Dr. Amha Kebede (DDG, EHNRI)

4th Annual Meeting of IANPHI, Nov 1-4, 2009
Johannesburg, South Africa
Background (I)

• Respiratory virus surveillance non-existent in Ethiopia prior to 2005

• Activities initiated in response to Avian Influenza (AI): late 2005
• Emergency national task force of AI (October 2005)

• Task force composed of:
  – National Coordinating Committee (decision-making body)
  – National Technical Committee (advisory role provided by technical experts)

• National Technical Committee prepared 3-year Preparedness and Response Plan to (2006-2008)
Background (III)

• Fed. Ministry of Health & Min. of Agriculture & Rural Development (MoARD)

• AIS underway in wild and domestic birds since 2006 by MoARD.

• Formal designation of National Influenza Laboratory (NIL) at EHNRI in July 2007.
Influenza Sentinel Surveillance (ISS) Activities

• Standard case (WHO/AFRO)
  – Guidelines
  – Detailed implementation guidelines
  – Case-based report formats & lab formats

• Setting criteria for site selection
• Formal launching of ISS in Sept. 2008
Influenza Sentinel Surveillance (cont.)

• Selection of 2 sites in Addis Ababa:
  – Health center based (targeting mild Influenza-like illness cases, all ambulatory patients) (Shiro Meda Health Center).
  – Hospital based (targeting more severe, acute respiratory infections, mostly all were inpatients) (Yekatit 12 Memorial Hospital).

• Sites equipped (refrigerators, basic furniture, computers/printers, & spec coll dev)
Influenza Sentinel Surveillance (cont.)

• Training provided to staff of sentinel sites on goals of ISS & on specimen collection, storage, transport etc.

• Patients of all age groups targeted (but in practice almost exclusively pediatric age group only at SARI site) *

• Specimen type: oropharyngeal (throat) swabs collected in absolute ethanol or viral transport media (VTM).
National Influenza Laboratory

• Under umbrella of Virology & Rickettsiology Research Group (Infectious & Non Infectious Diseases Research Directorate of EHNRI)

• Staff profile: 3 full-time staff and 2 part time staff (1 PhD, 4 BSc., additional staff to be recruited).

• Received training in real-time & conventional PCR techniques.

• Lab has real-time PCR Platform (AB 7500 FAST System).
National Influenza Laboratory (Cont.)

• Lab participation in WHO External Quality Assurance Programme (EQAP) for the detection of Influenza viruses by PCR (Panel 6, July 2009).

• Lab not yet doing virus culture.
Number of specimens collected to date:
- ILI site = 89
- SARI site = 132

Total number of specimens analysed for Flu A from routine sentinel surveillance to date:
- ILI site = 60 (55 analyzed for both flu A + flu B)
- SARI site  47(32 analyzed for both Flu A + Flu B)

(*limited testing conducted for seasonal influenza, due to shortage of PCR reagents)
Preliminary Results

- Number of flu A positive samples from ILI site = 8 (~13%)

Breakdown By Flu A Subtype

- 1 seasonal H1
- 4 seasonal H3
- 3 not determined

- Only 1 Influenza B positive specimen found (~1.7%)
Preliminary Results (Cont.)

• Number of flu A positive samples from SARI site = 3 (~ 6.4%)

Breakdown By Flu A Subtype
  – All were seasonal H3

• No Influenza B positive specimens found amongst SARI group.
Combined Results (ILI + SARI sites)

• ILI + SARI for Flu A testing only = 147

• ILI + SARI for Flu A AND Flu B testing = 87

Total No. Flu A positive samples = 11 (~7.5%)
Surveillance for New Pandemic Influenza A (H1N1)

• Re-activation of task force set since late April 2009 (under newly designated National Council of Zoonoses).

• In addition to the 2 regular sentinel sites, additional site named where suspect cases advised to report (initially St. Paul General Specialized Hospital, later on, St. Peter’s TB Specialized Hospital).
Surveillance for New Pandemic Influenza A (H1N1) (Cont.)

• Nearly 80 suspect cases reported (mostly self-reporting cases, with recent travel history).

• First cases detected in mid June 2009 (recently returning students from the US).

• To date, 17 cases of influenza A positive specimens detected from suspect cases by National Influenza Lab (21%). Out of these 10 (59%) were positive for new influenza AH1N1…
New Pandemic Influenza A(H1N1) (Cont.)

• Nearly one third of suspect cases reported having contact with known confirmed case of new pandemic influenza A(H1N1).

• Predominant presenting symptoms in patients with new influenza A(H1N1) was fever, cough, sore throat and occasionally superimposed joint pain/headache, diarrhea & vomiting.

• No cases of new pandemic influenza A(H1N1) detected from among routine influenza sentinel surveillance samples so far.
New Pandemic Influenza A(H1N1) (Cont.)

• Five original clinical samples of new influenza A(H1N1) sent to WHO Collaborating Center at CDC, Atlanta for further characterization.

• Three of the virus isolates which could be cultured successfully were analysed using hemagglutination inhibition (HI) test and sequencing. All 3 belonged to the A/California/07/2009-like (H1N1) lineage and were sensitive to Tamiflu.

(Note: virus failed to grow in culture from the other 2 specimens.)
Other General Activities Relating to Influenza Surveillance

• Preparation of training modules on Avian Influenza for different groups of health professionals (from Dec. 2005 onwards).

• Training provided for regional rapid response teams (RRT) on how to conduct outbreak/field rumor investigations where AI suspected.

• Orientation provided to hospital medical directors on new pandemic influenza A(H1N1) (epidemiology, standard case definition, collection of specimens for lab analysis).
General Activities (Cont.)

• Provision of rapid antigen test kits and some PPE to regional labs (N95 respirators, gloves, goggles etc.)

• Training given to laboratory professionals from regions on lab diagnostic techniques for influenza.

• Rumor field investigations (outbreaks of flu-like illness in various parts of country by collaborating with Public Health Emergency Management Directorate).
General Activities (Cont.)

• Participation in various local & international influenza meetings since 2005.

• Presentations at various scientific fora.

• Preparation of proposal to fund activities related to influenza surveillance in Ethiopia (now into Year 3 of funding from CDC cooperative agreement).
Future Direction of Influenza Surveillance in Ethiopia.

- Expansion of sentinel sites to regions (2009/2010).

- Providing training to staff of new sentinel sites on the goals of ISS, specimen taking etc.

- Upgrading capacity of National Influenza Lab (NIL) to start virus culture work (2009/2010).
Future Direction of Influenza Surveillance in Ethiopia (Cont.)

- Continued participation of NIL in WHO EQAP twice annually.

- Building capacity of regional labs to perform PCR testing for influenza (supplying equipments etc.)

- Organizing training for lab personnel from different health institutions to perform PCR testing for influenza.
What Are Some of the Anticipated Key Challenges?

• Competing health priorities and ensuring program stays on track when the perceived threat is low (policy level).

• Logistical constraints (principally ensuring steady supply of lab consumables, lab reagents etc.)

• Staff motivation of clinical personnel at sentinel sites (for quality data collection: accurate recording of epidemiological information from patients, weekly aggregated data etc.)
Acknowledgements

• FMOH
• National Influenza Laboratory/EHNRI
• Yekatit 12 Memorial Hospital
• Shiro Meda Health Center
• St. Paul General Specialized Hospital
• St. Peter’s TB Specialized Hospital
• MoARD
• CDC Atlanta
• CDC Ethiopia
• CDC Kenya
• WHO Country Office
• WHO AFRO
• WHO HQ
• JHPIEGO
Thanks!