

# Sustaining influenza surveillance – South African experience

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# Overview

- History and overview of influenza surveillance programmes in South Africa
- Keys to sustaining surveillance
  - Hinge platform on what is policy relevant
  - Use platform for multiple pathogens where possible
  - Report data regularly and report relevant data
  - Publish in peer-reviewed literature and perform policy-relevant analyses
  - Seize opportunities for funds where they arise
  - Push for a policy

# Influenza surveillance programmes in South Africa

| Programme             | Viral Watch            | Systematic ILI              | National syndromic surveillance for pneumonia | Private hospital consultations | Mortality        |
|-----------------------|------------------------|-----------------------------|---|--------------------------------|------------------|
| <b>Start year</b>     | 1984                   | 2012                        | 2009  | 2002                           | 1999             |
| Provinces             | 8                      | 3                           | 5   | 7                              | 9                |
| <b>Type of site</b>   | General practitioners  | Primary health care clinics | Public hospitals                              | Private hospitals              | Vital statistics |
| Syndrome              | ILI                    | ILI+                        | SARI+   | ICD codes – in and outpatients | ICD codes        |
| <b>Main pathogens</b> | INF<br>RSV<br>BP       | INF<br>RSV<br>BP            | INF<br>RSV<br>BP                              | Not applicable                 | Not applicable   |
| <b>Funding</b>        | South Africa<br>US CDC | US CDC<br>South Africa      | US CDC<br>South Africa                        | South Africa                   | South Africa     |

Hinge platform on  
what is policy relevant

**Table 4.5: The ten leading underlying natural causes of death, 2013–2015\***

| Causes of death (based on ICD-10)                    | 2013     |                |              | 2014 |                |              | 2015 |                |              |
|--|----------|----------------|--------------|------|----------------|--------------|------|----------------|--------------|
|  | Rank     | Number         | %            | Rank | Number         | %            | Rank | Number         | %            |
| Tuberculosis (A15-A19)**                             | 1        | 41 904         | 8,8          | 1    | 39 495         | 8,3          | 1    | 33 063         | 7,2          |
| Diabetes mellitus (E10-E14)                          | 5        | 23 133         | 4,9          | 3    | 23 966         | 5,0          | 2    | 25 070         | 5,4          |
| Cerebrovascular diseases (I60-I69)                   | 4        | 23 158         | 4,9          | 2    | 24 131         | 5,1          | 3    | 22 879         | 5,0          |
| Other forms of heart disease (I30-I52)               | 6        | 22 189         | 4,7          | 4    | 22 928         | 4,8          | 4    | 22 215         | 4,8          |
| Human immunodeficiency virus [HIV] disease (B20-B24) | 3        | 23 825         | 5,0          | 6    | 22 729         | 4,8          | 5    | 21 926         | 4,8          |
| <b>Influenza and pneumonia (J09-J18)</b>             | <b>2</b> | 24 345         | 5,1          | 5    | 22 813         | 4,8          | 6    | 20 570         | 4,5          |
| Hypertensive diseases (I10-I15)                      | 7        | 17 104         | 3,6          | 7    | 18 319         | 3,9          | 7    | 19 443         | 4,2          |
| Other viral diseases (B25-B34)                       | 9        | 14 101         | 3,0          | 9    | 14 508         | 3,1          | 8    | 16 097         | 3,5          |
| Chronic lower respiratory diseases (J40-J47)         | 10       | 12 384         | 2,6          | 10   | 12 690         | 2,7          | 9    | 12 667         | 2,8          |
| Ischaemic heart diseases (I20-I25)                   | ...      | ...            | ...          | ...  | ...            | ...          | 10   | 12 239         | 2,7          |
| Intestinal infectious diseases (A00-A09)             | 8        | 16 163         | 3,4          | 8    | 14 795         | 3,1          | ...  | ...            | ...          |
| Other natural causes                                 |          | 207 523        | 43,6         |      | 207 593        | 43,7         |      | 202 840        | 44,1         |
| Non-natural causes                                   |          | 49 681         | 10,4         |      | 50 692         | 10,7         |      | 51 227         | 11,1         |
| <b>All causes</b>                                    |          | <b>475 510</b> | <b>100,0</b> |      | <b>474 659</b> | <b>100,0</b> |      | <b>460 236</b> | <b>100,0</b> |

\*Data from 2013–2014 have been updated with late registrations/delayed death notification forms processed in 2015/2016.

\*\* Including deaths due to *MDR-TB* and *XDR-TB*.

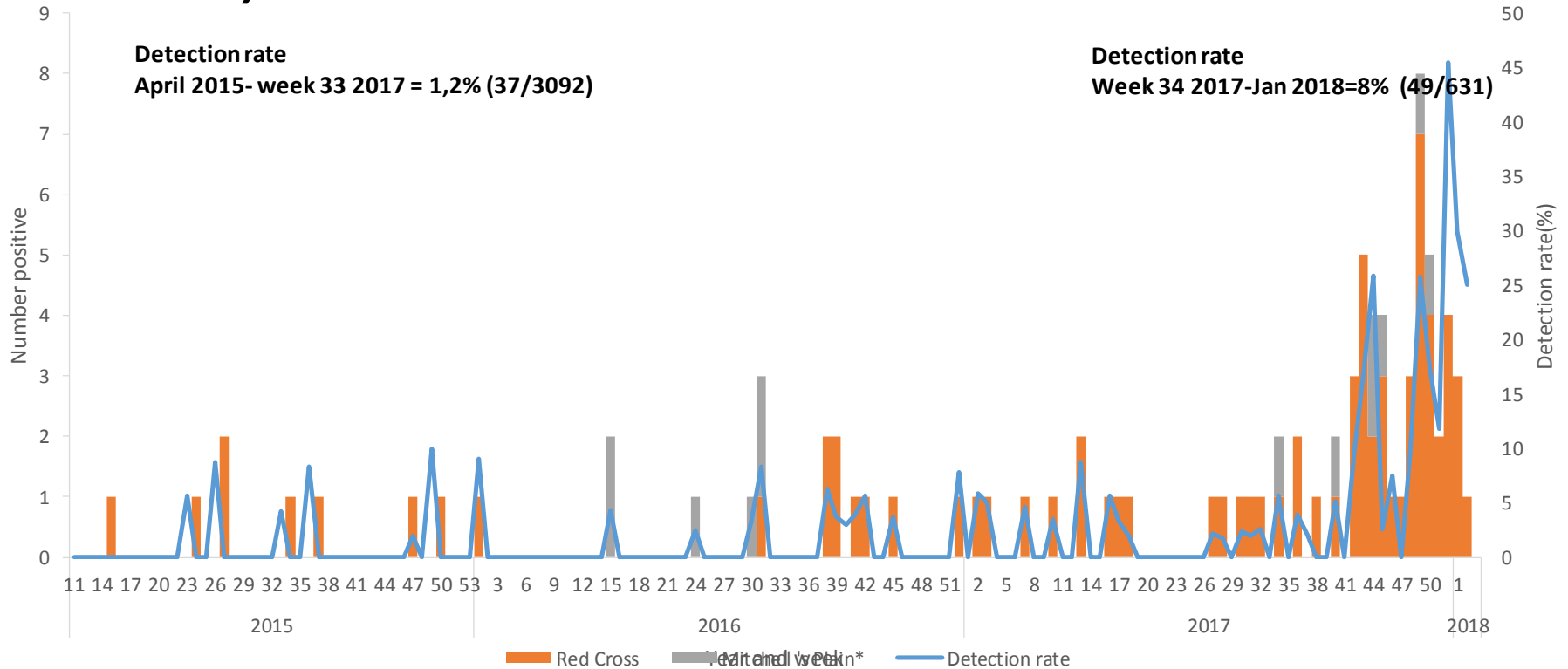
... Category not in top ten.

**We don't do SARI surveillance – we do pneumonia surveillance**

Source Statistics South Africa: Mortality and Causes of Death 2015

Use platform for  
multiple pathogens  
where possible

# Number of laboratory-confirmed pertussis cases by facility, Pneumonia surveillance programme, Western Cape, 2015-2018 (88/3703)



\*Testing from April 2016

**We currently test for influenza, RSV, pertussis**

Have evaluated 9 respiratory viruses, pneumococcus, legionella, mycoplasma, chlamydia, haemophilus

**We use the same nurses for invasive bacterial disease surveillance and diarrhoea surveillance as part of integrated teams**

Report data regularly  
and report relevant  
data

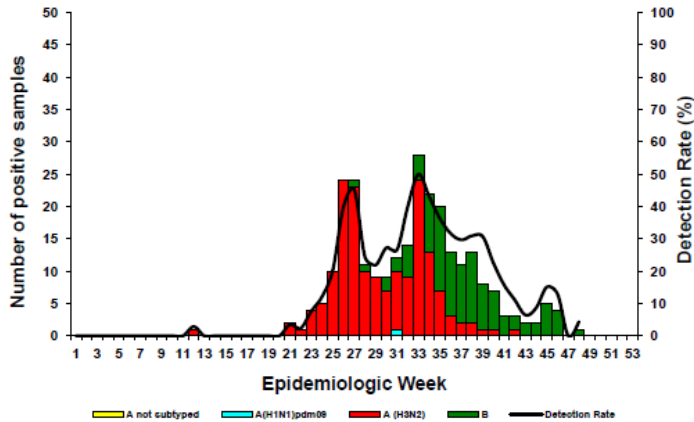


## Respiratory Pathogen Surveillance

Reporting period 01/01/2017 to 03/12/2017      Results until end of epidemiologic week 48 (2017)

### Influenza-like illness (ILI) surveillance primary health care clinics

Figure 1. Number of positive samples\* by influenza types and subtypes and detection rate\*\* by week



\*Specimens from patients with influenza-like illnesses at 3 sentinel sites in 3 provinces  
\*\*Only reported for weeks with >10 specimens submitted

Table 1. Cumulative number of influenza type and subtype and total number of samples tested by clinic and province

| Clinic (Province)            | A not typed as yet | A(H1N1)pdm09 | A(H3N2) | B  | Total samples |
|------------------------------|--------------------|--------------|---------|----|---------------|
| Agincourt Clinic (MP)        |                    |              | 39      | 24 | 405           |
| Edendale Gateway Clinic (KZ) |                    |              | 99      | 45 | 903           |
| Jouberton Clinic (NW)        |                    | 1            | 30      | 30 | 436           |
| Total:                       | 0                  | 1            | 168     | 99 | 1744          |

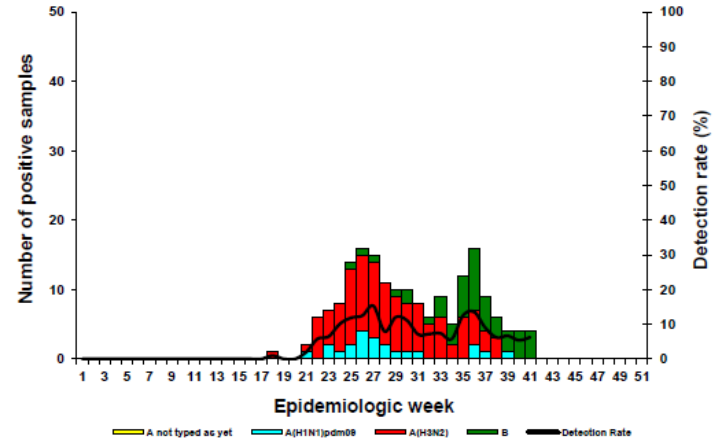
KZ: KwaZulu-Natal; NW: North West, MP: Mpumalanga

## Respiratory Pathogen Surveillance

Reporting period 01/01/2017 to 15/10/2017      Results until end of epidemiologic week 41(2017)

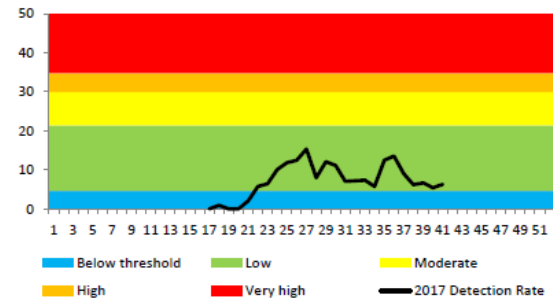
### National syndromic surveillance for pneumonia

Figure 6. Number of positive samples\* by influenza types and A not typed as yet and detection rate\*\* by week



\*Specimens from patients hospitalised with pneumonia at 6 sentinel sites in 5 provinces  
\*\*Only reported for weeks with >10 specimens submitted

Figure 7. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds\*



\*Thresholds based on 2010-2016 data

# DOH and WHO reports

- Weekly influenza reports during the season
- Monthly reports out of season
- Monthly communiqué contribution
- Annual reports on previous year in the March NICD bulletin 2010-2014
- Annual contribution to WHO vaccine strain selection process
- Included in WHO Weekly Epidemiologic Record Southern Hemisphere season review
- Contribution to South African draft policy on influenza

Publish in peer-reviewed  
literature and perform  
policy-relevant analyses

# Severe Influenza-associated Respiratory Infection in High HIV Prevalence Setting, South Africa, 2009–2011

Cheryl Cohen, Jocelyn Moyes, Stefano Tempia, Michelle Groom, Sibongile Walaza, Marthi Pretorius, Halima Dawood, Meera Chhagan, Summaya Haffjee, Ebrahim Variava, Kathleen Kahn, Akhona Tshangela, Anne von Gottberg, Nicole Wolter, Adam L. Cohen, Babatyi Kgokong, Marietjie Venter, and Shabir A. Madhi

*Open Forum Infectious Diseases*

MAJOR ARTICLE



## Risk Factors for Influenza-Associated Severe Acute Respiratory Illness Hospitalization in South Africa, 2012–2015

Stefano Tempia,<sup>1,2,3</sup> Sibongile Walaza,<sup>3,4</sup> Jocelyn Moyes,<sup>3,4</sup> Adam L. Cohen,<sup>1,5</sup> Claire von Mollendorf,<sup>3,4</sup> Florette K. Treurnicht,<sup>3</sup> Marietjie Venter,<sup>6,7</sup> Marthi Pretorius,<sup>3,7,8</sup> Orienka Hellferscee,<sup>3,9</sup> Senzo Mtshali,<sup>3</sup> Mpho Seleka,<sup>3</sup> Akhona Tshangela,<sup>3</sup> Athermon Nguweneza,<sup>3</sup> Johanna M. McAnerney,<sup>3</sup> Nicole Wolter,<sup>3,9</sup> Anne von Gottberg,<sup>3,9</sup> Halima Dawood,<sup>10,11</sup> Ebrahim Variava,<sup>12,13,14</sup> Shabir A. Madhi,<sup>3,15,16</sup> and Cheryl Cohen<sup>3,4</sup>

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SHORT REPORT

WILEY

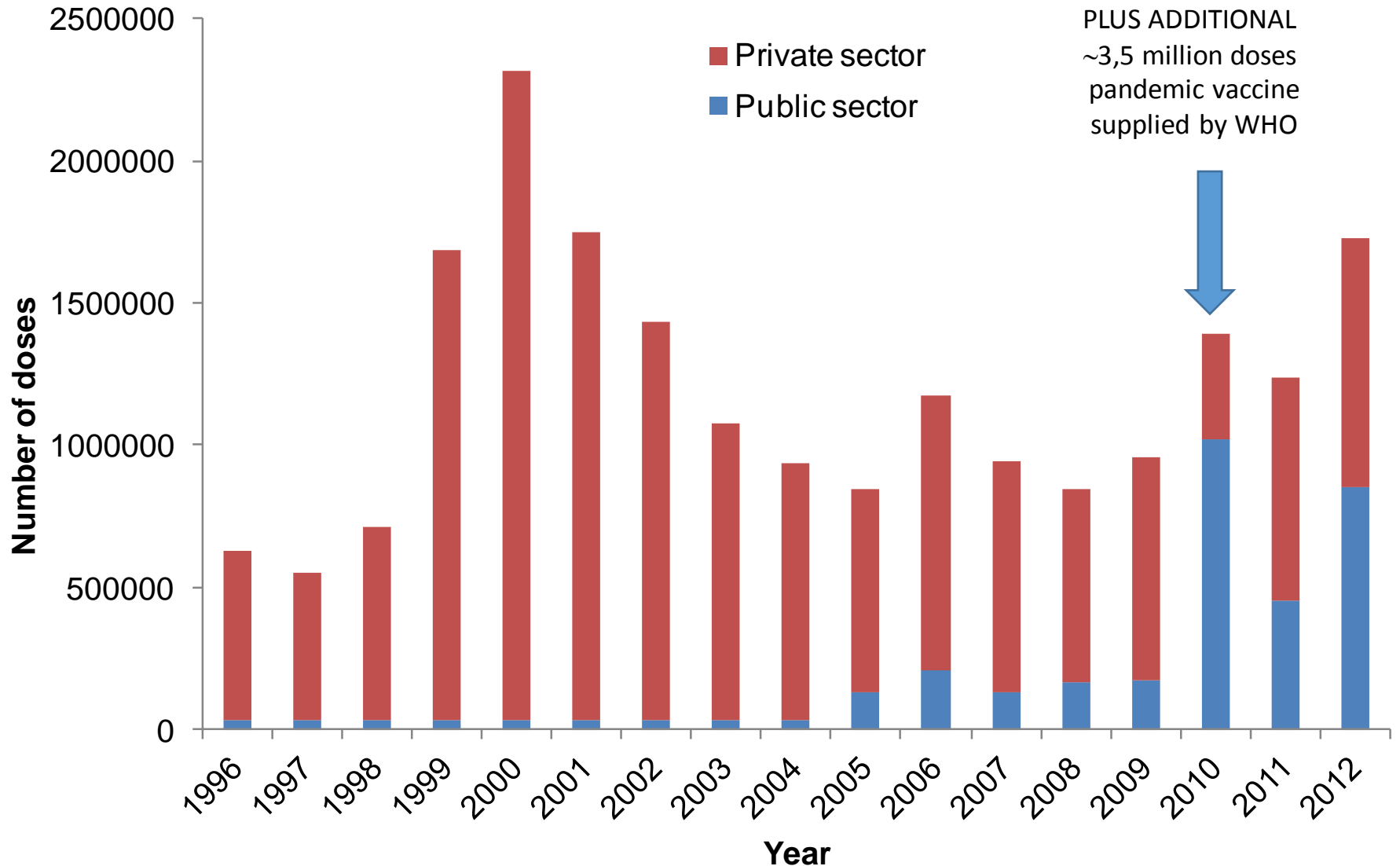
## Estimating vaccine effectiveness in preventing laboratory-confirmed influenza in outpatient settings in South Africa, 2015

Johanna M. McAnerney<sup>1</sup> | Sibongile Walaza<sup>1</sup> | Stefano Tempia<sup>1,2,3</sup> | Lucille Blumberg<sup>1</sup> | Florette K. Treurnicht<sup>1</sup> | Shabir A. Madhi<sup>1,4</sup> | Ziyaad Valley-Omar<sup>1,5</sup> | Cheryl Cohen<sup>1</sup>

Seize opportunities for  
funds where they arise

# Annual number of influenza vaccine doses distributed, South Africa, 1996-2012

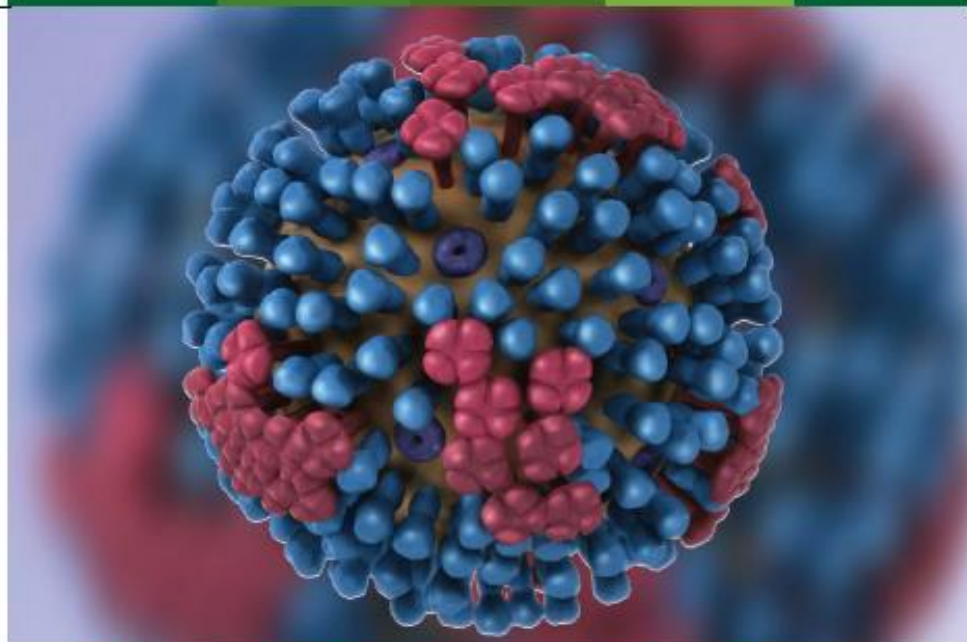
**Use outbreaks, pandemics, avian influenza**



Population 1996 - 40,5 million

Population 2011 - 51.7 million

Push for a policy



# National Influenza Policy and Strategic Plan

2017 to 2021



*A long and healthy life for all South Africans*





# Summary

- Surveillance backbone is sustainable in South Africa
- Still dependant on grant funds partially
- Progress incremental but also in bursts
- Must seize opportunities and be prepared
- Must show value
- Stakeholders must be accustomed to regular useful reports which they will miss
- More in depth analyses on burden and risk groups also important to add value