

Influenza Surveillance in 15 Countries in Africa, 2006- 2010: The ANISE Network

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Introduction

- In 2003, influenza A(H5N1) spread countries in Asia and eventually reached Africa. Human cases reported in Djibouti, Egypt and Nigeria.
- Few reports of seasonal influenza outbreaks in Africa with high case-fatality proportions.
- Estimation of mortality in the case of global pandemic concluded consequences in East Asia and sub-saharan Africa dire (Murray, 2006).

Introduction, cont'd

- In response to this pandemic threat, several international institutions and governments partnered with African counterparts to build capacity for influenza surveillance in Africa.
- **OBJECTIVE:** Document increased capacity for influenza surveillance in 15 countries in Africa received financial and/or technical support from the CDC and other sources.

Methods, cont'd

- Collected influenza surveillance data from 2006 through 2010

15 countries:

- Angola
- Côte D'Ivoire
- Democratic Republic of Congo (DRC)
- Egypt
- Ethiopia
- Ghana
- Kenya
- Madagascar
- Morocco
- Nigeria
- Rwanda
- South Africa
- Tanzania
- Uganda
- Zambia

Methods, cont'd

- Standardized form:
 - Date surveillance started
 - Number of sites conducting surveillance for influenza like illness (ILI) and/or severe acute respiratory infection (SARI)
 - Number of specimens collected and tested
 - Percentage of specimens that were positive for influenza by age and by month
 - Influenza types and subtypes
- Compared to FluNet

Methods, cont'd

- ❑ **Four separate sub-regions:**
 - North Africa (Egypt and Morocco)
 - West Africa (Côte D'Ivoire, Ghana, and Nigeria)
 - East Africa (Ethiopia, Kenya, Rwanda, Tanzania, and Uganda),
 - South/Central Africa (Angola, DRC, Madagascar, South Africa and Zambia)
- ❑ **Country of South Africa alone for seasonality analysis**

Results, 2006-2010

	2006	2010
Countries supported	6	15
Countries reported to FluNet	8	26
ILI sites	21	127
ILI private practitioner	210	357
SARI sites	2	101
Specimens tested per year	4,623	44,530
Influenza positive specimens	1,474	6,325

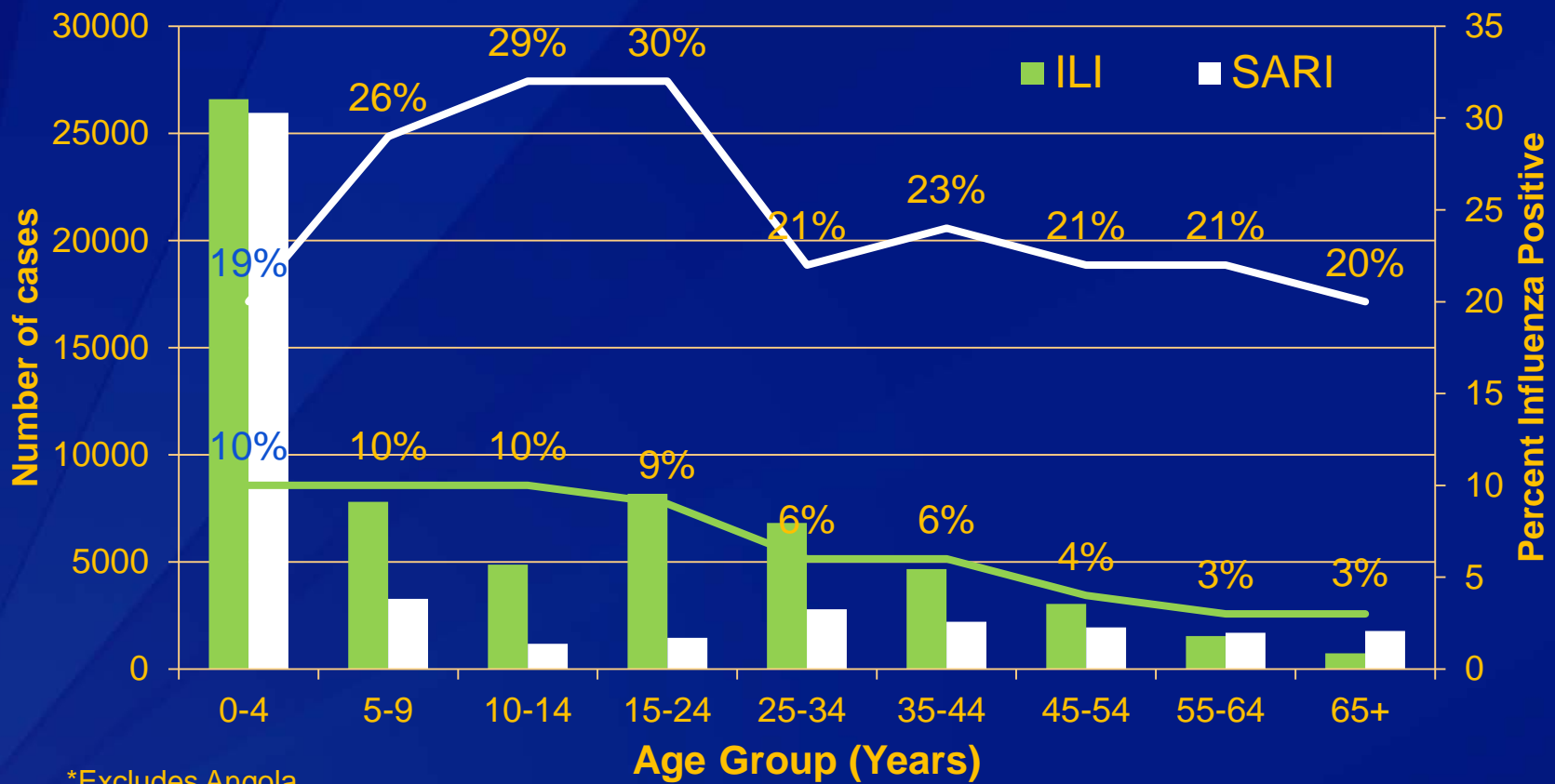
Results, cont'd

- ❑ **Among ILI cases, 22% tested positive for influenza (14,556 / 67,817)**
 - Range: 7% in Angola to 40% in Madagascar
- ❑ **Among SARI cases, 10% tested positive for influenza (4,386 / 43,287)**
 - Range: 5% in Ethiopia to 26% in Côte d'Ivoire

Influenza-Positive Specimens/Total Specimens Tested (% Positive)

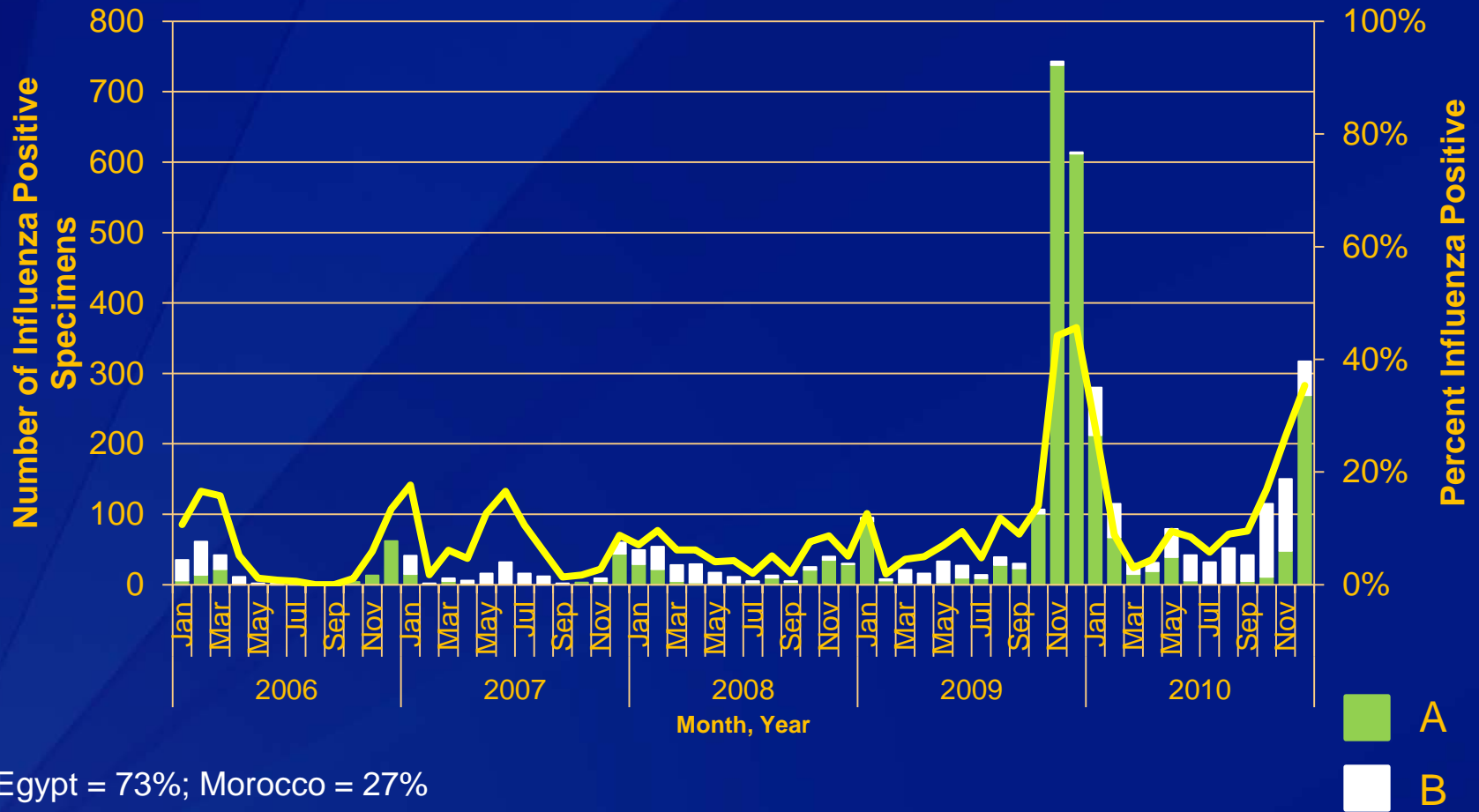
	ILI	SARI
Angola	32/478 (7)	37/371 (10)
Côte D'Ivoire	890/4620 (19)	24/94(26)
DRC	404/2510 (16)	77/662 (12)
Egypt	984/10777 (9)	993/9368 (11)
Ethiopia	11/115 (10)	6/131 (5)
Ghana	1619/7669 (21)	61/688 (9)
Kenya	1739/11577 (15)	1814/17388 (10)
Madagascar	2310/5712 (40)	N/A
Morocco	1424/5473 (26)	379/1990 (19)
Nigeria	225/2748 (8)	43/755 (6)
Rwanda	273/1081 (25)	96/1471 (7)
South Africa	4089/10164 (40)	701/8052 (8)
Tanzania	97/1097 (9)	57/713 (8)
Uganda	421/3359 (13)	41/642 (6)
Zambia	38/437 (9)	57/962 (6)
Total	14556/67817 (22)	4386/43287 (10)

Number of ILI and SARI Cases and Percent Positive for Influenza by Age, 2006-2010*



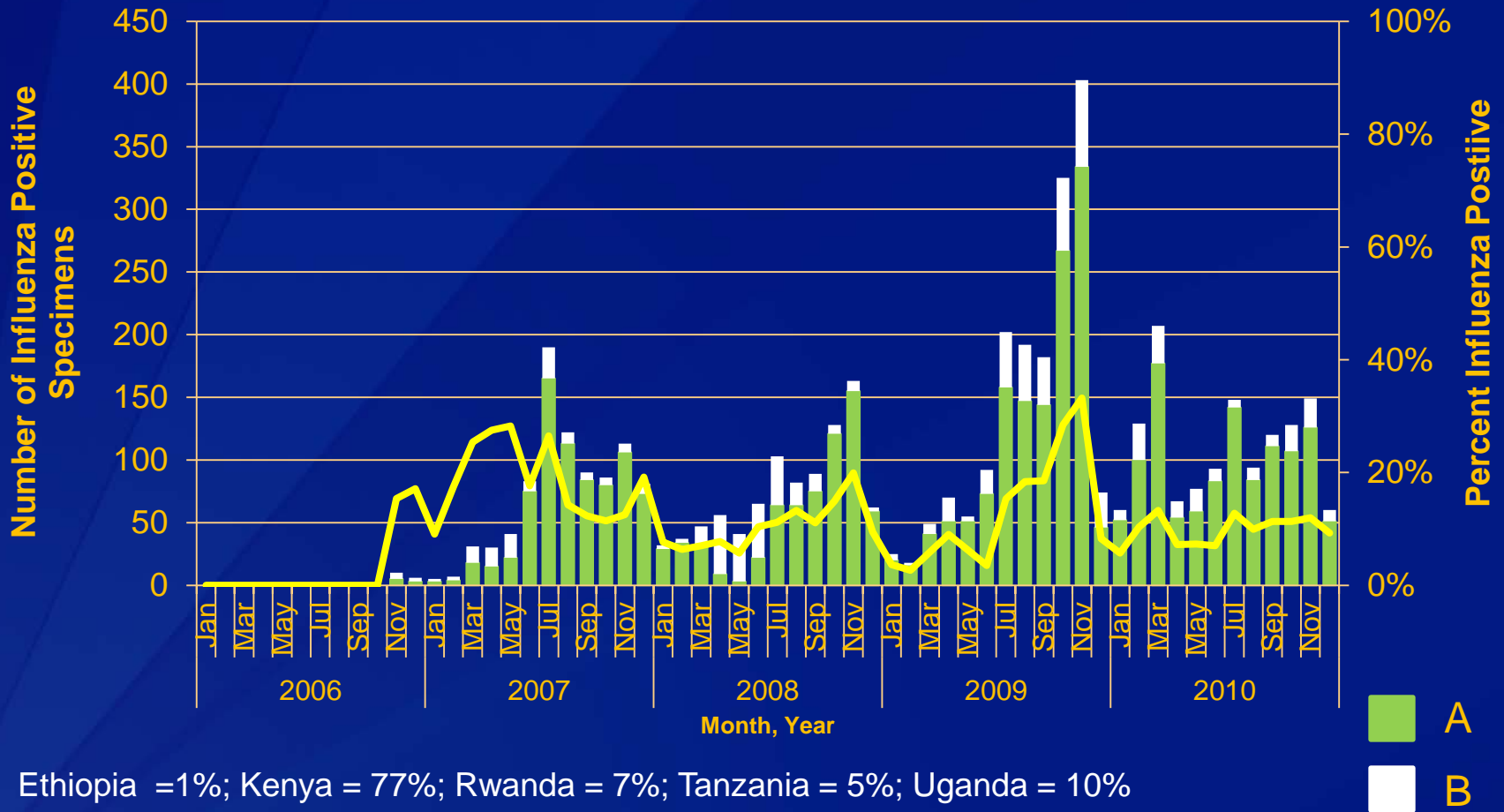
North Africa

(Egypt, Morocco)



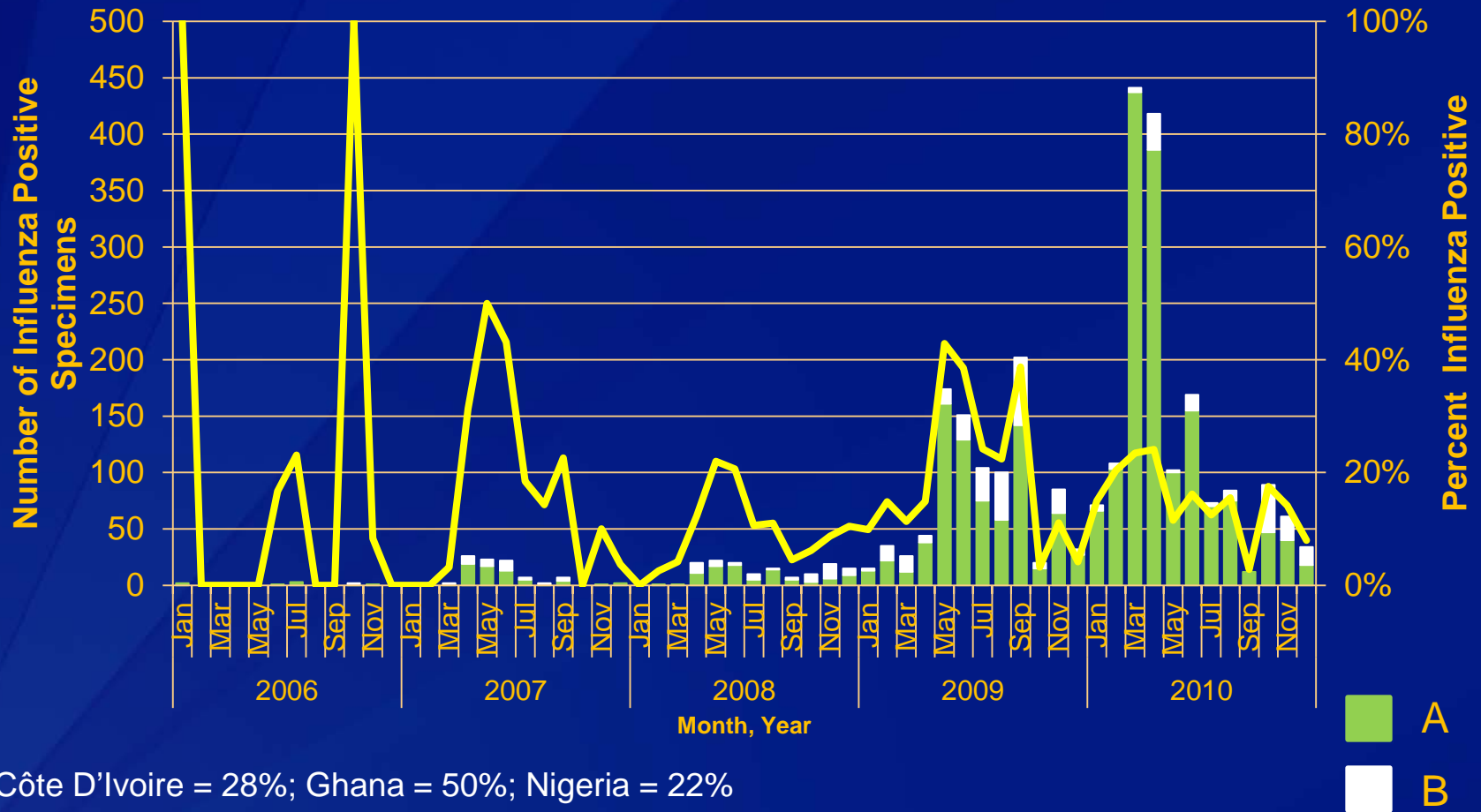
East Africa

(Ethiopia, Kenya, Rwanda, Tanzania, Uganda)



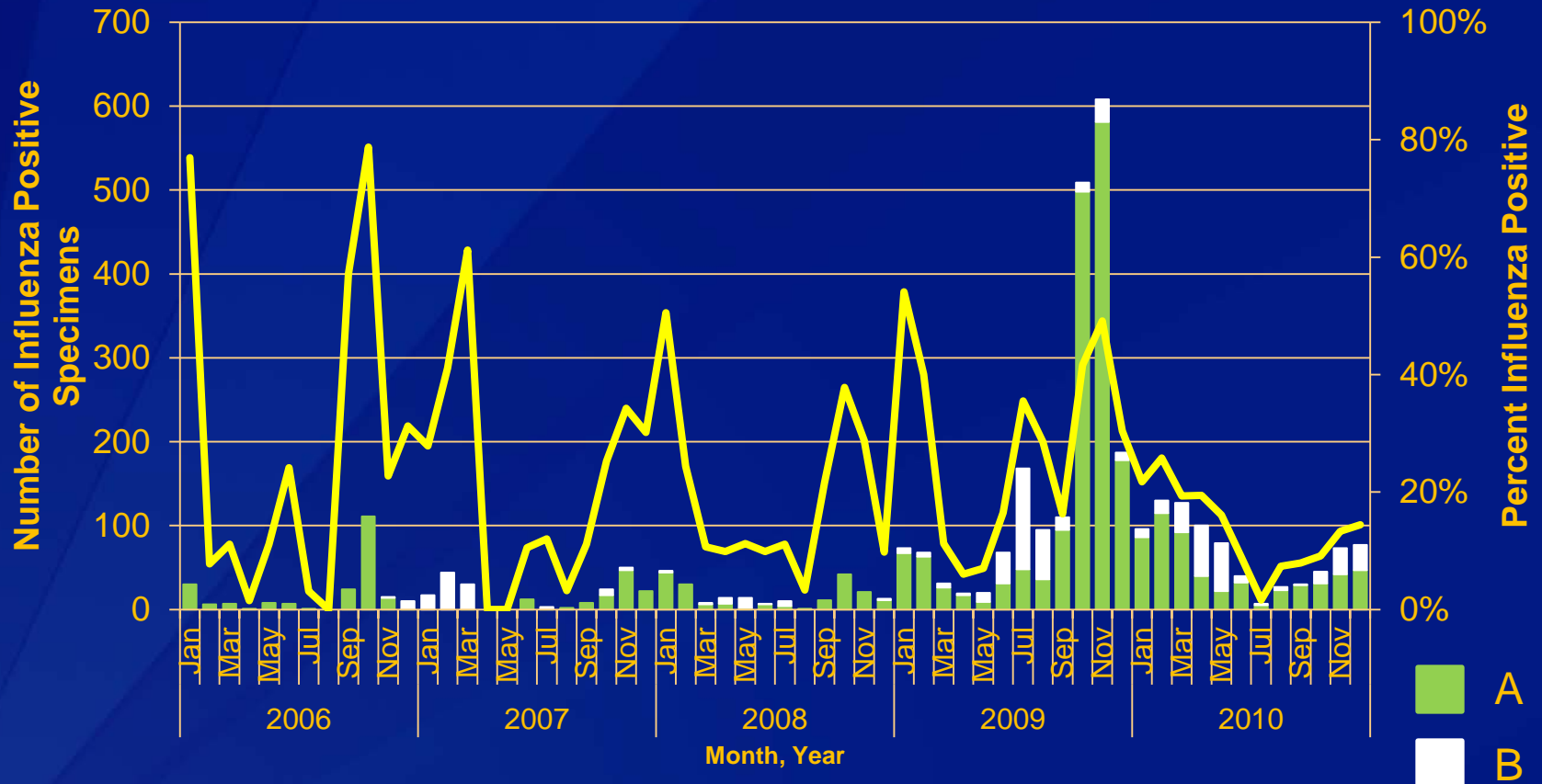
West Africa

(Côte D'Ivoire, Ghana, Nigeria)



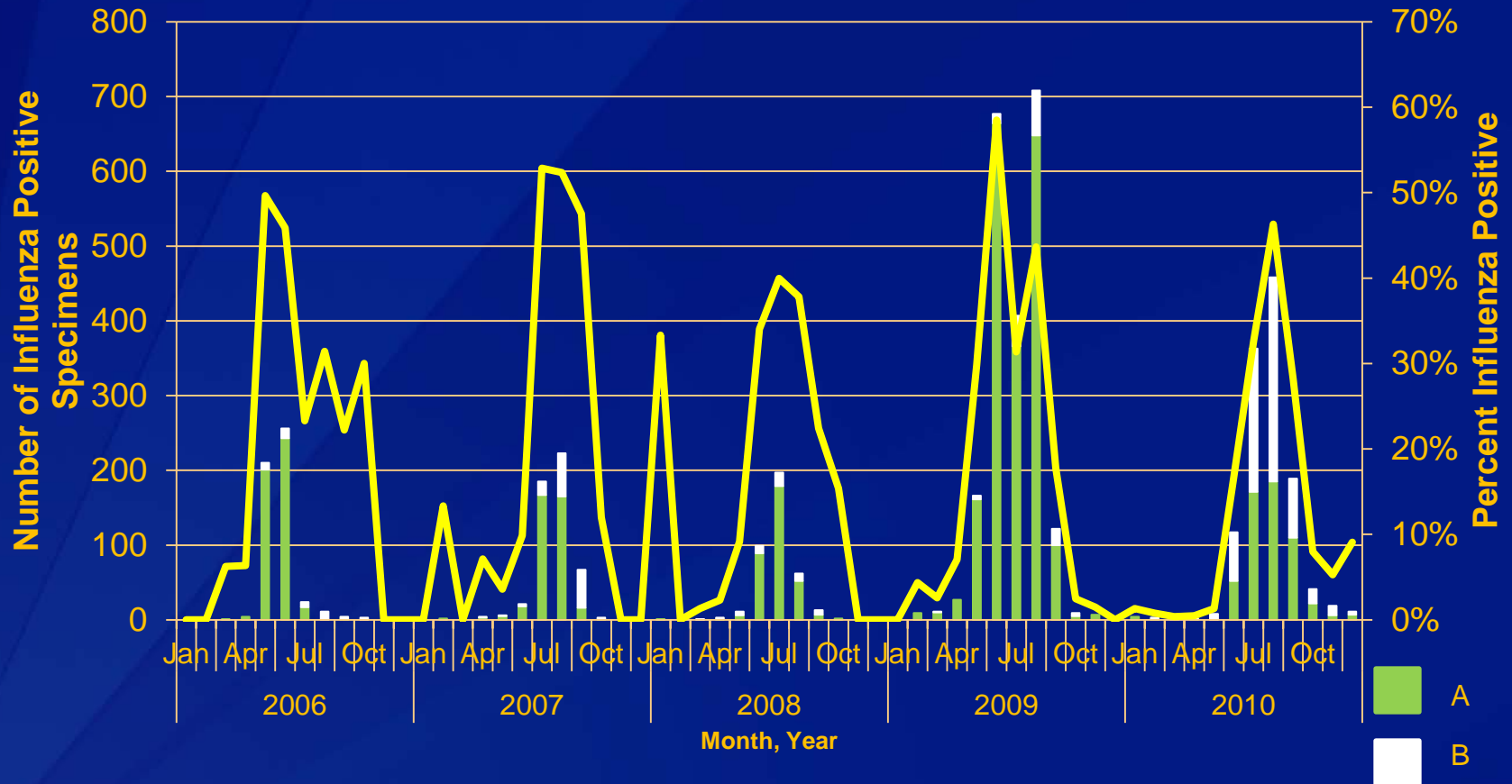
South/Central Africa

(Angola, DRC, Madagascar, Zambia)



Angola = 8%; DRC = 28%; Madagascar = 51%; Zambia = 13%

Country of South Africa



Influenza Strain Circulation, 2006-2010

- ❑ **2006 and 2007: Influenza B was the predominant strain in every region except South/Central Africa (where H3N2 predominated).**
- ❑ **2008: Strain predominance varied across sub-regions.**
- ❑ **2009: Influenza A(H1N1)pdm09 was the predominant strain in every region except West Africa (where H3N2 predominated).**
- ❑ **2010: Strain predominance varied across sub-regions. H3N2 predominated in East Africa, B predominated in South/Central Africa and North Africa, and influenza A(H1N1)pdm09 predominated in West Africa.**

Summary

- ❑ Influenza surveillance on the African continent has improved tremendously in the last few years- presentations and posters presented at this ANISE Meeting are a testament to this.
- ❑ 10% of SARI cases among 15 countries tested positive for influenza.
- ❑ Children 0-4 years accounted for approximately half of all ILI and SARI cases.

Discussion

- ❑ Represents only 15 of the 54 countries on the African continent.
- ❑ The relative burden of all-cause SARI and ILI in the under 5 year age group compared to older children and adults may not be accurately represented.
- ❑ Further strengthening influenza surveillance as well as conducting special studies on influenza burden, cost of illness, and role of other respiratory pathogens in Africa are important.

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Thank you!