

# The Incursion and Expansion of West Nile Virus into Canada

## Dr. Paul Sockett, Public Health Agency of Canada

### A Webber Training Teleclass

## The Incursion and Expansion of West Nile Virus into Canada

**Paul Sockett PhD**

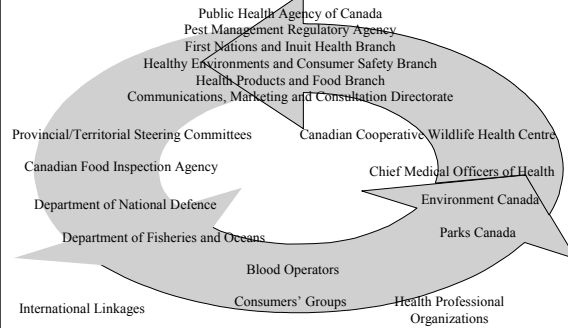
I.K. Barker, M. Drebot, R.Lindsay, H. Artsob, and P. Buck

Hosted by Paul Webber  
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www.webbertraining.com

**Acknowledgement**  
We wish to acknowledge the contribution of our federal and provincial partners who participate in the National West Nile Virus Surveillance Program

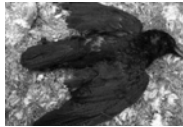
### Partners in West Nile virus Surveillance and Response



### Surveillance in Canada: 2000 - 2004

Monitoring activities include surveillance in:

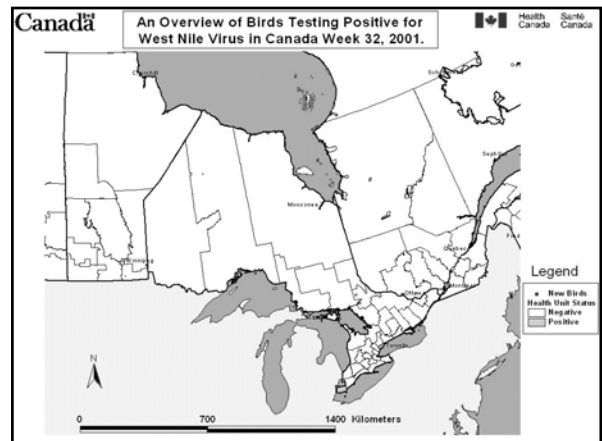
- Dead birds
- Mosquitoes
- Horses
- Humans



**2001**

### Results: Canada 2001

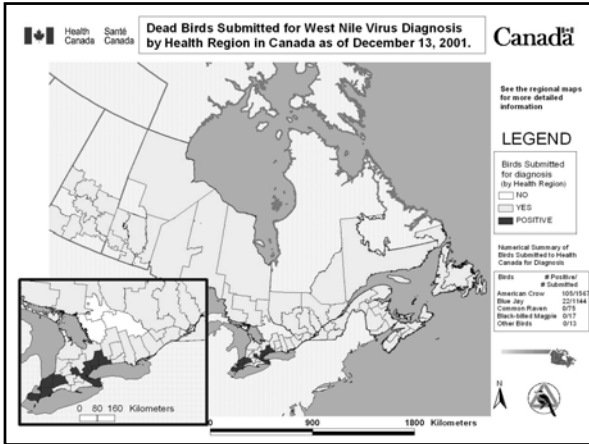
- First confirmed positive dead bird collected in Windsor, Ontario on 8 August
- WN virus was confirmed in 128 dead birds from 12 health regions in Ontario
- Virus also confirmed in nine mosquito pools from Ontario
- WN virus confirmed in pool of over-wintering mosquitoes, collected January 2002



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### Positive Test Results: Canada 2001

Province	Number of Confirmed Positive Dead Birds	Number of Confirmed Positive Mosquito Pools	Number of Presumptive* or Confirmed Positive Horses
Ontario	128	9	0
Canada	128	9	0

\* Requires additional testing before it can be considered a confirmed result

**2002**

- ### Results – Canada 2002 (1)
- First confirmed positive dead bird found on 19 May in Peel Region, southern Ontario
  - Quebec confirmed first two positive dead birds found on 13 June in Montreal-Centre
  - Ontario confirmed first positive mosquito pool collected on 27 June in York Region
  - Manitoba confirmed first positive dead bird found on 12 July in Interlake Region

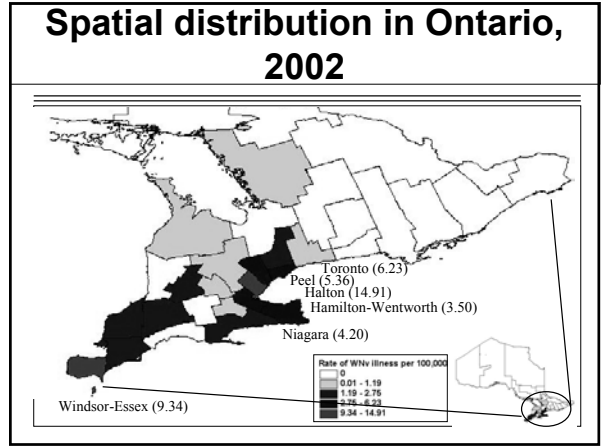
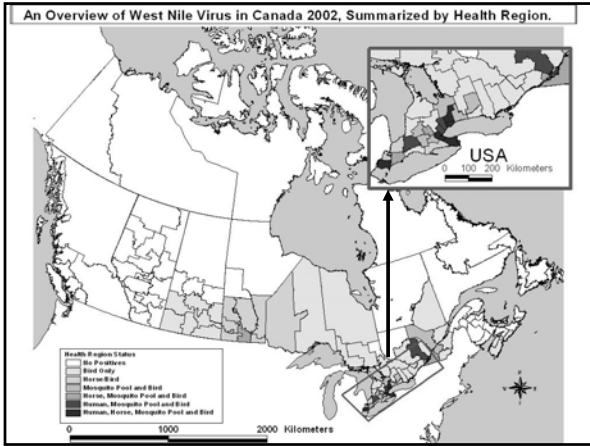
- ### Results – Canada 2002 (2)
- Saskatchewan confirmed first positive dead bird found on 28 July in the city of Regina
  - Quebec confirmed first positive mosquito pool collected on 1 August in Oka
  - Manitoba confirmed first two positive mosquito pools collected on 8 August in Winnipeg
  - Manitoba announced first presumptive positive horses on 16 August
  - Nova Scotia confirmed first positive dead bird found on 20 August in Halifax Region

### Canada to the last week of December 2002

	2002
Provinces with WN virus activity <sup>1</sup>	NS, QC, ON, MB, SK
Human cases <sup>2</sup>	426 (20)
Dead birds <sup>3</sup>	556
Domestic Animals <sup>4</sup>	356
Mosquito Pools <sup>3</sup>	305

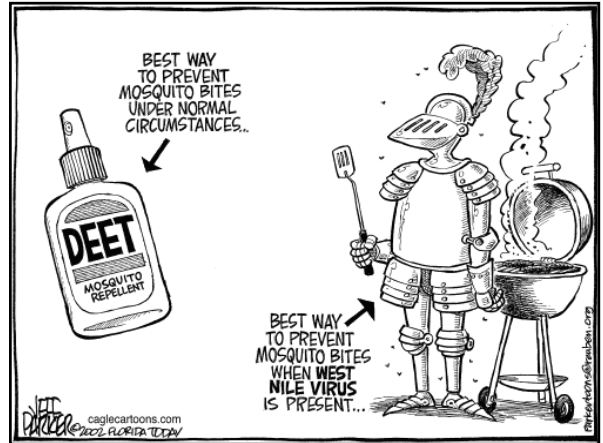
<sup>1</sup> WNV activity in a bird, mosquito pool, horse or human  
<sup>2</sup> probable and confirmed (number of deaths in brackets)  
<sup>3</sup> confirmed positive (number tested in brackets)  
<sup>4</sup> presumed or confirmed  
<sup>5</sup> Several cases are related to travel outside Canada  
<sup>6</sup> These figures represent the number of positive results reported to the CFIA as per the Immediately Notifiable Disease Regulations

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Alternate Modes of Transmission of Human Infection due to WN virus: Canada 2002

Route of transmission	Presumed	Confirmed
Blood transmission	1	1
Tissue/organ transplant	0	0
Breast milk	0	0
Transplacental	0	0
Needle/Scalpel blade	0	1



2003



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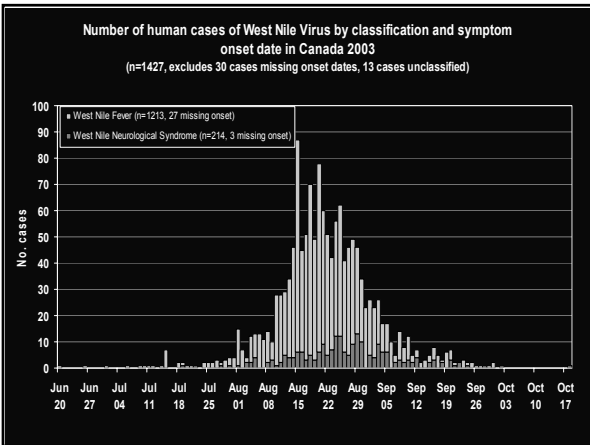
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#### Key Findings for 2003 - Canada (1)

- Human cases from 24 July to late November; peak from late August to late September
- 1494 human cases (146 WNNS), 14 deaths
- First confirmed positive bird in Ontario in mid-April – by June, positives birds from Alberta to East Coast

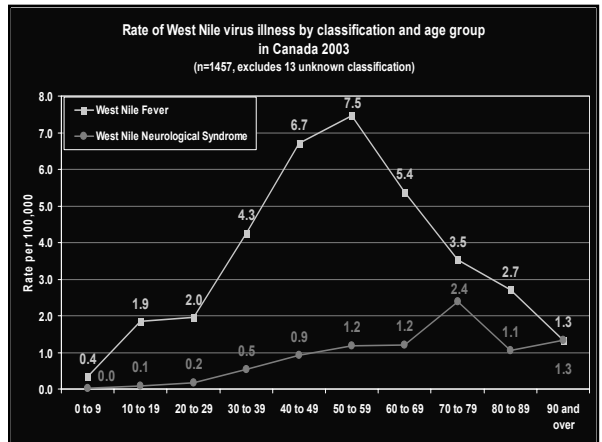
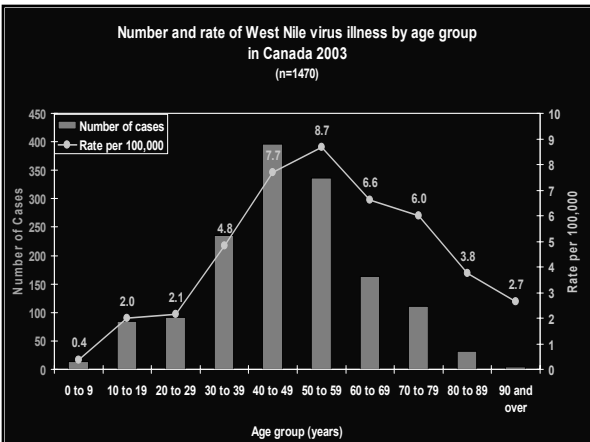
#### Key Findings for 2003 – Canada (2)

- 1633/11,332 positive birds in 2003 (556/3,219 in 2002)
- *Culex spp.* primary vector (*Culex tarsalis* in West and *Culex pipiens/Culex restuans* in East)
- 445 positive horses, most in AB (180) and SK (162)



#### Age profile of human cases of West Nile virus by classification in Canada 2003

2003 Classified Cases	Mean	(SE)	Median	Range	n
WNv Fever	46.1	(0.5)	47	3 to 92	1240
WNv Neurological Syndromes	55.0	(1.2)	54	0 to 92	217
All cases	47.4	(0.4)	47	0 to 92	1486





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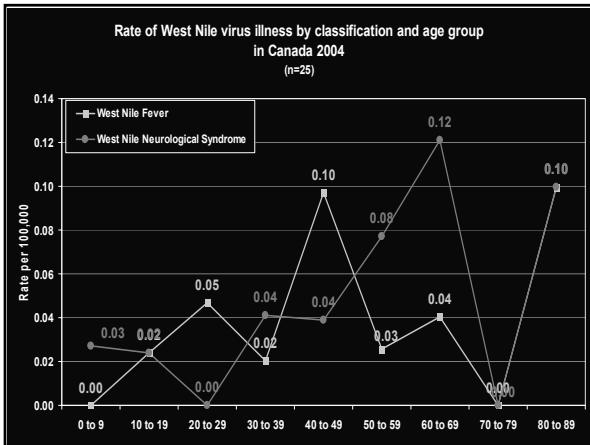
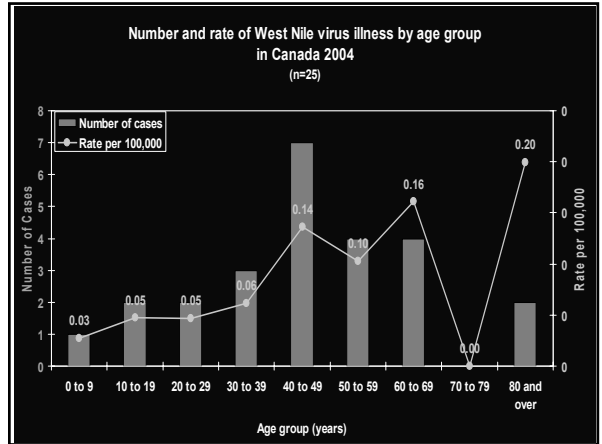
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**Age profile of human cases of West Nile virus by classification in Canada**

2003 Classified Cases	Mean	(SE)	Median	Range	n
WNV Fever	46.1	(0.5)	47	3 to 92	1240
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All cases	47.4	(0.4)	47	0 to 92	1486

2004 Classified Cases	Mean	(SE)	Median	Range	n
WNV Fever	44.6	(5.2)	45.5	5 to 83	12
WNV Neurological Syndromes	48.5	(6.3)	50	3 to 88	13
All cases	46.6	(4.1)	47	3 to 88	25



## Communications Approach

- To date
  - Served as a credible source of information
  - Ensured consistent messaging and reached high risk populations
- For 2005, PHAC will continue its coordinating role with regional offices, P/Ts and other federal Departments. Key objective will be to sustain messaging while supporting provincial/territorial efforts
  - Facilitate information-sharing through communications committee
  - Continue public education with in-store promotion
  - FNIHB's public education campaign will focus on personal protective measures (avoiding mosquito bites and eliminating sources of standing water)
  - Host media technical briefing early in the season

## Summary

**Canada to the last week of December 2004**

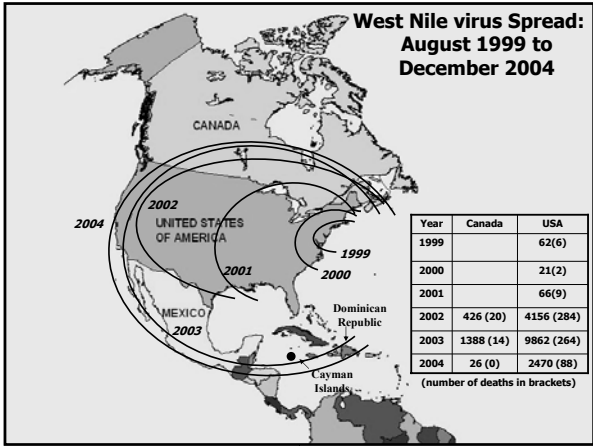
	2002	2003	2004
Provinces with WN virus activity <sup>1</sup>	NS, QC, ON, MB, SK	NS, NB, QC, ON, MB, SK, AB	QC, ON, MB, SK, AB
Human cases <sup>2</sup>	426 (20)	1494 <sup>5</sup> (14)	26 <sup>5</sup> (2)
Dead birds <sup>3</sup>	556	1633 (11332)	416 (6236)
Domestic Animals <sup>4</sup>	356	445 <sup>6</sup>	14 <sup>6</sup>
Mosquito Pools <sup>3</sup>	305	578	176

<sup>1</sup> WNV activity in a bird, mosquito pool, horse or human  
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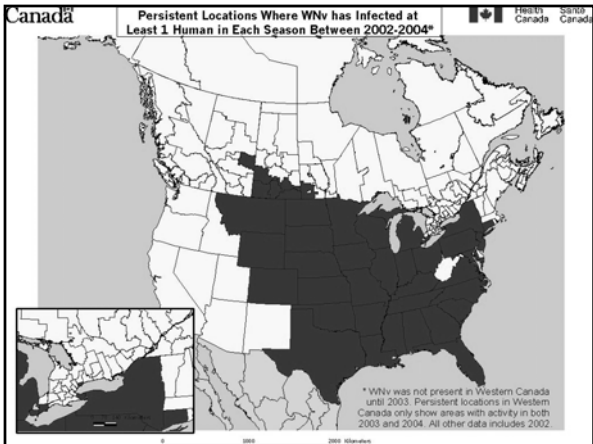
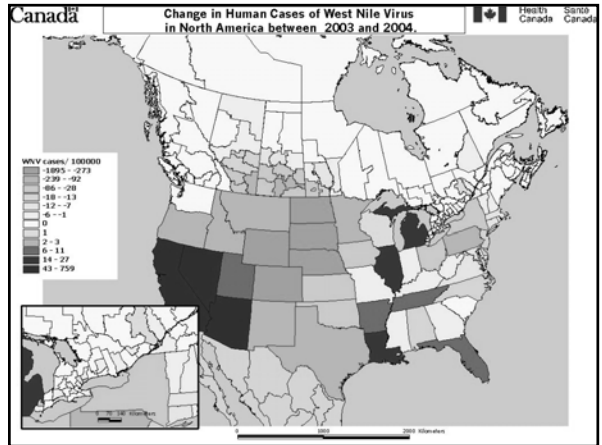
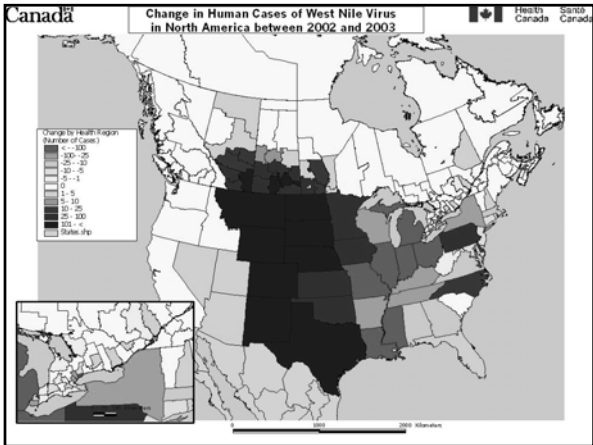
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### Human Cases Canada and USA: 1999-2004

	1999	2000	2001	2002	2003	2004
USA	62 (6)	21 (2)	66 (9)	4156 (284)	9862 (264)	2470 (88)
Canada				426 (20)	1494 (14)	26 (2)

(number of deaths in brackets)



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**For more information, please consult the  
Public Health Agency of Canada's WN virus  
website at:**

**[www.westnilevirus.gc.ca](http://www.westnilevirus.gc.ca)**

**Pour plus d'informations, consulter le site  
Web d'Agence de santé publique du Canada  
sur le virus du Nil occidental à l'adresse  
suivante:**

**[www.virusduniloccidental.gc.ca](http://www.virusduniloccidental.gc.ca)**

**Other 2005 Teleclasses**

**For more information, refer to  
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**June 2 – Skin Rashes & Infection Control – Spot That Spot  
with Dr. Justin Graham**

**June 9 – Measuring the Cost of Hospital Infection  
with Dr. Barry Cookson**

**June 14 – Controlling Mumps in the Community  
with Dr. Isabel Oliver**

**June 16 – Antiseptic Practice and Procedure with Sue Crow**

**June 30 – Infection Control in First Response Emergency  
Services with Margaret McKenzie**

*Questions? Contact Paul Webber [paul@webbertraining.com](mailto:paul@webbertraining.com)*