

Ilora Finlay House of Lords

With thanks to Dr. Roland Salmon
and Dr. John Watkins



**National Public Health
Service for Wales**

**Gwasanaeth Iechyd Cyhoeddus
Cenedlaethol Cymru**

Fighting infections HL 138

- Diagnosis and treatment
- Prevention and control
 - Vaccination
 - Community control
- Surveillance
- Information systems
- Training and education

Lessons from the past:

Pandemic Influenza A

- The virus changes over time
- Epidemics occur rapidly
- Herd immunity important
- Vaccination comes later!
- Diagnosis (+ surveillance) and treatment is in the community

Influenza – 1918 Ontario p6

6,000,000 DEATHS FROM INFLUENZA

This is Estimate For World, For
Past 12 Weeks:

RECALLS BLACK DEATH

'Flu' Five Times Deadlier
Than World War.

LONDON, Dec. 14.—Canadian Press, via Reuter's.)—The Times' medical correspondent says that it seems reasonable to believe that about 6,000,000 persons perished from influenza pneumonia during the past 12 weeks. It has been estimated that the war caused the death of 20,000,000 persons in four and a half years.

Thus, the correspondent points out, influenza has proved itself five times deadlier than war, because, in the same

INFLUENZA DEATH RATE IN ONTARIO

London's Fatality List 326 per 100,000 of Population.

Statistics compiled by Dr. J. W. S. McAllan, chief officer of health for Ontario, indicate that in none of the cities in this province was the death rate from Spanish influenza and complications as great as in the United States cities. Toronto's death rate is given as 327 per 100,000. Kingston was the hardest hit in Ontario, the rate being 344 per 100,000. Winnipeg suffered the most of any Canadian city, according to the figures now available. The death rate in that city was 744 per 100,000.

Camp Sheridan, Ont., where 22,000 soldiers were encamped, had the heaviest death rate of all, it being 2,551 to 100,000 of population.

The figures, which cover an approximate period of six weeks, are

Cities—	Deaths from Influenza and Complications, chiefly Pneumonia.	Death Rate per 100,000 Population.
Port William	48	228
Hault St. Marie	41	219
Orillia	370	348
Port Arthur	30	181
Windsor	23	108
Kingston	148	344
London	187	326
Toronto	1,600	327
St. John, N.H.	326	326
Winnipeg	368	744
Montreal	2,025	487
Halifax	152	322
Hamilton	244	288
United States Figures		
Boston	2,284	321
Pittsburg	2,284	721
Philadelphia	12,287	319
Washington	1,264	301
Camp Sheridan, O.	242	2,551
New York	22,250	400

Influenza in the UK since 1900

1918-19 H1N1 “Spanish” Flu Pandemic. 200,000 deaths (20-40 million worldwide)

1933 Influenza A virus discovered

1957-58 H2N2 “Asian” Flu pandemic 37,500 deaths

1968-69 & 1969-70 H3N2 “Hong Kong” Flu pandemics
78,000 deaths

1977 Re-emergence of H1N1

1989 Re-emergence of H3N2 (last “epidemic” year). 30,000 deaths (In Wales 1,627 deaths among an estimated 464,000 cases)

Influenza - deaths:

Years	Excess Deaths	Subtype
1918/19	198,000	H1N1
1957/58	37,500	H2N2
1968/70	78,000	H3N2
1989	*29,169	H3N2

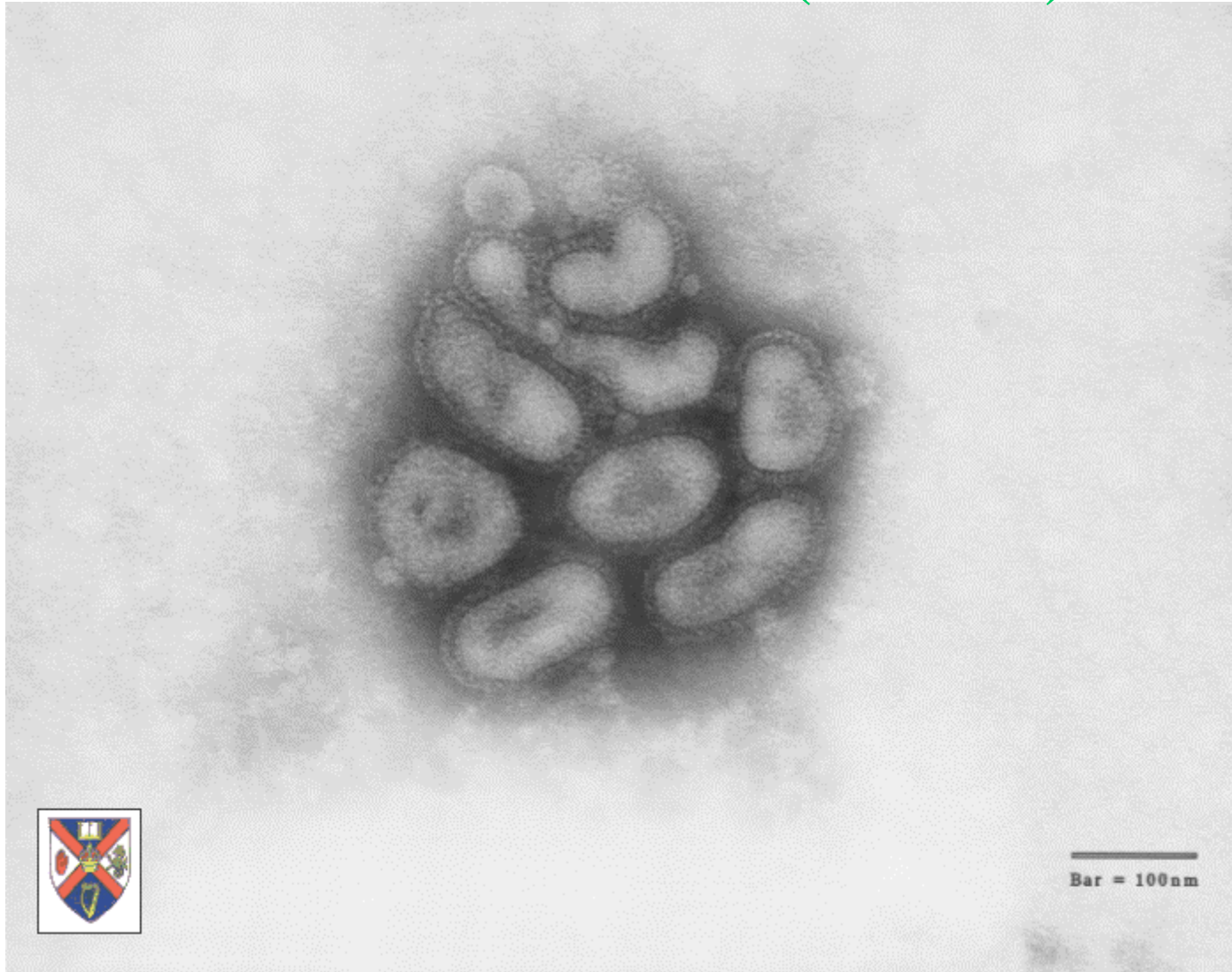
*Ashley J, Smith T, Dunnell K. Population Trends 1991;65:16-20.

Influenza: Complications in 1989 epidemic

Complications*	Rate /1000 cases	Total /DGH catchment
Pneumonia & Bronchitis	219.3	5,960
Hospital admission	5.8	160

*Connolly AM, Salmon RL, Lervy B, Williams DH. BMJ 1993;306:1452-4

Re-emergent H2N2 (Asian) bigger threat than H5N1 (Avian)?



Influenza: Wake up call?

- A new influenza A virus has emerged (avian influenza H5N1)
- It has transferred to human beings with virulence
- Limited and inefficient person to person transmission is described

Oxford JS. TLID 2005;5:129-131

DH have issued the **“UK Influenza Pandemic Contingency Plan”**

Influenza: What is it usually like?

- Fever,
- Muscle aches,
- Upper respiratory tract symptoms
- Prostration

lasting 3-4 days

- then cough, lassitude and malaise during a recovery

lasting 1-2 weeks

Nicholson KG. Human influenza: in in Nicholson KG, Webster RG, Hay AJ eds. Influenza. Oxford 1998. Blackwell

Diagnosis and treatment

Who does what?

Some truisms

- In a crisis people revert to acting in role
- Treatment in the community is best done by people who do treatment in the community
- The key resource is the NHS (particularly Primary Care)

Prevention and control

Community control 1

- Spot and confirm promptly – primary care & surveillance
 - Identify novel HN type in human [PCR]
 - +/- GP reports $>25/100,000$ (seasonal activity)
- Get information out
 - NPHS/HPA establish (Public Health Incident Response Team)
 - communicate by phone to partners identified in communication cascade

Surveillance

GP sentinel surveillance – Wales

- **Started in 1986**
- **Volunteer sample of 30 general practices in Wales**
- **Covers 6% of population of Wales**
- **Weekly paper-based reporting**
 - age, sex, disease, practice, week
 - measles, mumps, rubella, shingles, chicken pox, bloody diarrhoea, influenza
- **Feedback by weekly news-sheet**

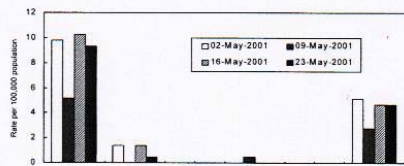
Sentinel GP scheme newsletters

GP Surveillance of Infections in Wales Arolwg Meddygon Teulu ar Glefydau yng Nghymru

Surveillance Report Adroddiad ar yr Arolwg

29th May 2001

INCIDENCE RATES 4 WEEKLY TRENDS



Monthly surveillance figures for Creutzfeldt-Jakob disease

Table 1 shows the surveillance figures for deaths from definite and probable cases of the United Kingdom up to 4 May 2001. To date in 2001 there have been 46 refer. Eleven cases have been confirmed, three of which are variant CJD (vCJD). The total cases is 99.

Provisional figures for 2000 show a noticeable increase on previous years but are yet trend.

TABLE 1: Deaths of definite and probable CJD cases in the UK to 4 May 2001

Year	Referrals for investigation	Deaths				
		Sporadic	iatrogenic	Familial	GSS*	vCJD confirmed
1985	-	26	1	1	0	-
1986	-	26	0	0	0	-
1987	-	23	0	0	1	-
1988	-	22	1	1	0	-
1989	-	28	2	2	0	-
1990	53	28	5	0	0	-
1991	75	32	1	3	1	-
1992	96	43	2	5	1	-
1993	78	38	4	2	2	-
1994	116	51	1	4	3	-
1995	87	35	4	2	3	-
1996	134	40	4	2	4	10
1997	161	59	6	4	1	10
1998	154	63	3	3	1	18
1999	169	61	6	2	0	15
2000	177	45	1	2	0	27
2001	46	6	2	0	0	3
Total						86

* Gerstmann-Straussler-Scheinker syndrome

Bovine Spongiform Encephalopathy

Table 2 details the cases of Bovine Spongiform Encephalopathy confirmed in Great B

TABLE 2: Confirmed cases of BSE to 27 April 2001

	1990	1991	1992	1993	1994	1995	1996	1997
GB	14181	25026	36680	34370	23943	14301	8013	4309

Dr. R L Salmon, CDSC (Wales), Abton House, Wedal Road, Cardiff, CF14 3QX. Telephone: 029 20521997

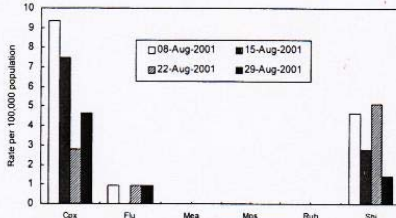
Further information on infectious diseases in Wales can be found at <http://www.wales.nhs.uk/phls/> or <http://www.phls.wales>

GP Surveillance of Infections in Wales Arolwg Meddygon Teulu ar Glefydau yng Nghymru

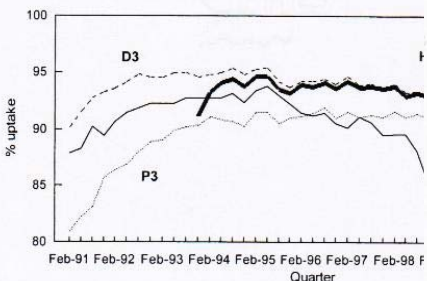
Surveillance Report Adroddiad ar yr Arolwg

4th September 2001

INCIDENCE RATES 4 WEEKLY TRENDS



Uptake of childhood vaccines in Wales, February 1991



After starting to show signs of a recovery, MMR uptake at 2 years 1 quarter and now stands at 84.9%, a level similar to that observed 2 year. Also of concern is that uptake of other sentinel antigens has decreased uptake of D3, P3 and Hib3 at 12 months has remained steady, unaffected!

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Further information on infectious diseases in Wales can be found on our web site at <http://www.wales.nhs.uk/phls/> or <http://www.phls.wales.nhs.uk>

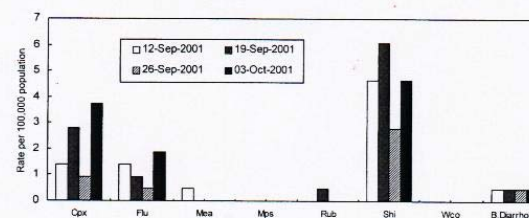
GP Surveillance of Infections in Wales Arolwg Meddygon Teulu ar Glefydau yng Nghymru

Surveillance Report Adroddiad ar yr Arolwg

9th October 2001



INCIDENCE RATES 4 WEEKLY TRENDS



Keep Well This Winter

The National Assembly Health and Social Services Minister Jane Hutt launched the 2001/2002 Keep Well This Winter campaign at Blaina Community Centre, Blaenau Gwent on Friday, October 5th. The campaign aims to help people aged 65 and over to keep fit and healthy through the winter months.

Keep Well This Winter starts with a drive to encourage older people to have a flu vaccination. Last year influenza immunisation policy was changed and immunisation is now offered to everyone aged 65 years and over, as well as those under 65 who are in the risk groups recommended for immunisation and those living in long-stay residential or nursing homes. Last winter around 55% of over 65s were immunised. The aim is to increase uptake this year to over 60%.

The five-month Keep Well This Winter campaign also focuses on home energy efficiency, safety, and nutrition and is a collaborative effort between the National Assembly a wide range of organisations such as: Age Concern Cymru, Food Standards Agency Wales, Care & Repair Cymru, Royal National Institute for the Blind, Wales Council for the Blind, NHS Direct Wales, National Energy Action, National Association of Citizen's Advice Bureaux and the Wales Youth Agency.

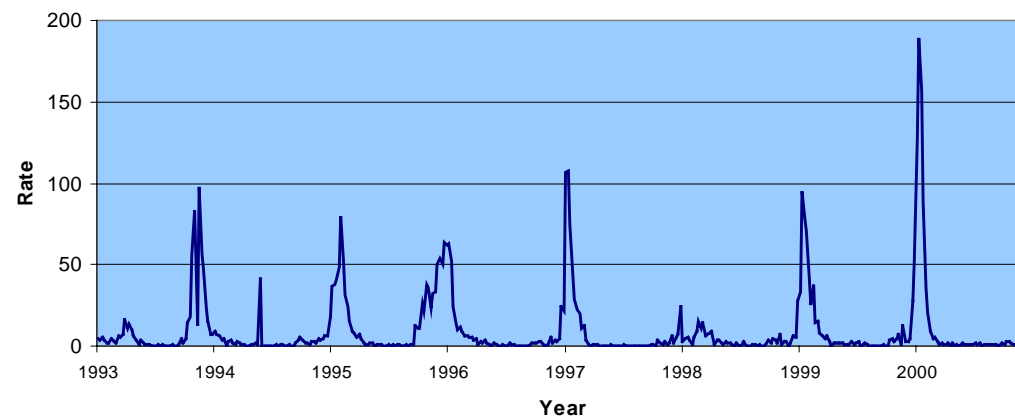
For more information, contact Phil Hutchinson on 029 20 825799. E-mail: Phil.Hutchinson@wales.gsi.gov.uk

Dr. R L Salmon, CDSC (Wales), Abton House, Wedal Road, Roath, Cardiff, CF14 3QX. Telephone: 029 20521997

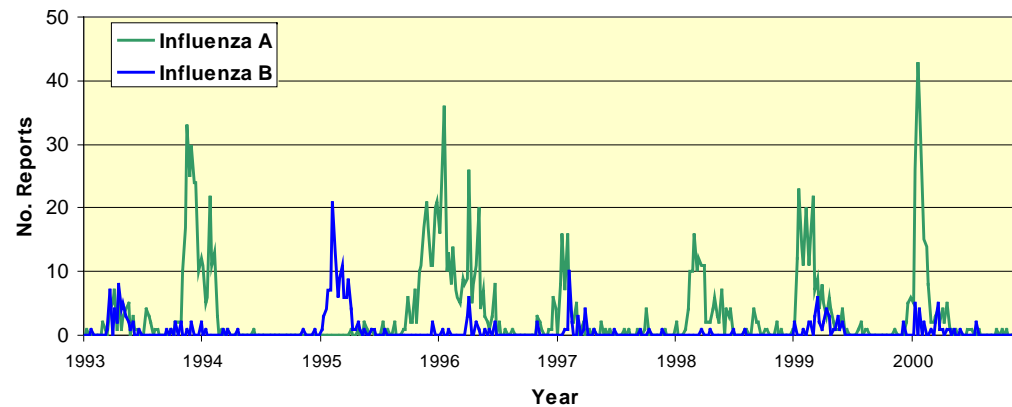
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Interpreting sentinel GP data using laboratory data – influenza, 1993-2000

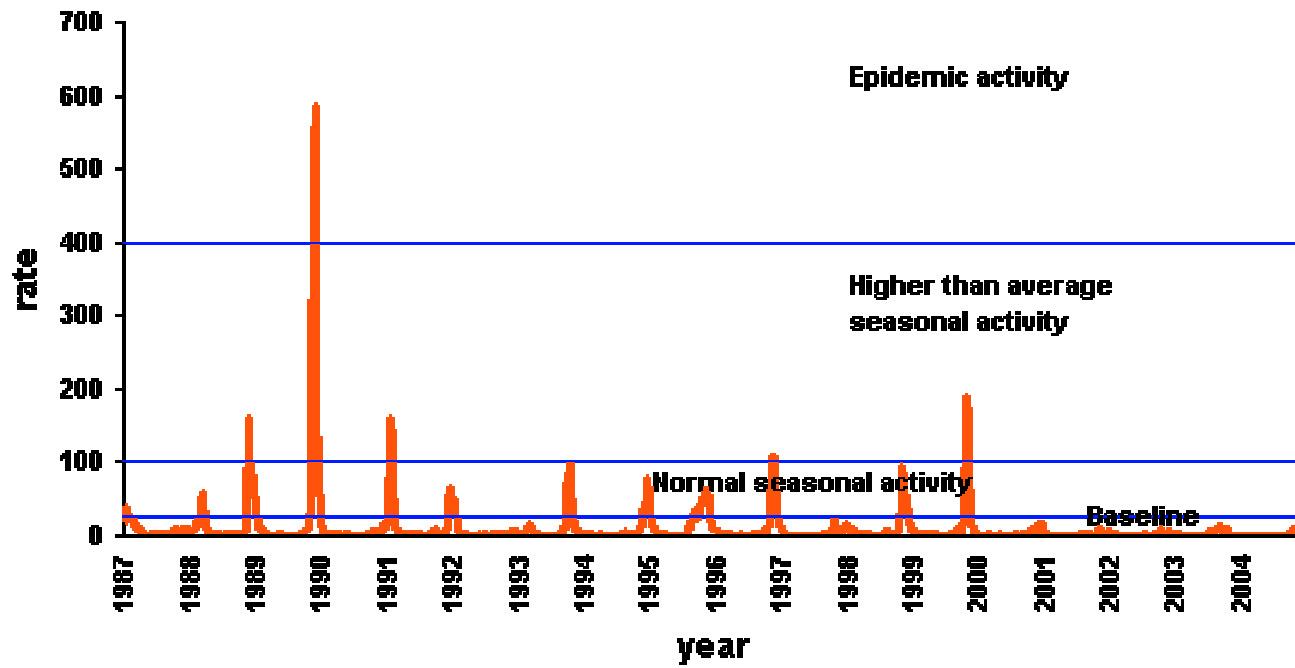
GP Sentinel Surveillance Weekly Flu Rates
(rate per 100,000 practice population)



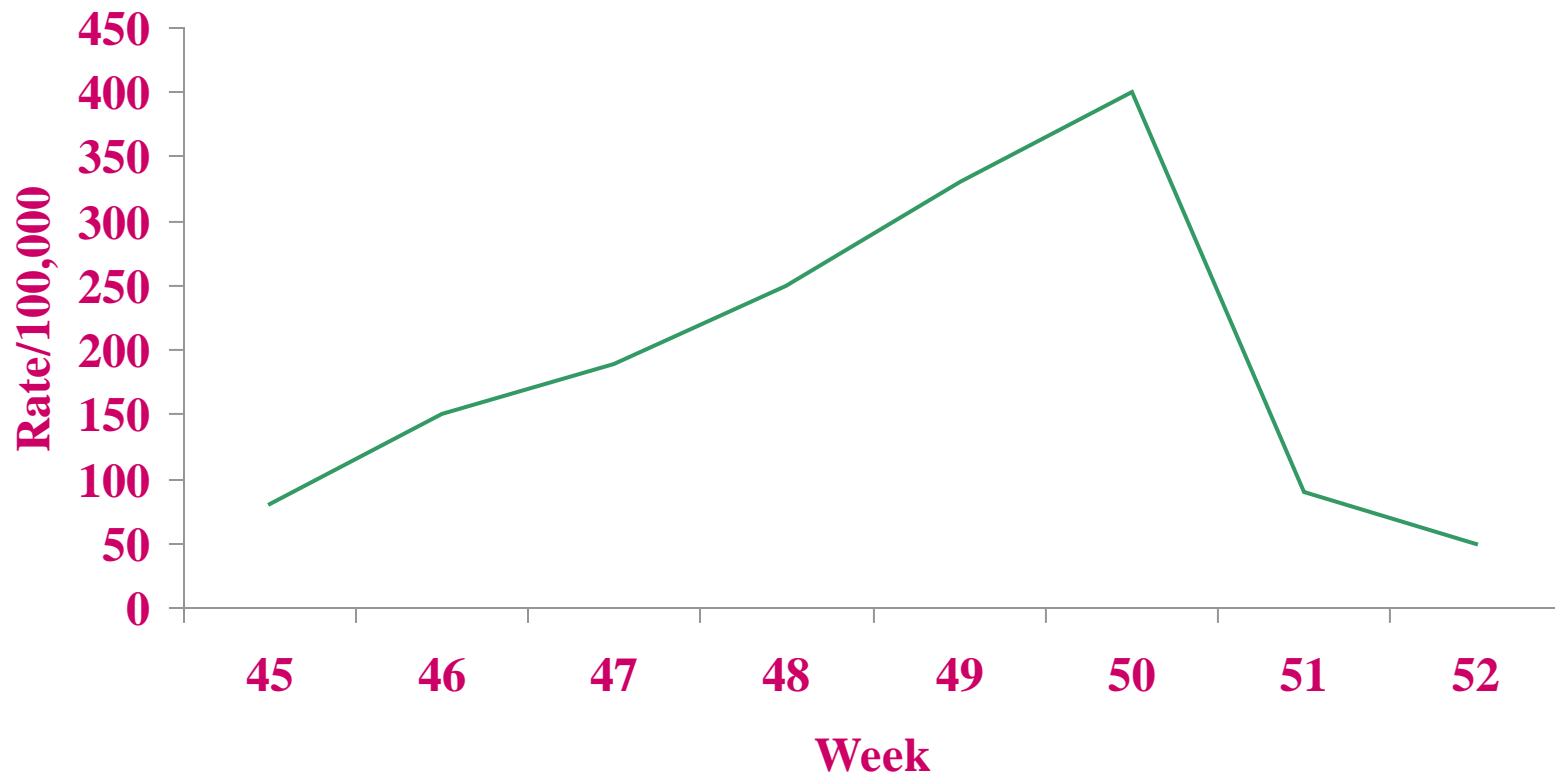
**Weekly Laboratory Reports of Influenza A and
Influenza B to CDSC Wales**



Weekly rates of influenza: 1987- 2005 week 13
(GP Sentinal Surveillance Scheme)



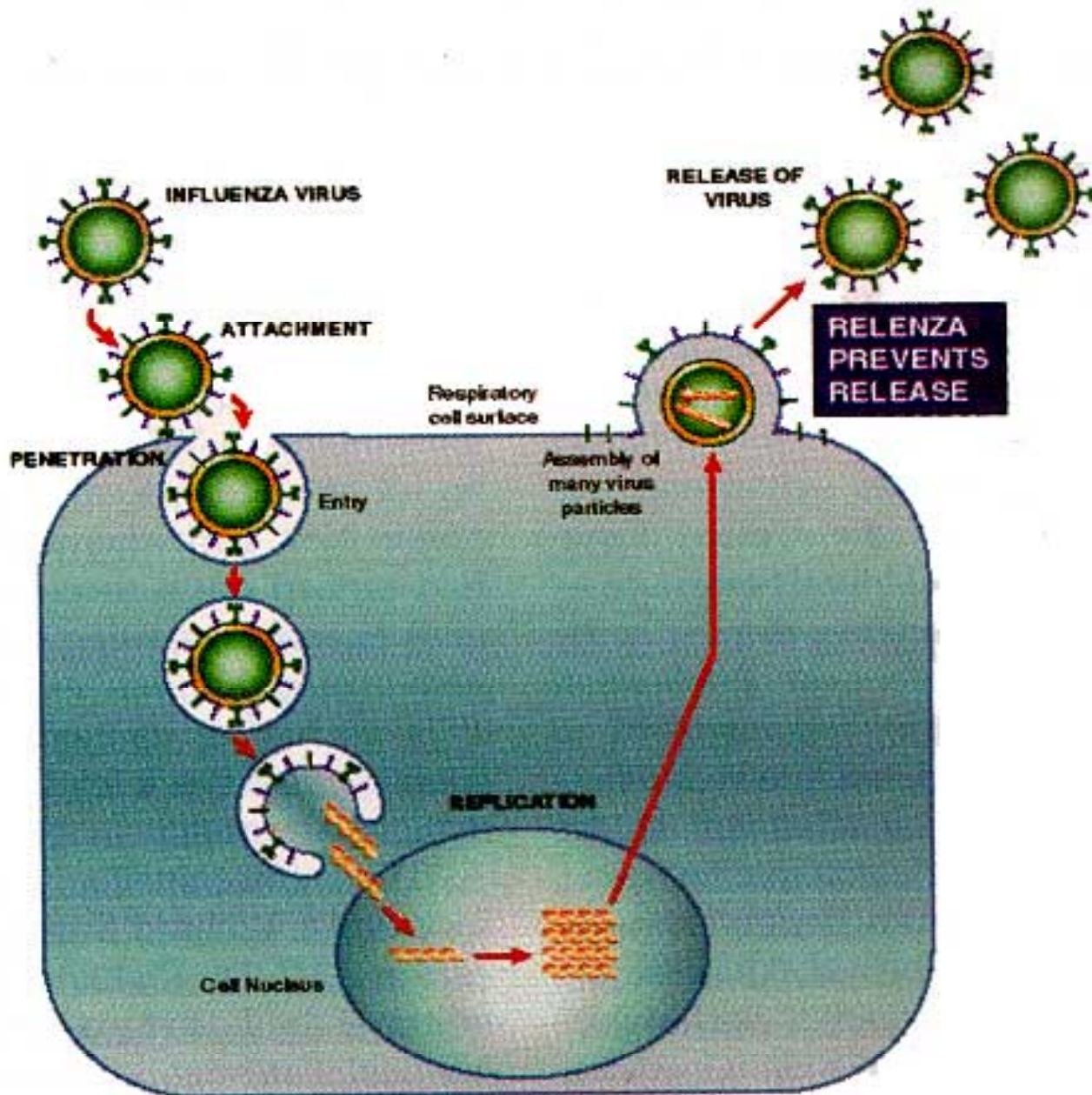
GP sentinel surveillance scheme: Influenza A H3 N2: Wales 1989



Prevention and control

Community control 2

- Get treatment out within first 48 hours: neuraminidase inhibitors
 - Who gets it
 - Wholesalers distribution
 - Where is the stockpile
- Population movements:
 - Isolation – civil order
 - Schools, supermarkets,
 - Ambulance drivers, police, health care staff, teachers



Relenza works by stopping the influenza A & B viruses from spreading and infecting other cells of the respiratory epithelium

Antiviral treatment

Neuraminidase inhibitors reduce mortality by 29% (Taiwan: 5yr)

Amantadine has similar efficacy (cheap, ?resistance)

Prevention and control

Community control 3

- Community care
 - NHS direct
 - GPs
 - A&E
- Handling deaths
 - Kills people not expected to die
 - Managing the dying and their NoK
- Body storage
- Crematoria

Prevention and control

Vaccination

- Maintain stocks & rates against current strains
 - “Routine” winter vaccination does not include pandemic strain
- 3-6 months to develop/produce novel vaccine
 - Ensure manufacturers communicate with DH
- Will mitigate secondary wave effects between pandemic waves

Information systems

- Get the information out to those in front line who need to know what is happening
- Ensure primary care know targets etc are suspended
- Hospitals warned to ensure beds cleared and staff sickness allowed for
- Link with pharmacy wholesale distributors
- Keep the media updated to avoid panic

Training and education

- Reinforce what is already done well

Influenza

- **A Flu Pandemic will occur EVERYWHERE**
- **Service must come into action to manage it**
 - There won't be a vaccine
 - The key resources - the NHS - must be mobilised effectively
 - There are treatments (notably **Oseltamivir** - the UK has purchased 14.6 million doses to arrive between August 2005 and December 2006 – and **Amantadine**).
- **Disruption will occur**
 - Historically, wholesale dislocation did not occur
- **No amount of preventive activity will PREVENT this happening**
- **Are daily data returns to Ministers are futile?**