

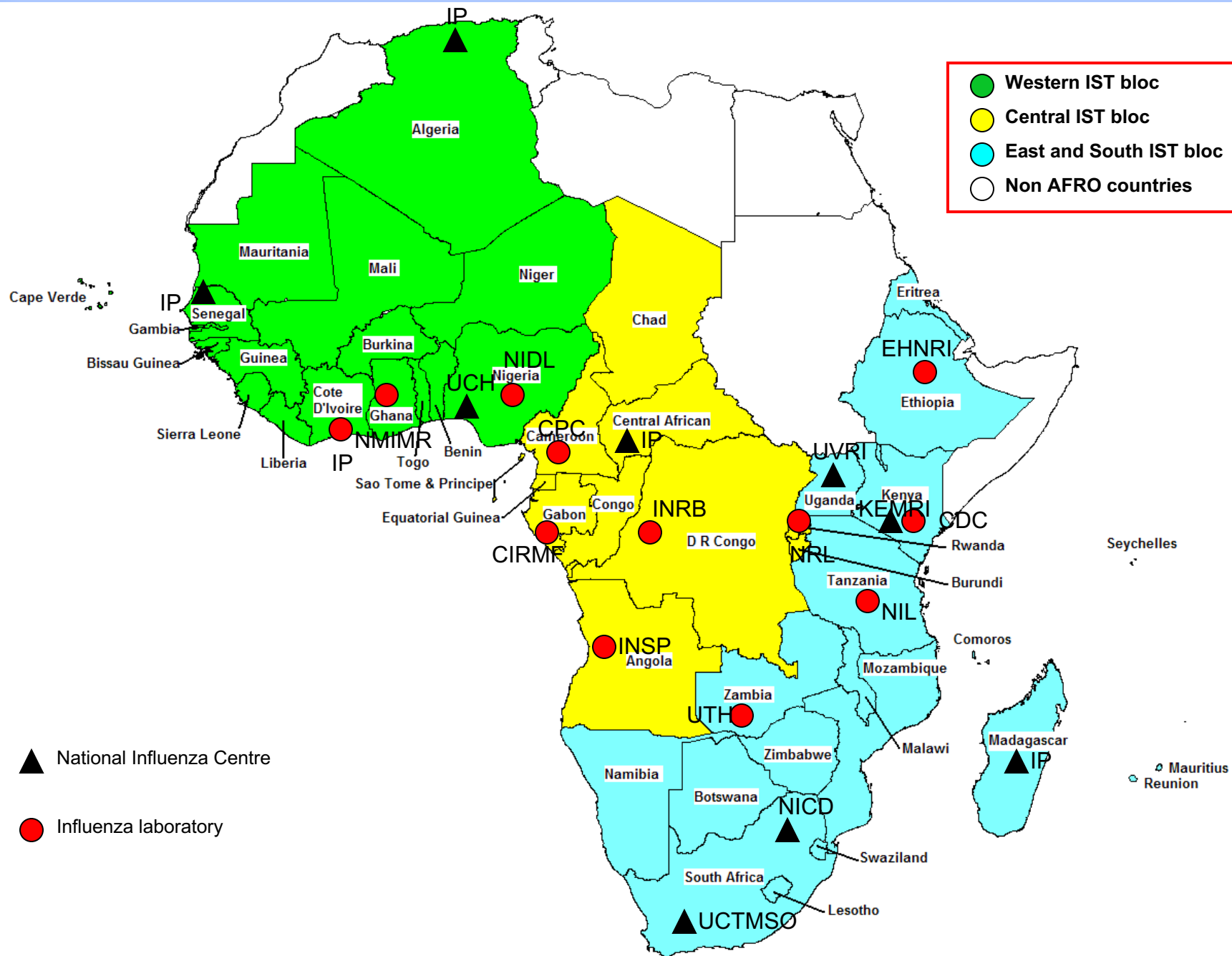
PRELIMINARY OBSERVATIONS OF THE EPIDEMIOLOGY OF SEASONAL AND PANDEMIC INFLUENZA A (H1N1) IN SOUTH AFRICA, 2009

BARRY D SCHOUB MD DSc FRCPath
EXECUTIVE DIRECTOR
NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
(A Division of the National Health Laboratory Service)
SOUTH AFRICA

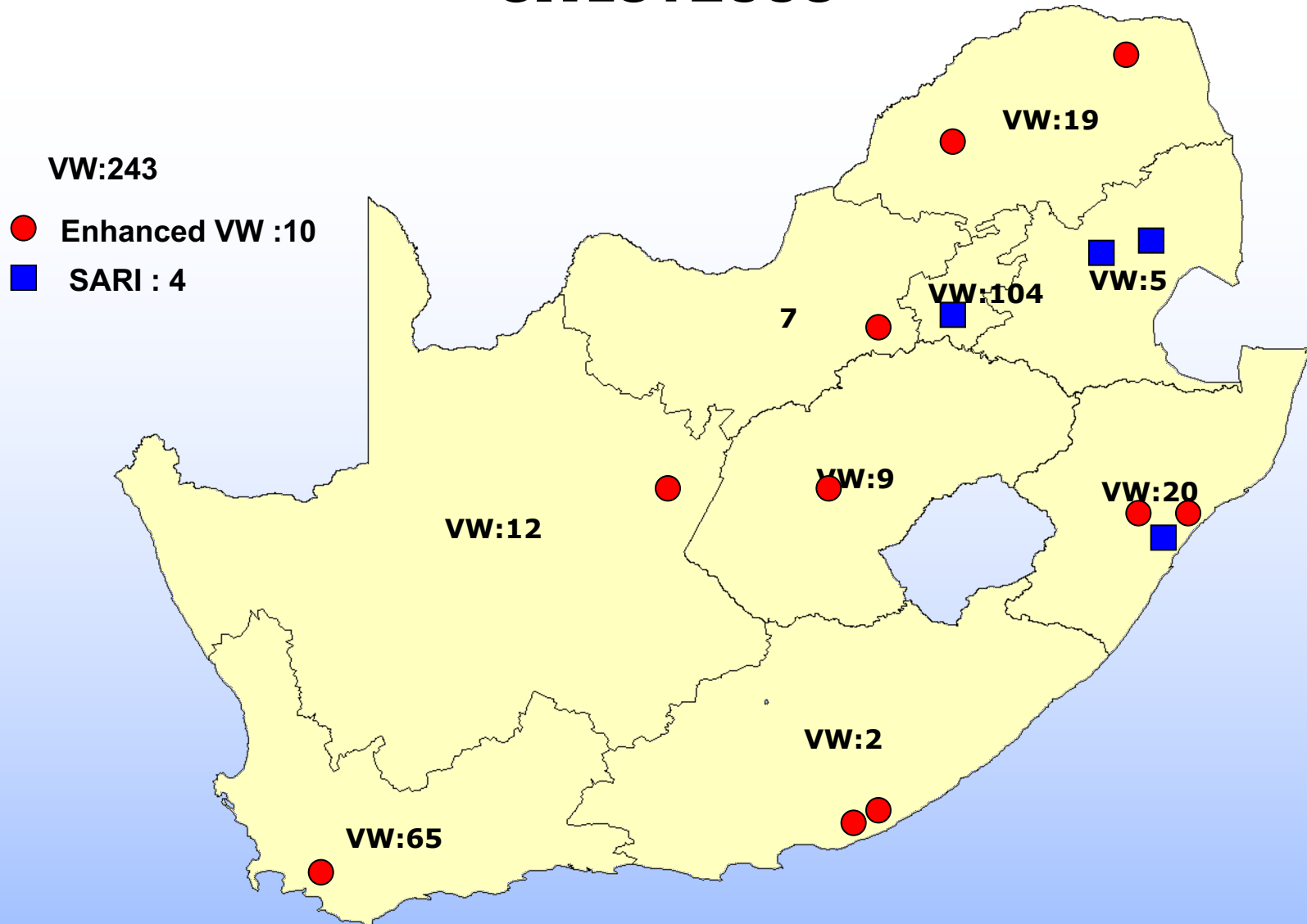
IANPHI CONFERENCE NOVEMBER 2009



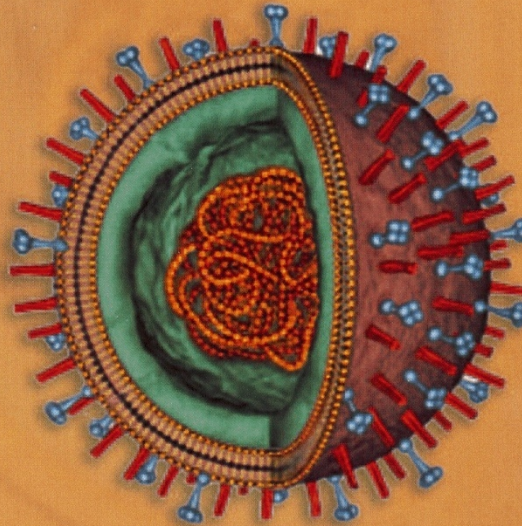
LIST OF INFLUENZA LABORATORIES IN THE AFRICAN REGION



VIRAL WATCH, ENHANCED VIRAL WATCH AND SARI SITES : 2009



NATIONAL INFLUENZA PANDEMIC PREPAREDNESS PLAN FOR SOUTH AFRICA



2007

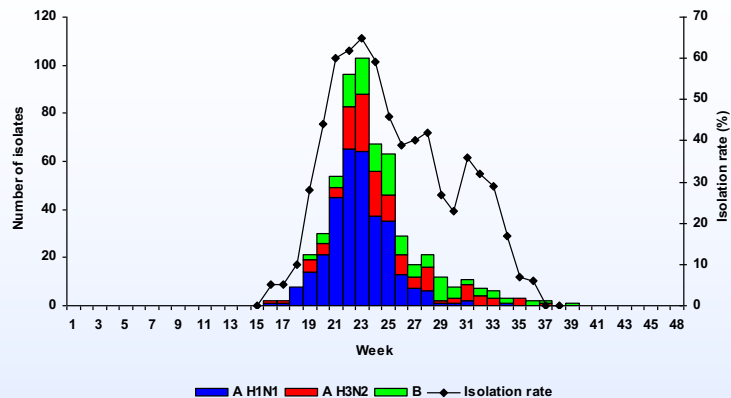


health

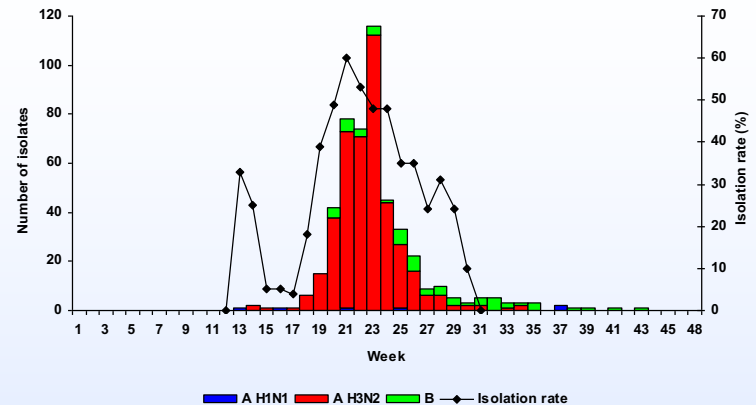
Department:
Health
REPUBLIC OF SOUTH AFRICA

INFLUENZA RESULTS BY TYPE & SUBTYPE : SOUTH AFRICA 2005 - 2008

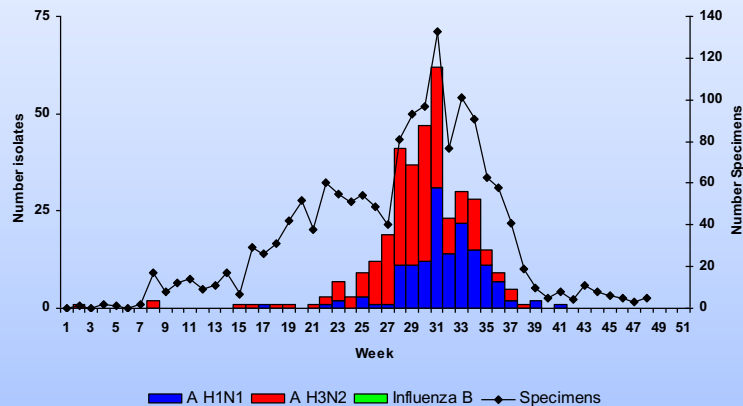
2005



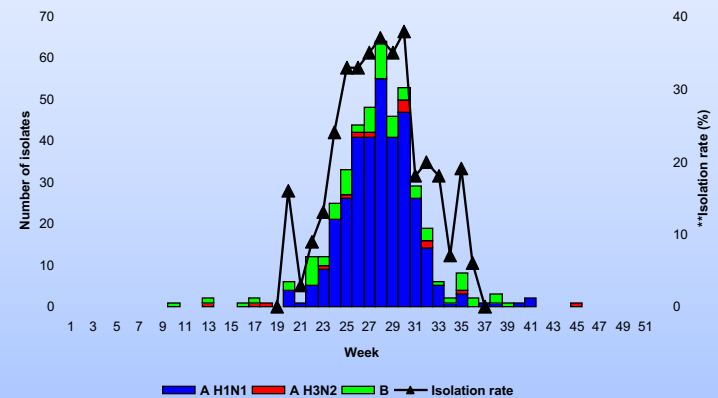
2006



2007

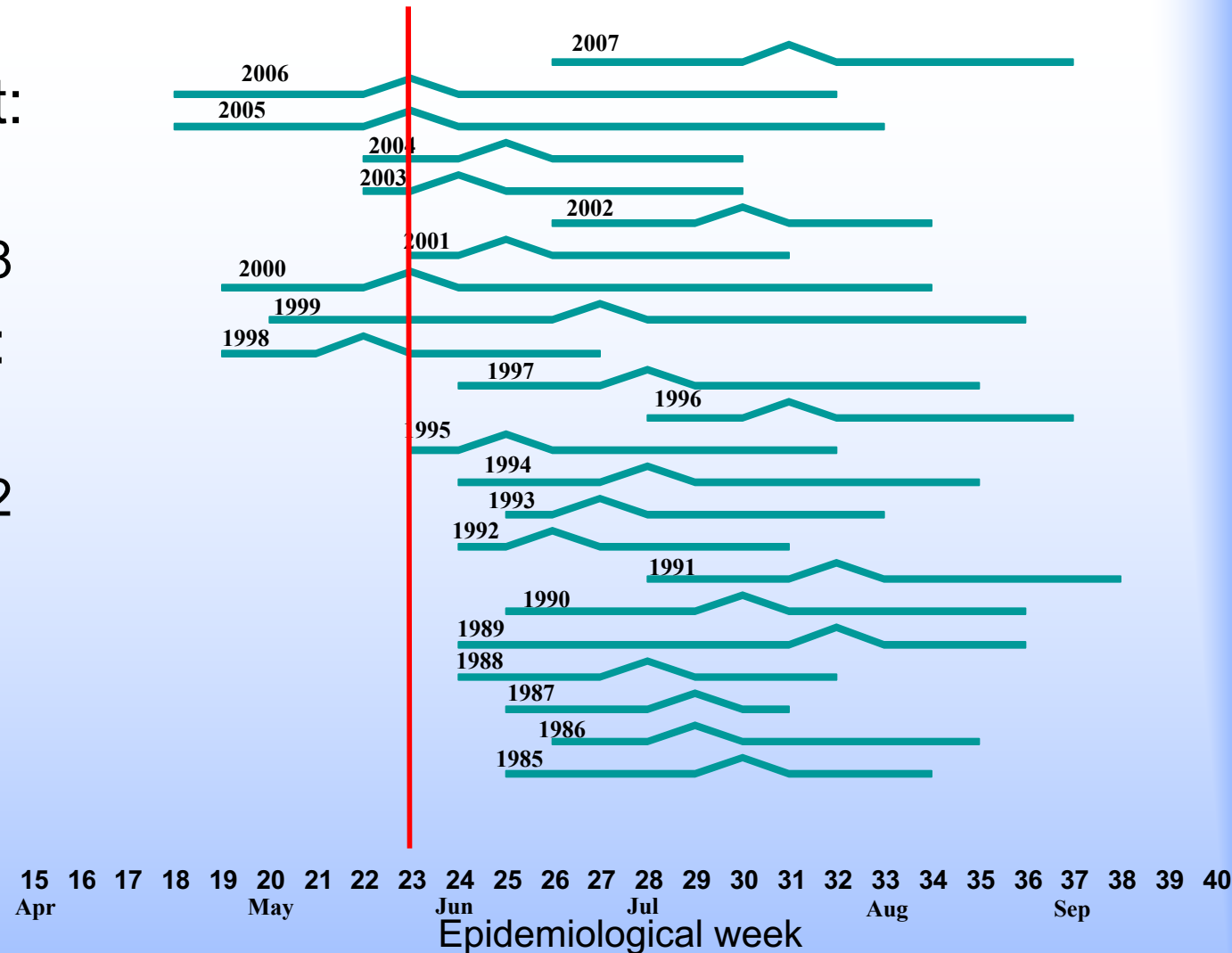


2008



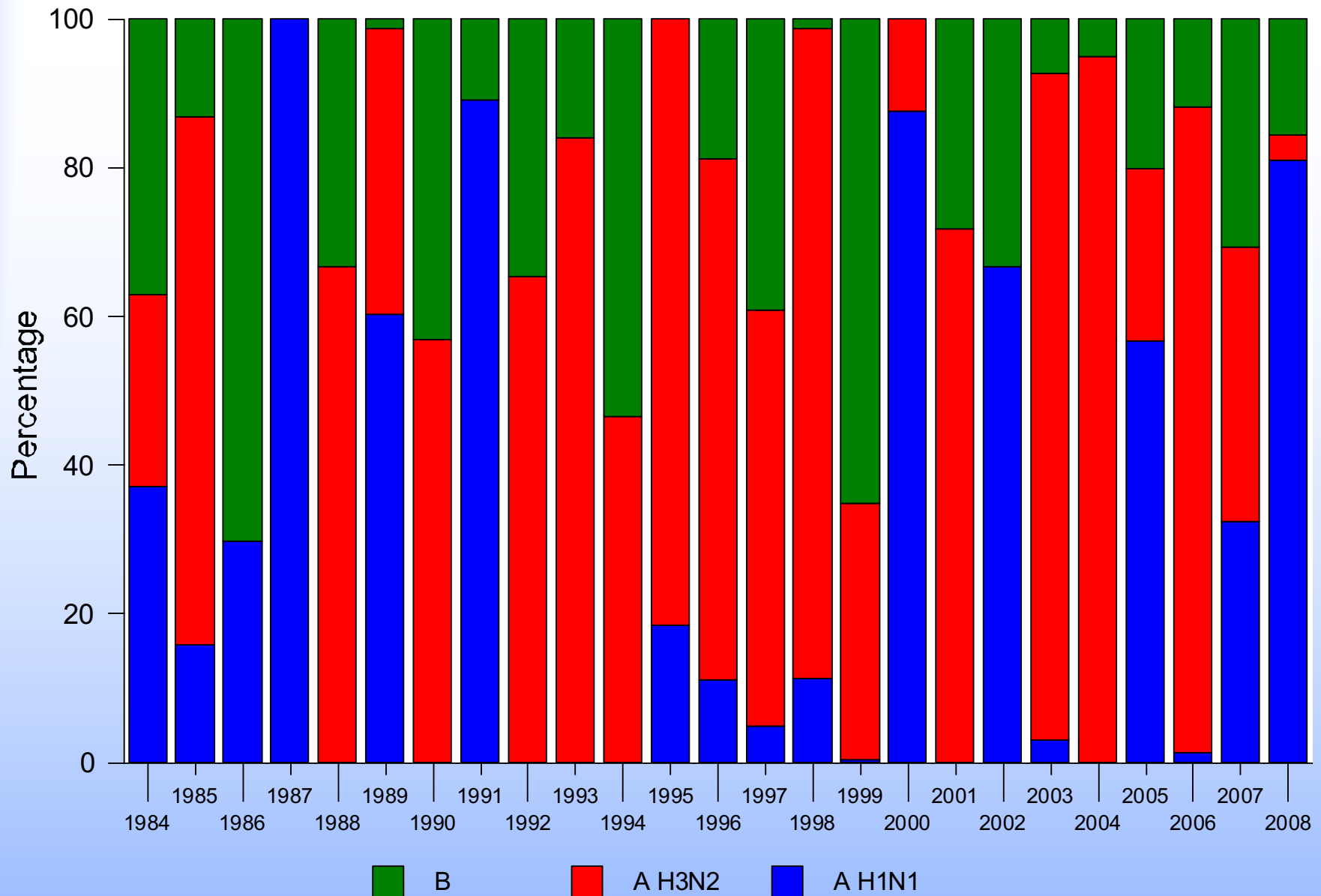
ONSET & DURATION OF INFLUENZA SEASON: 1985 - 2007

- Median onset:
 - Week 23
 - Range 15-28
- Median peak:
 - Week 27
 - Range 20-32
- Median duration:
 - 10 weeks
 - Range 7-17

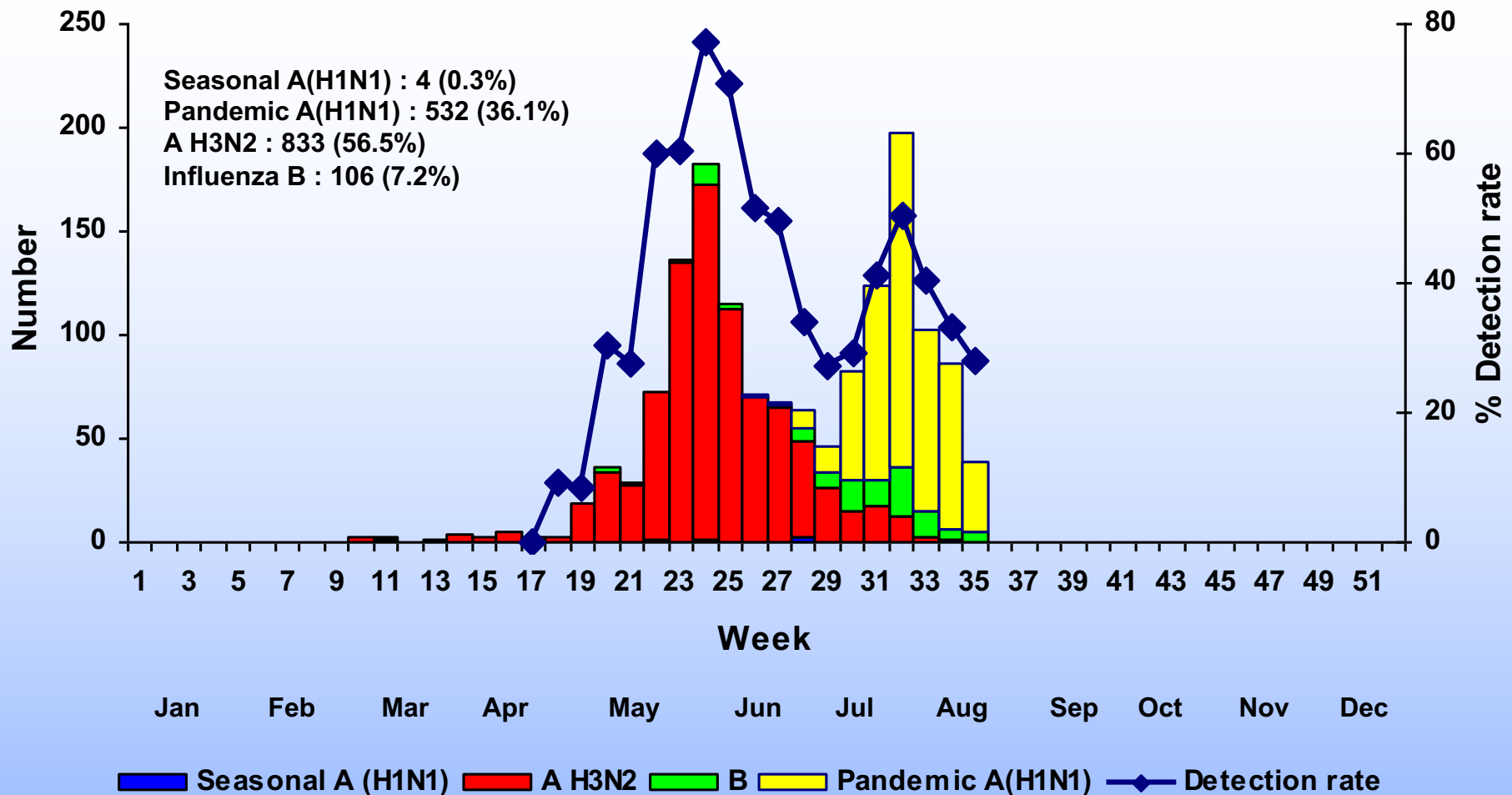


Mean onset

INFLUENZA STRAINS DETECTED : SOUTH AFRICA 1984 - 2008



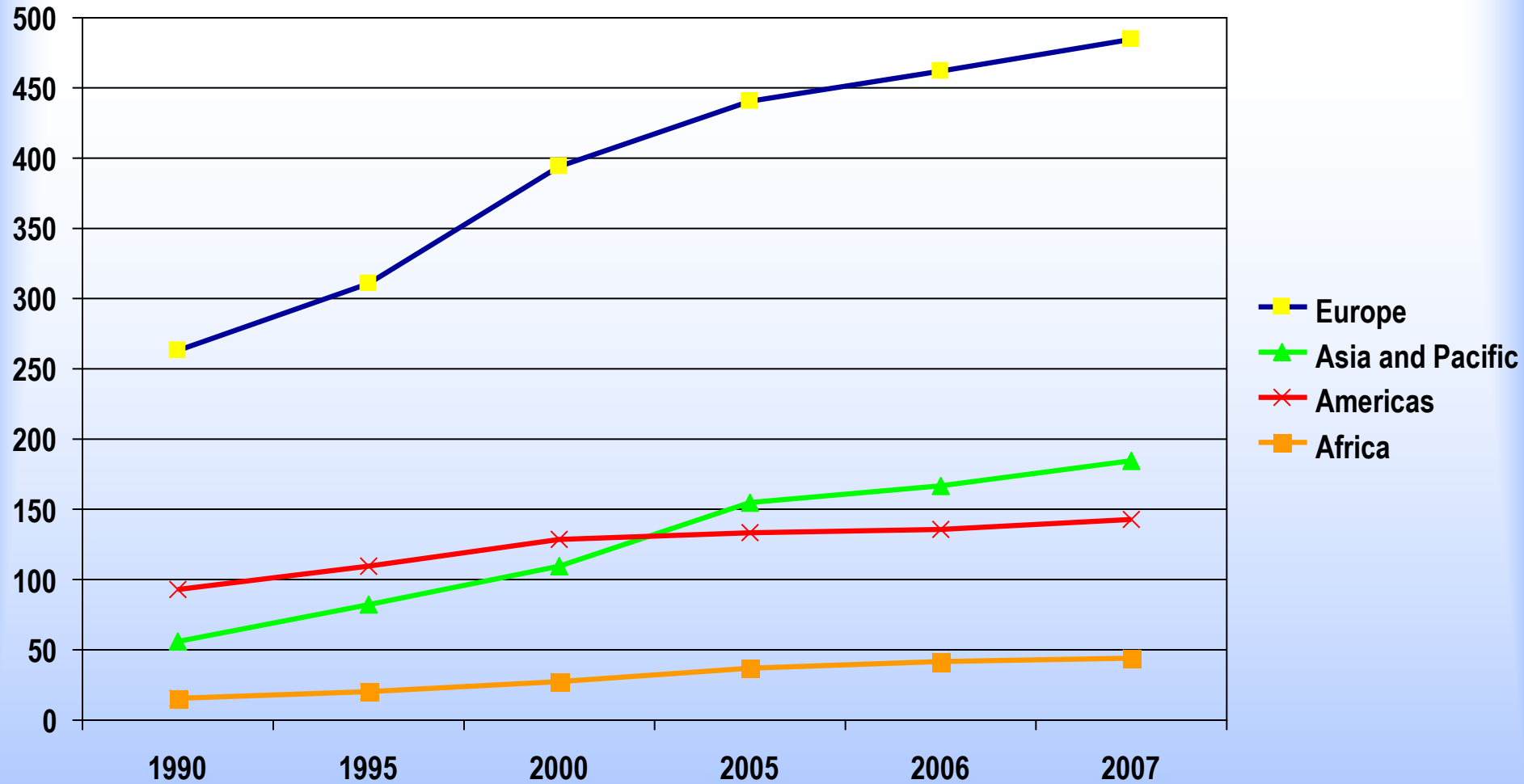
POSITIVE SAMPLES BY INFLUENZA TYPES AND SUBTYPE: VIRAL WATCH SOUTH AFRICA 2009

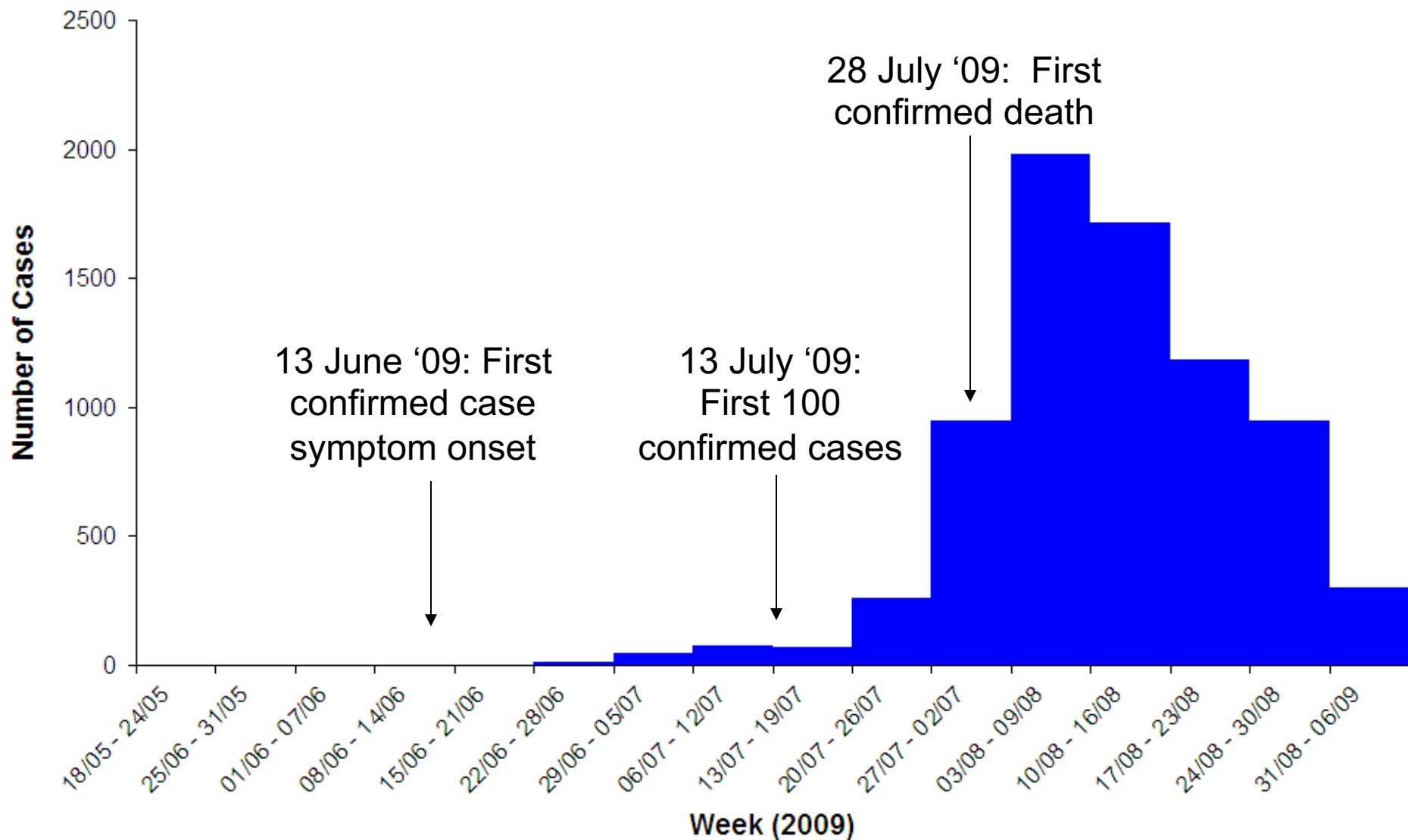


FIRST CONFIRMED CASES OF H1N1

Argentina	May 16
Australia	May 7
Chile	May 17
New Zealand	April 28
Uruguay	May 27
USA	April 17
South Africa	June 13

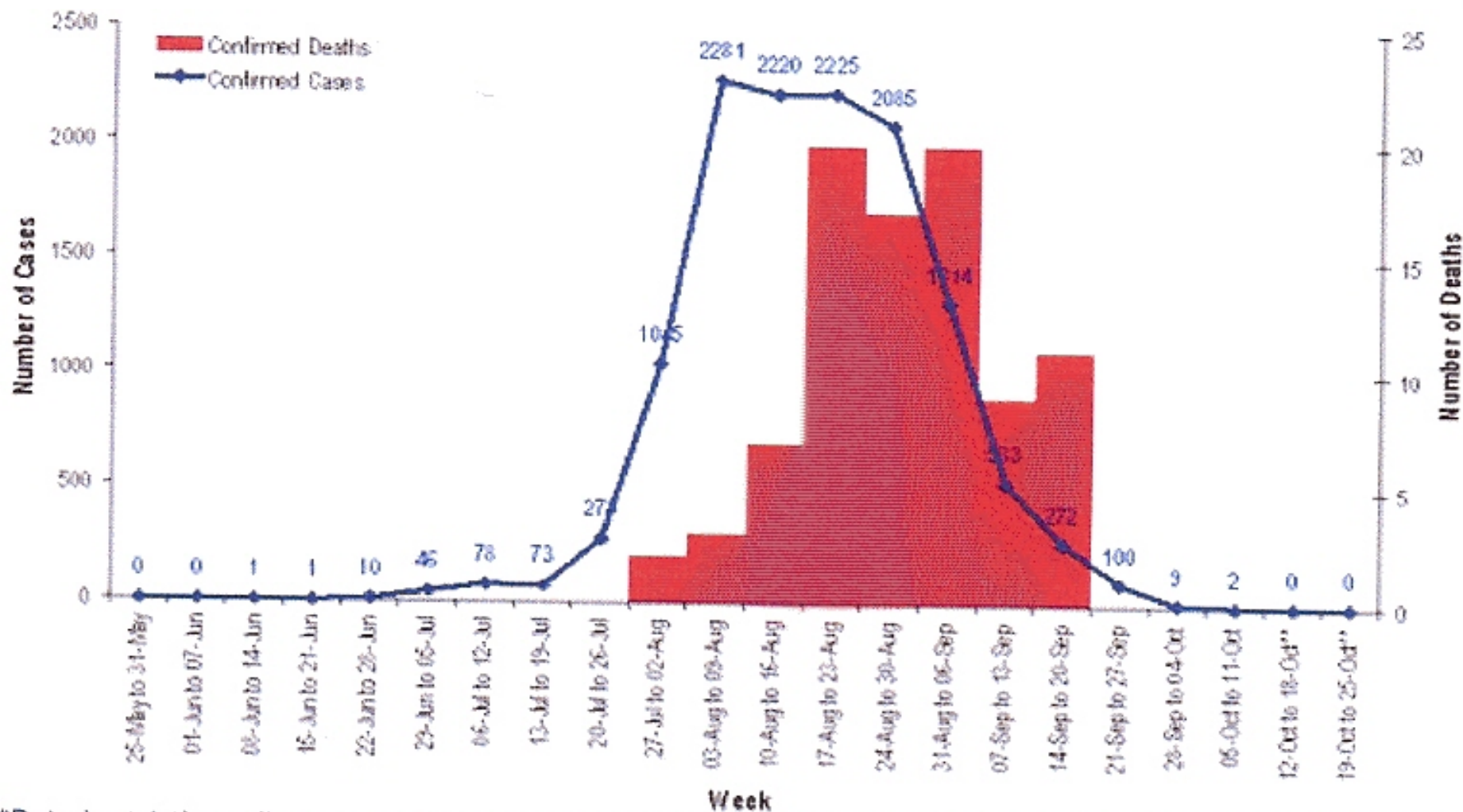
INTERNATIONAL TOURIST ARRIVALS (MILLIONS)





Epidemic curve showing laboratory confirmed cases of pandemic influenza A(H1N1) 2009 by epidemiological week of specimen collection, South Africa, 7 September 2009 (n=7606)

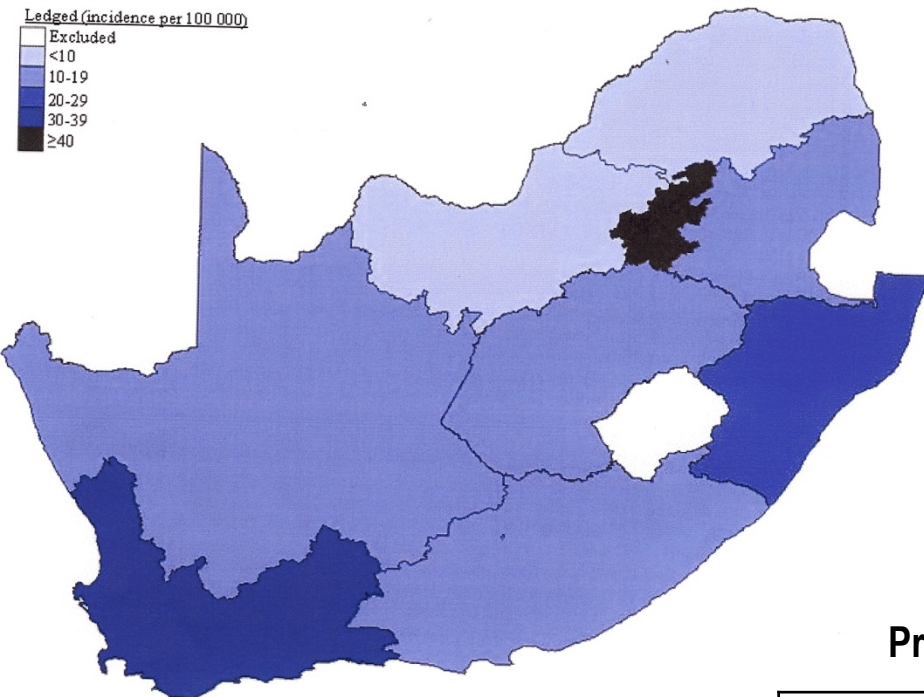
EPIDEMIC CURVE ILLUSTRATING THE NUMBER OF LABORATORY-CONFIRMED PANDEMIC INFLUENZA A (H1N1) 2009 CASES AND DEATHS BY WEEK, SOUTH AFRICA, UPDATED 26 OCT 09 **(n(cases)=12,598) OF WHICH 25 WITH UNKNOWN DATE; N (DEATHS) = 91, OF WHICH 2 WITH UNKNOWN DATE**



****Data is strictly preliminary. Laboratory-based surveillance is subject to time delays. Total case counts for the most recent weeks is likely incomplete and will increase with the reporting of new cases. Week calculated from date of onset or date of specimen collection if onset is unknown.**

TRAVEL HISTORY OF 42 CASES WITHIN THE FIRST 100 INVESTIGATED

North America	6	14%	Europe	15	36%
USA	6		Other European Countries	5	
South America	5	12%	Germany	1	
Argentina	2		Greece	1	
Brazil	2		Netherlands	1	
Chile	1		Sweden	1	
Other African Countries	3	7%	Turkey	1	
Mauritius	2		UK	5	
Zimbabwe	1		Asia	8	19%
Australia	5	12%	China	2	
			Singapore	4	
			Dubai	1	
			Bali	1	

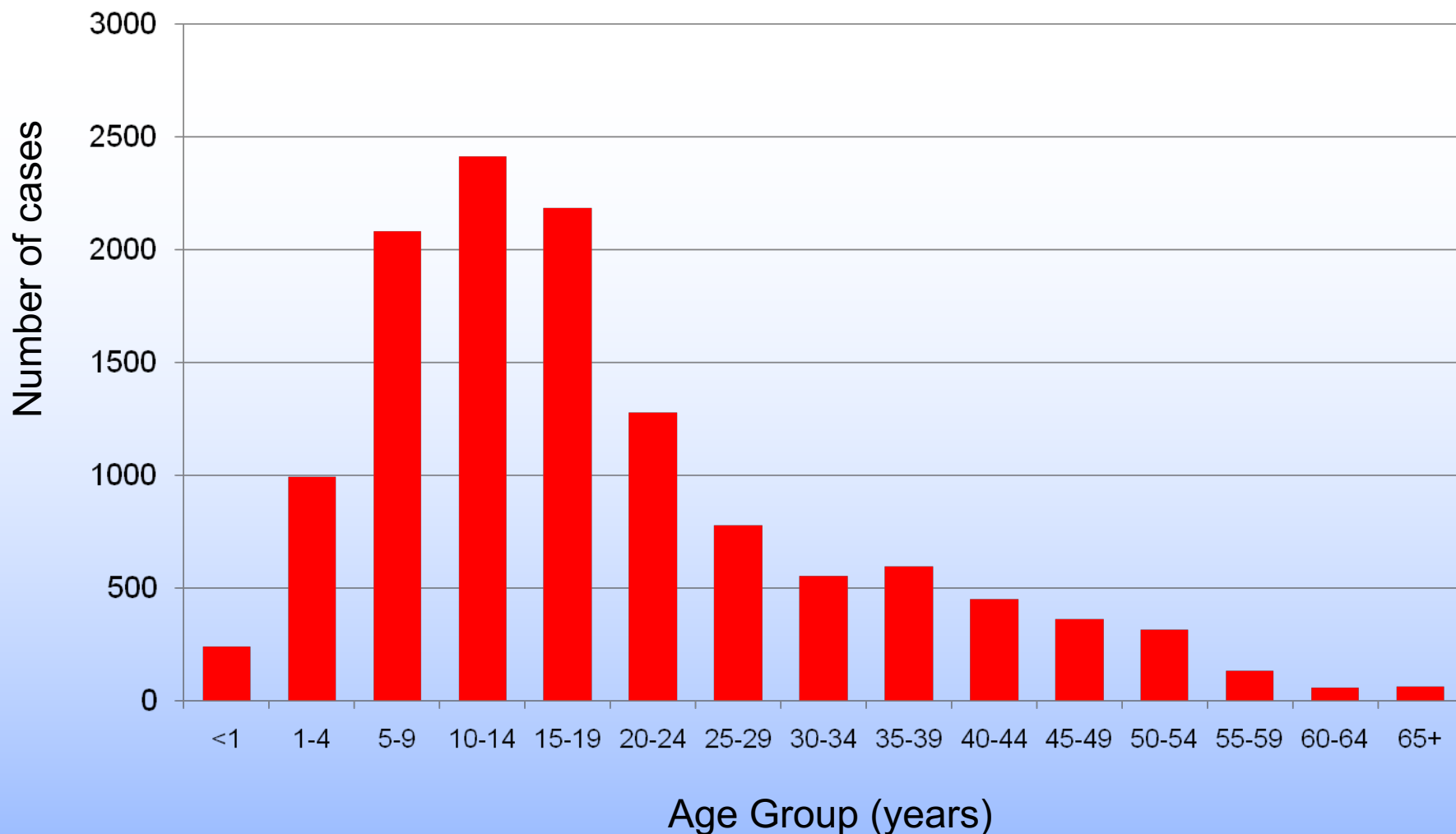


LABORATORY CONFIRMED PANDEMIC INFLUENZA A(H1N1) 2009

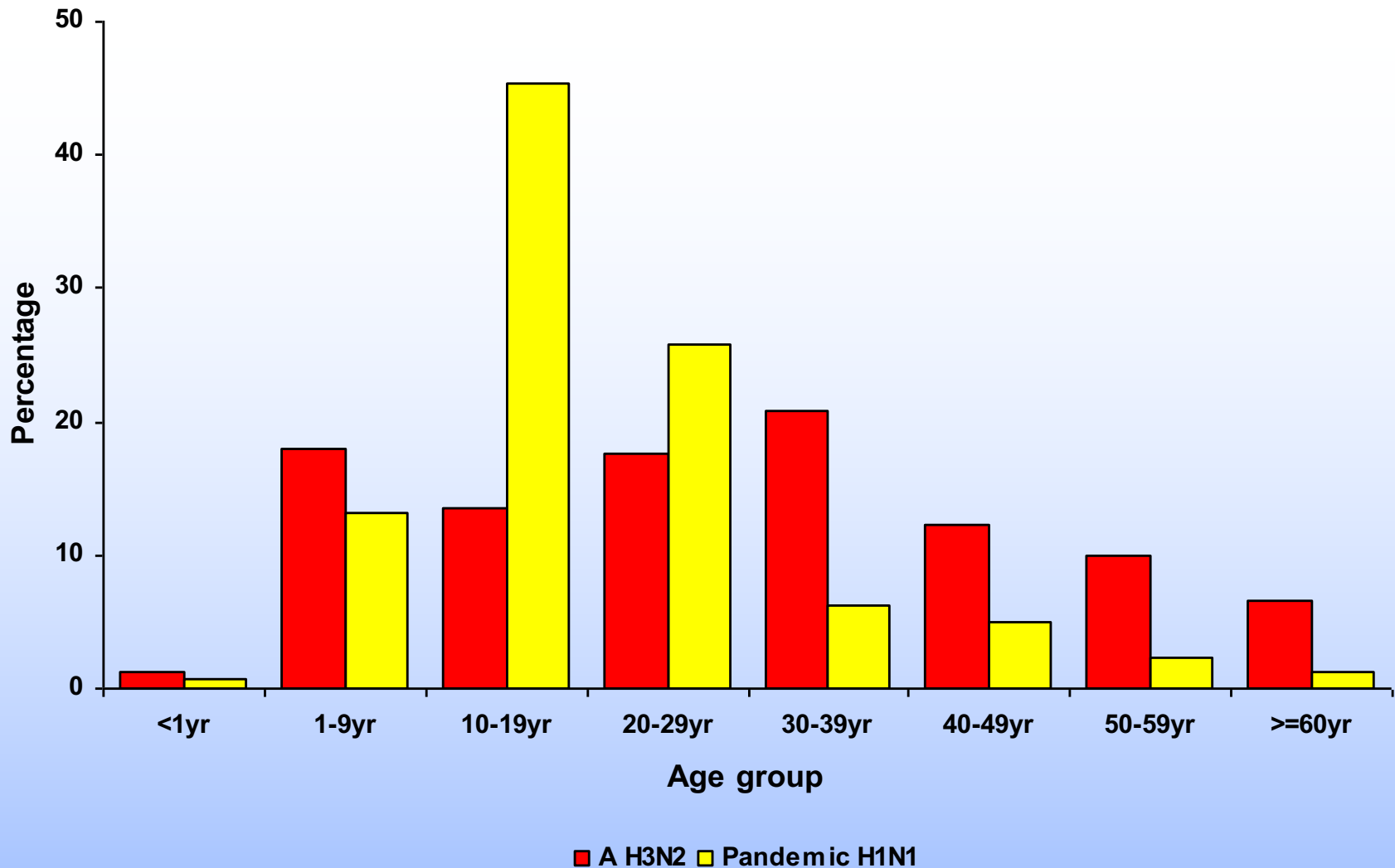
28 October 2009

Province	Laboratory-confirmed cases			Lab-confirmed H1N1 deaths
	N		Incidence rate (per 100 000)	
Gauteng	5565		52.8	13
Western Cape	2104		39.3	39
KwaZulu Natal	2254		21.6	21
Eastern Cape	682		10.3	10
Limpopo	544		10.4	0
North West	463		13.4	2
Free State	312		10.8	2
Mpumalanga	499		13.8	1
Northern Cape	133		11.6	3
Unknown	42		-	0
SA Total	12598		25.5	91

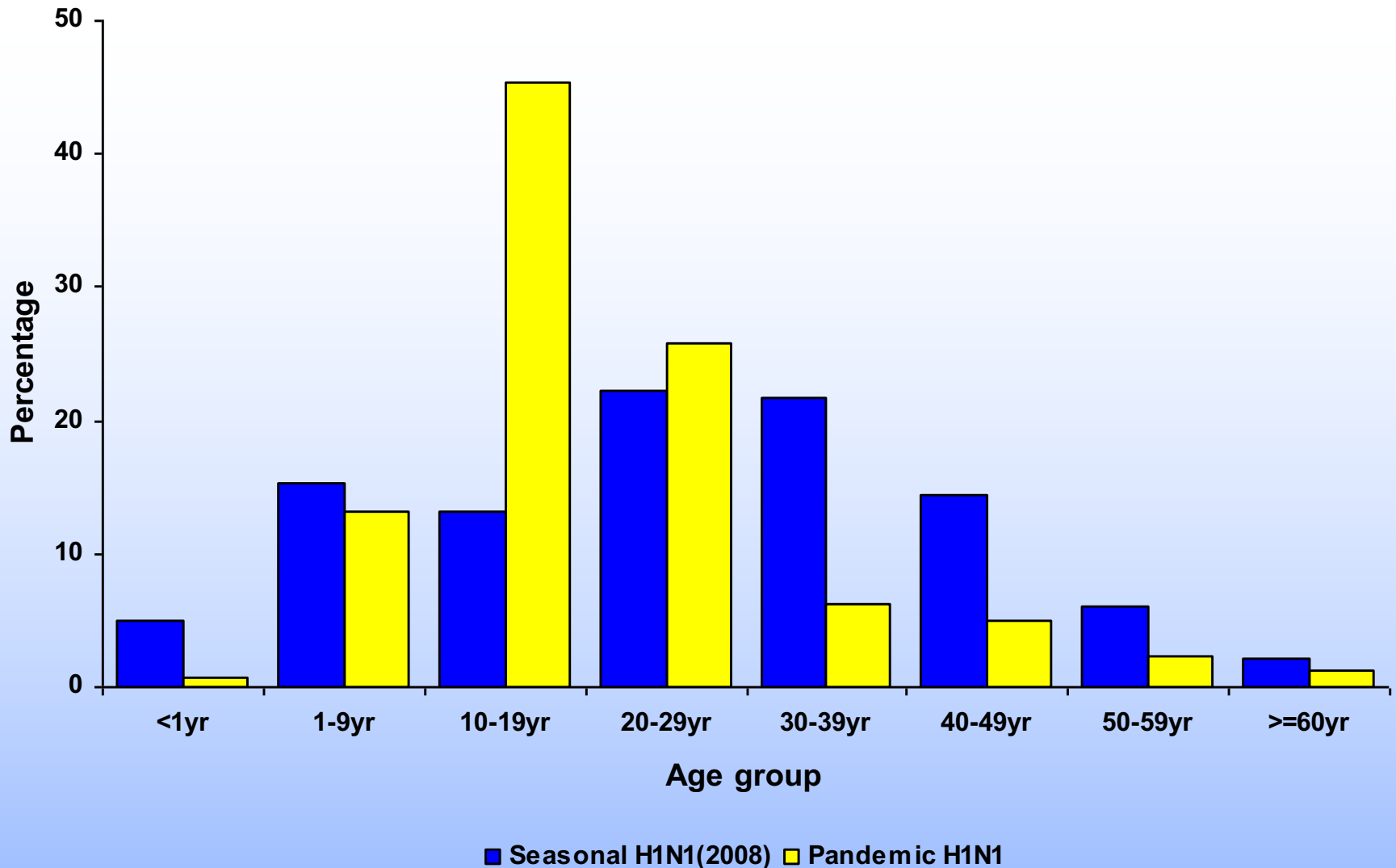
**NUMBER OF LABORATORY CONFIRMED PANDEMIC INFLUENZA A (H1N1)
2009 CASES BY AGE-GROUP, SOUTH AFRICA, UPDATED 26 OCTOBER 09
(n=12,598, OF WHICH 134 WITH UNKNOWN AGE)**



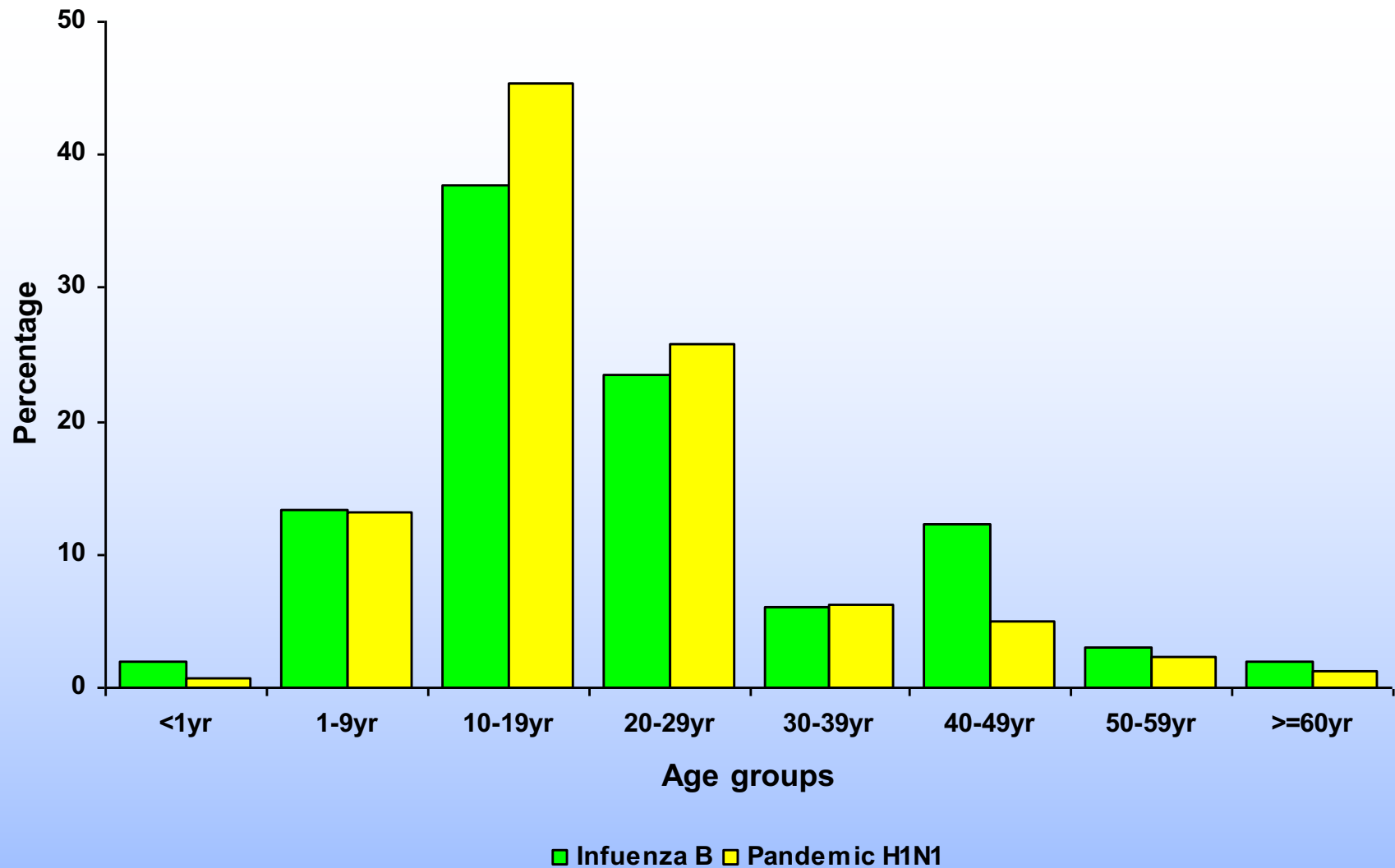
AGE DISTRIBUTION OF PATIENTS WITH SEASONAL A H3N2 AND PANDEMIC H1N1



AGE DISTRIBUTION OF PATIENTS WITH SEASONAL A H1N1 (2008) AND PANDEMIC A H1N1



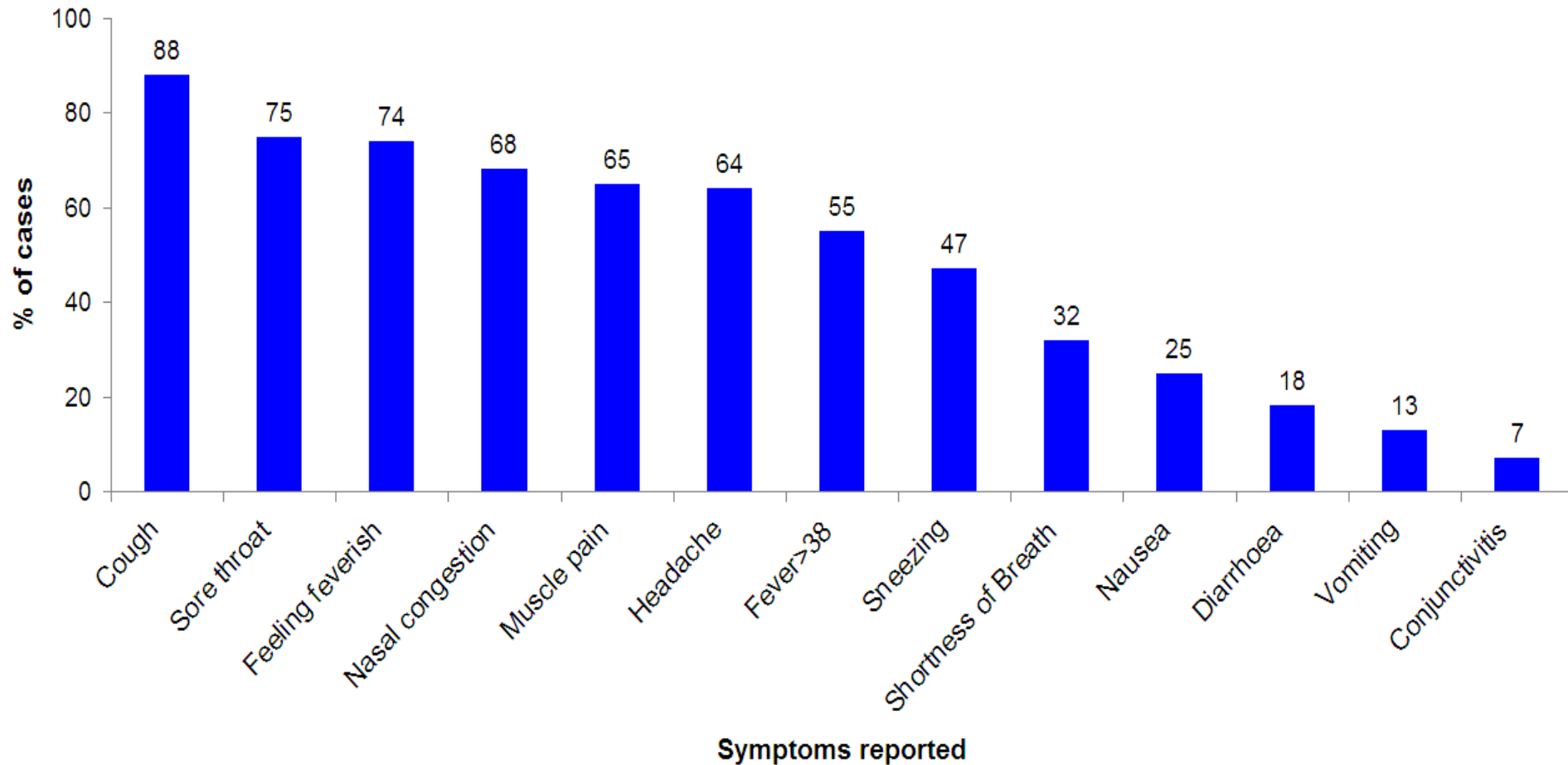
AGE DISTRIBUTION OF PATIENTS WITH INFLUENZA B AND PANDEMIC H1N1



FIRST 100 CASES

ASIAN	12
AFRICAN	6
MIXED RACE	5
WHITE	74
UNKNOWN	3

PRELIMINARY FINDINGS FROM INVESTIGATIONS OF THE FIRST 100 CASES



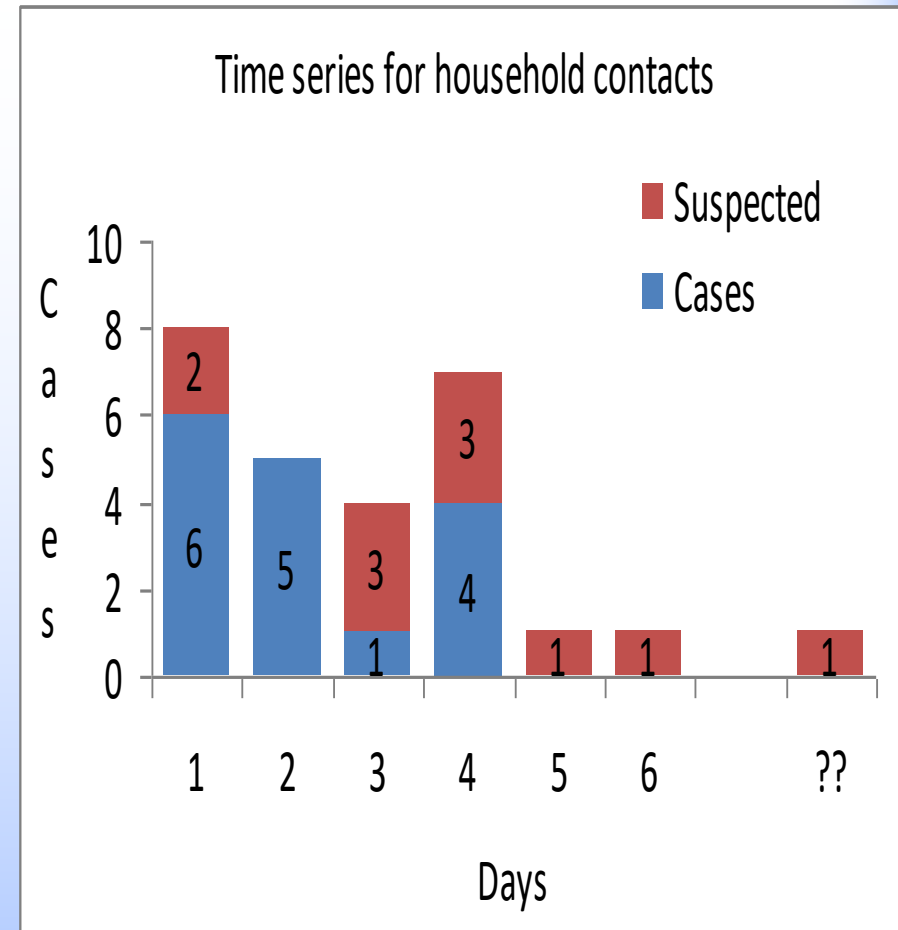
Symptoms experienced by pandemic influenza A(H1N1) 2009 cases, first 100 confirmed case investigation, South Africa (n=100)

PRELIMINARY FINDINGS FROM INVESTIGATIONS OF THE FIRST 100 CASES

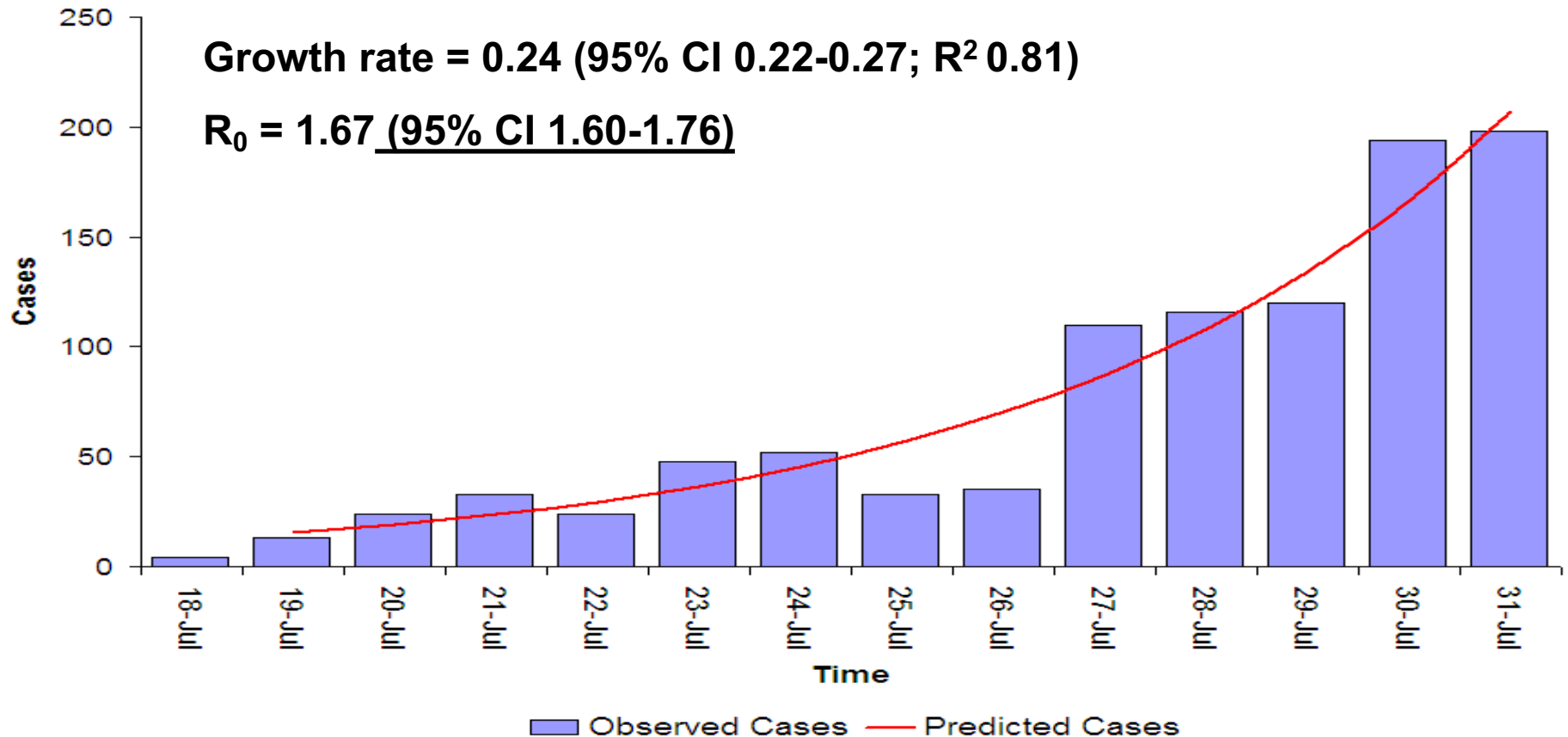
- Household Secondary Attack Rate (SAR) estimate:
 - 65 households included
 - Susceptible population: 158 individuals
 - 27 secondary cases found (16 confirmed, 11 suspected)
 - Household SAR (confirmed + suspected) = $27/158 = 17\%$
 - Household SAR (confirmed cases only) = $16/158 = 10\%$

PRELIMINARY FINDINGS FROM INVESTIGATIONS OF THE FIRST 100 CASES

- Serial interval estimate among secondary cases:
 - All secondary cases:
 - Confirmed: Mean 2.32 days (range 1-5, SD 1.34)
 - Confirmed + ILI: Mean 2.69 days (range 1-4, SD 1.49)
 - Household secondary cases:
 - Confirmed: Mean 2.19 days (range 1-4, SD 1.22)
 - Confirmed + ILI: Mean 2.65 days (range 1-6, SD 1.47)



Preliminary reproductive number (R_0) estimates based on the initial exponential growth phase of the epidemic and serial interval estimates established from the first 100 case investigation



Epidemic curve of the observed and predicted frequencies of laboratory confirmed pandemic influenza A(H1N1) 2009 case within the selected time interval (18 July – 31 July '09), South Africa

PANDEMIC H1N1 DEATHS

(28th October 2009)

TOTAL = 91

= 0.185 per 100,000 population (49.32m)

SELECTED CLINICAL CHARACTERISTICS OF PANDEMIC INFLUENZA A (H1N1) 2009 RELATED DEATHS, SOUTH AFRICA, UPDATED 28 OCTOBER 09

FACTOR	FREQUENCY OF FACTOR (NUMERATOR)	NUMBER OF CASES WITH DATA AVAILABLE (DENOMINATOR)	%
HIV infected	17	32 tested	53
Pregnant or puerperium	25	88	28
No co-morbidities identified	16	76	21
Diabetes	11	72	15
Obese	16	73	22
Cardiac disease +	9	71	13
Active tuberculosis (TB)	7	72	10

+ Cardiac disease includes: previous stents, mitral stenosis, cardiomyopathy, congestive cardiac failure, previous valvular replacement, recent myocardial infarction, and previous cardiac bypass surgery; excludes hypertension.

CONCLUDING OBSERVATIONS

1. Delayed commencement
2. Epidemiology of early 100 cases similar to other countries
3. However presentation in developing & deprived communities still to be determined.
4. HIV – suggestive of major risk factor
5. Pregnancy major risk factor.
6. Pregnancy +HIV - ? Significantly increased risk
7. Viral characterization – still to come

ACKNOWLEDGEMENTS

INFLUENZA EPIDEMIOLOGY TEAM

Brett Archer



Sr Jo McAnerney



Dr Geraldine Timothy



Dr Cheryl Cohen



Dr Lucille Blumberg



Dr Stefano Tempia



ACKNOWLEDGEMENTS

INFLUENZA LABORATORY TEAM



From l to r:

- **Jack Manamela**
- **Dr Marietjie Venter**
- **Dhamari Naidoo**
- **Professor Adrian Puren**



From l to r:

- **Cardia Fourie**
- **Amelia Buys**
- **Professor Adrian Puren**