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

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paul@webbertraining.com

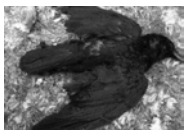
www.webbertraining.com

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

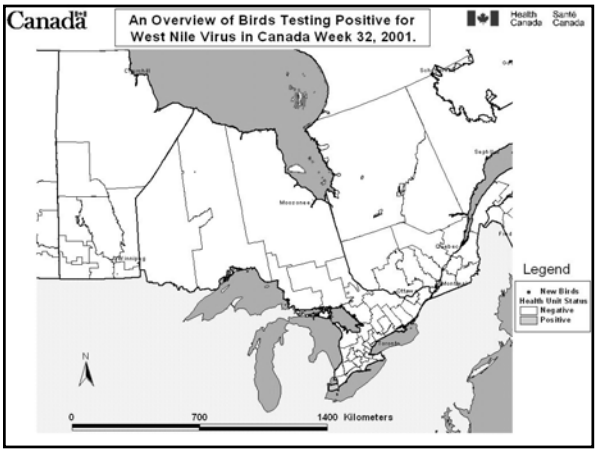
- Monitoring activities include surveillance in:
  - Dead birds
  - Mosquitoes
  - Horses
  - Humans



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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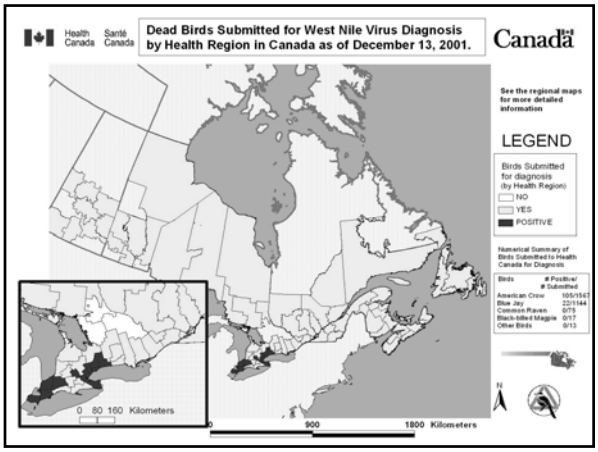

Positive Test Results: Canada 2001

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[1]	NS, QC, ON, MB, SK
Human cases [2]	426 (20)
Dead birds [3]	556
Domestic Animals[4]	356
Mosquito Pools [3]	305

[1] WNv activity in a bird, mosquito pool, horse or human
[2] probable and confirmed (number of deaths in brackets)
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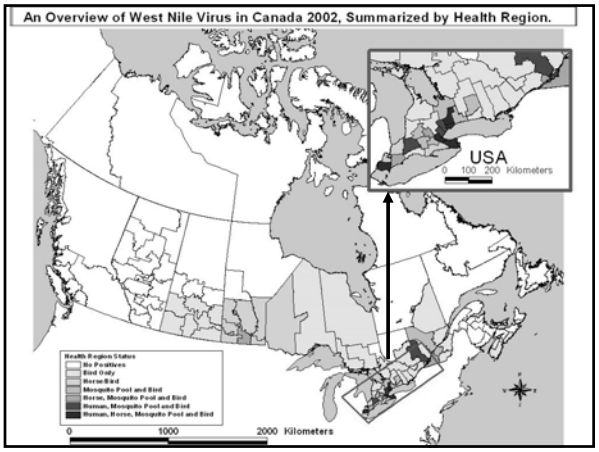
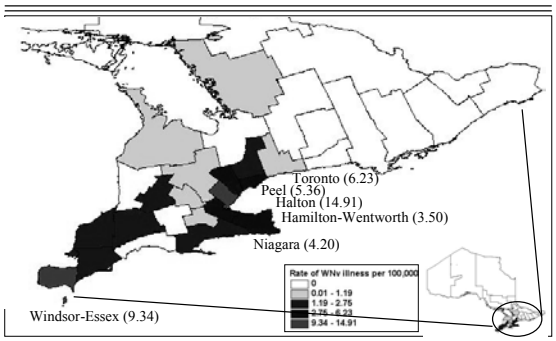


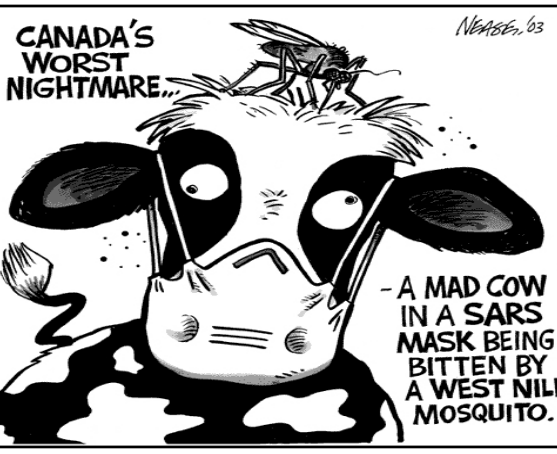
Spatial distribution in Ontario, 2002



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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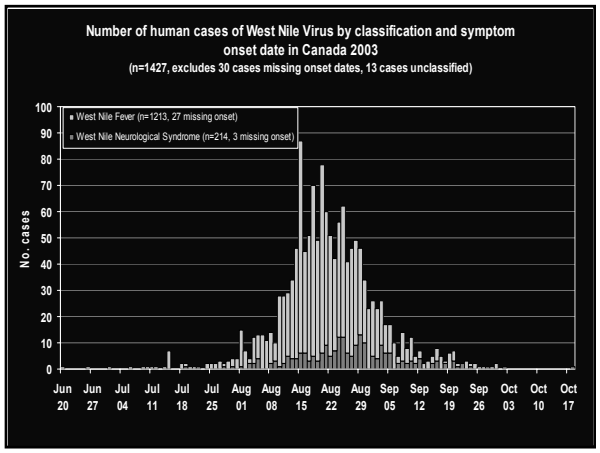
Key Findings for 2003 - Canada (1)

- 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

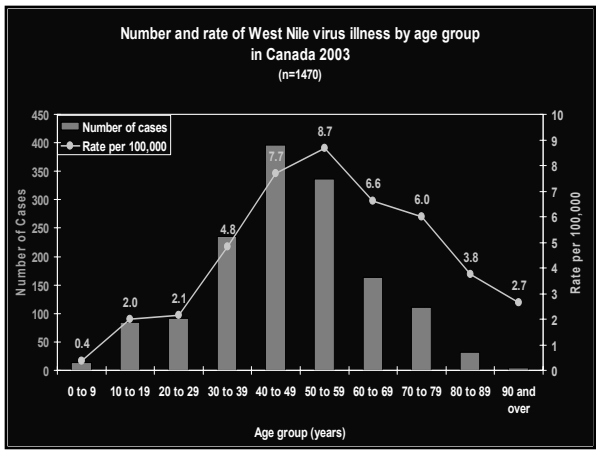
Key Findings for 2003 – Canada (2)

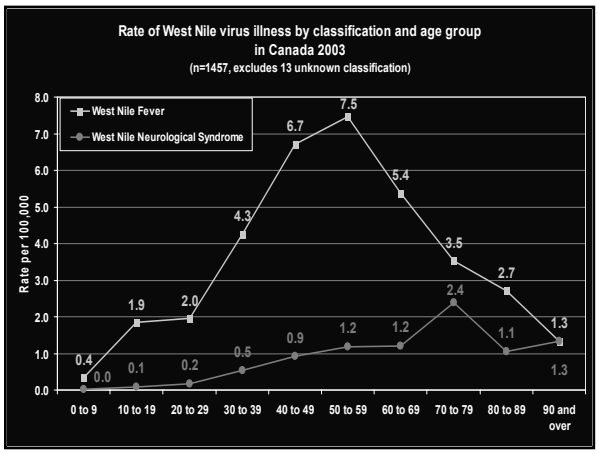
- 1633/11,332 positive birds in 2003 (556/3,219 in 2002
- *Culex spp.* primary vector (*Culex tarsalis* in West and *Culex pipiens*/*Culex restuans* in East)
- 445 positive horses, most in AB (180) and SK (162)



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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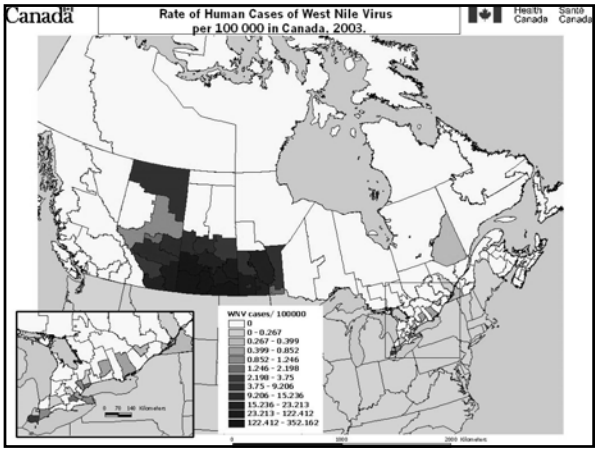
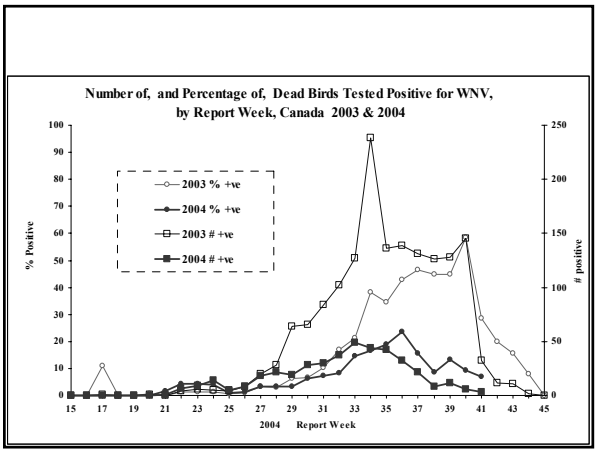
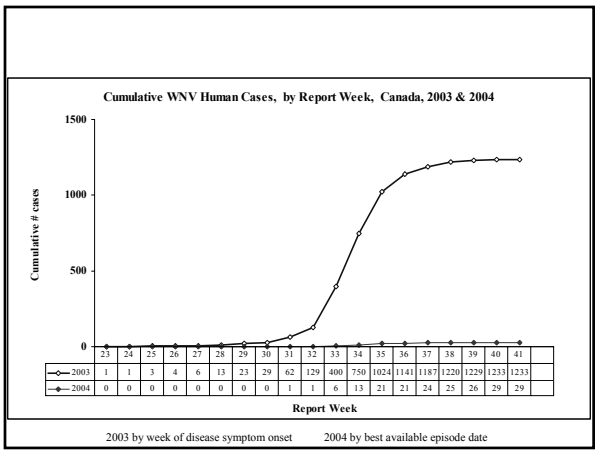
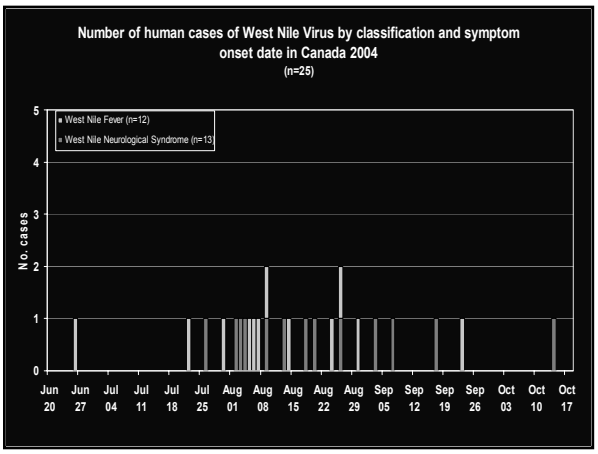


2004





	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
2003	1	1	3	4	6	13	23	29	62	129	400	750	1024	1141	1187	1220	1229	1233	1233
2004	0	0	0	0	0	0	0	0	1	1	6	13	21	21	24	25	26	29	29



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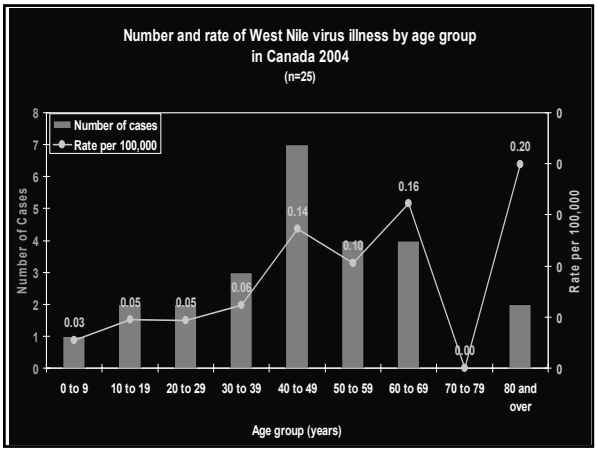
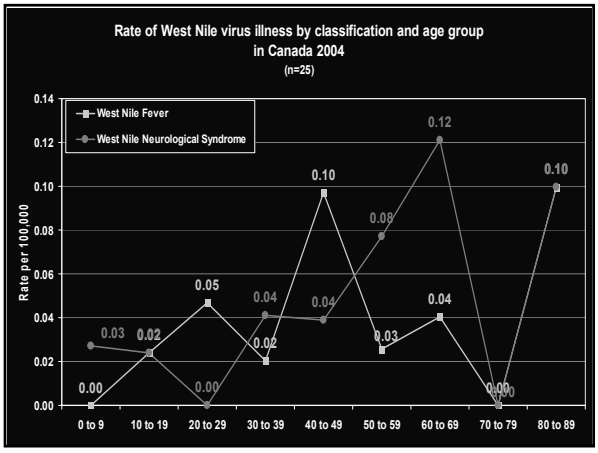
WNv Neurological Syndromes	55.0	(1.2)	54	0 to 92	217
All cases	47.4	(0.4)	47	0 to 92	1486

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[1]	NS, QC, ON, MB, SK	NS, NB, QC, ON, MB, SK, AB	QC, ON, MB, SK, AB
Human cases [2]	426 (20)	1494[5] (14)	26[5] (2)
Dead birds [3]	556	1633 (11332)	416 (6236)
Domestic Animals[4]	356	445[6]	14[6]
Mosquito Pools [3]	305	578	176

[1] WNv activity in a bird, mosquito pool, horse or human
[2] probable and confirmed (number of deaths in brackets)
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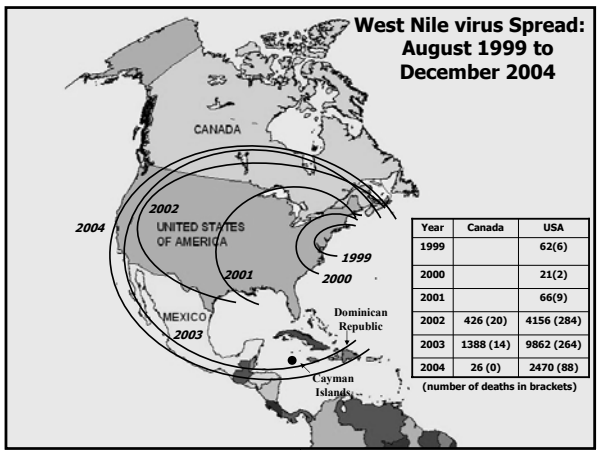


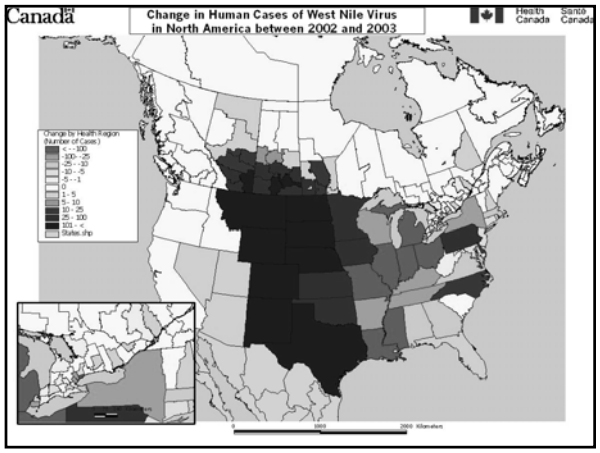
Year	Canada	USA
1999		62(6)
2000		21(2)
2001		66(9)
2002	426 (20)	4156 (284)
2003	1388 (14)	9862 (264)
2004	26 (0)	2470 (88)

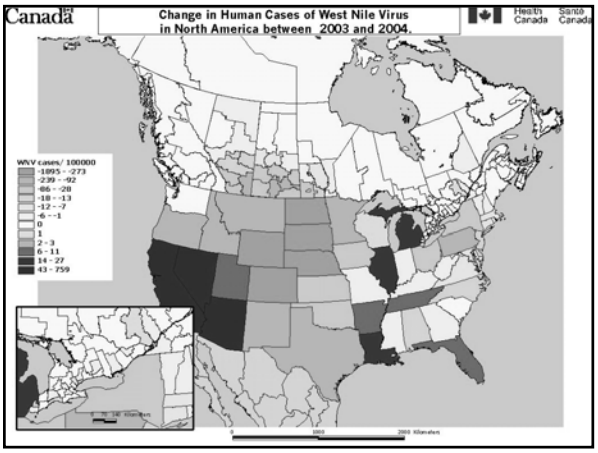
(number of deaths in brackets)

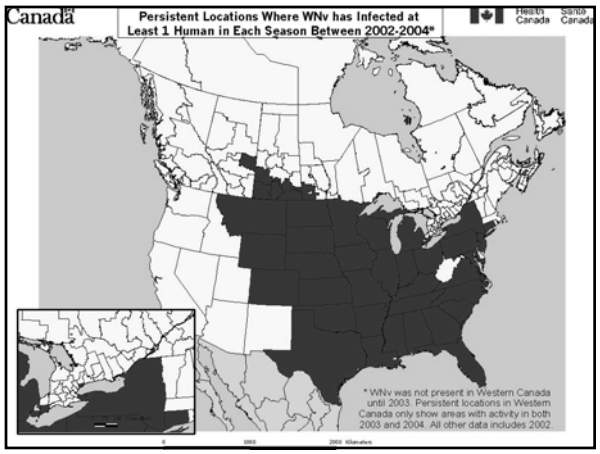
Human Cases
Canada and USA: 1999-2004

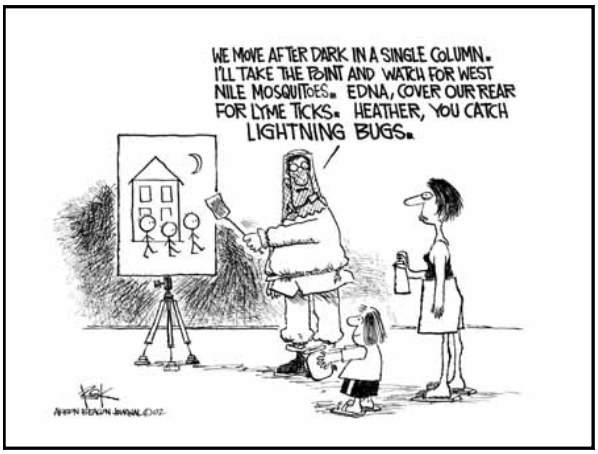
	1999	2000	2001	2002	2003	2004
USA	62 (6)	21 (2)	66 (9)	4156 (284)	9862 (264)	2470 (88)
Canada				426 (20)	1494 (14)	26 (2)

(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

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

Other 2005 Teleclasses

For more information, refer to www.webbertraining.com/schedule.cfm

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

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