during the peak mosquito hours of dawn or dusk

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	24	21	*	*	55

d. Remove standing water from spare tires, gutters, bird baths, kiddie pools, or other places where water collects

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	31	14	*	--	55

e. Buy mosquito netting

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	4	41	--	--	55

f. Avoid activities or areas that would bring you in contact with mosquitoes

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	25	20	*	--	55

WN-10. During the past summer, did you use any of the following types of mosquito repellants? How about (READ ITEM)?

a. A "bug zapper" in your yard

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	7	38	--	*	55

b. Off, Cutter, or some other mosquito repellant containing DEET

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	31	13	1	*	55

c. Skin-So-soft or some other mosquito repellant containing citronella

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	21	23	1	*	55

d. Some other kind of mosquito repellant

	Yes	No	Don't know	Refused	Didn't take precautions
11/12/02	10	34	*	*	55

WN-11. In the area where you live, has there been any special spraying against mosquitoes to prevent the spread of the West Nile virus, or hasn't there been any special spraying in your area?

	Spraying	No Spraying	Don't know	Refused
11/12/02	27	66	7	*

Asked of those who have had special spraying; N=277

WN-12. Do you approve or disapprove of this spraying?

	Approve	Disapprove	Don't know	Refused
11/12/02	91	5	5	--

Asked of those who have not had special spraying; N=724

WN-13. If such special spraying to prevent the spread of West Nile happened in your area, would you approve or disapprove?

	Approve	Disapprove	Don't know	Refused
11/12/02	71	20	9	*

WN-11/12/13 Mosquito Spraying Combination Table

	Approve of Spraying	Disapprove of Spraying	Don't know/Refused
11/12/02	77	15	8

D. GETTING INFORMATION ABOUT WEST NILE

WN-14. During the past 12 months, have you seen or read any information in the media about precautions to take to avoid getting the West Nile virus, or haven't you seen or read such information?

	Seen or Read Information	Have not seen or Read Information	Don't know	Refused
11/12/02	67	32	1	*

WN-15. During the past 12 months, have you talked with a doctor or other health professional about the prevention or treatment of the West Nile virus, or not?

	Have Talked	Have Not Talked	Don't know	Refused
11/12/02	4	95	*	*

WN-16. During the past 12 months, have you called your state or local health department or some other government agency to get information about preventing the spread of the West Nile virus, or not?

	Have Called	Have Not Called	Don't know	Refused
--	-------------	-----------------	------------	---------

11/12/02	3	96	*	*
----------	---	----	---	---

WN-17. Do you or anyone in your household own (INSERT ITEM)?

a. A cat

	Yes, own	No, do not own	Don't know	Refused
11/12/02	35	65	*	--

b. A dog

	Yes, own	No, do not own	Don't know	Refused
11/12/02	44	56	*	--

c. A horse

	Yes, own	No, do not own	Don't know	Refused
11/12/02	3	97	*	--

Asked of those who own a Cat/Dog/Horse

WN-18. Are you concerned that your (INSERT Q.WN-17 MENTION[S]) might get the West Nile virus, or aren't you concerned about that?

a. Cat (N=350)

	Yes, Concerned	No, Not Concerned	Don't know	Refused
11/12/02	15	83	2	--

b. Dog (N=426)

	Yes, Concerned	No, Not Concerned	Don't know	Refused
11/12/02	25	74	1	--

c. Horse (N=30)

Not enough horse owners for separate analysis.

Asked of those who own a Cat/Dog/Horse

WN-19. Have you or has anyone in your household talked with a veterinarian about how to protect your (INSERT Q.WN-17 MENTION[S]) against the West Nile virus, or not?

a. Cat (N=350)

	Yes	No	Don't know	Refused
11/12/02	5	95	--	--

b. Dog (N=426)

	Yes	No	Don't know	Refused
11/12/02	11	89	*	--

c. Horse (N=30)

Not enough horse owners for separate analysis.

WN-19 Summary Table

	Have talked with Vet	Have not talked with Vet
11/12/02	6	94

X. DEMOGRAPHICS

WN-20. Do you live on a farm or in an agricultural community, or do you live in some other type of community?

	Farm/Agricultural Community	Some other type of community	Refused
11/12/02	22	78	*

SPECIAL TABLES

Animal Ownership

	Have an animal	Do not have an animal
11/12/02	58	42

West Nile Cases

	States with many cases (IL, IN, LA, MI, MS, MO, NE, OH, TX)	States without many cases (All other states)
11/12/02	25	75