THE DEVELOPMENT OF INF JENZA SURVEILLANCE NETWORK IN THE PHILIPPINES (June 2005 – March 2008)

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BACKGROUND

- The Research Institute for Tropical Medicine is a participating laboratory to the WHO Network for influenza virus surveillance since 1998.

- It was designated the National Influenza Center in 2004. Influenza surveillance by RITM was initiated in 1998 with 4 sentinel sites located in only one city under the auspices of Pasteur Merieux Connaught. In 2004, the Development of Influenza Surveillance Network in the Philippines Project, a collaborative research activity among the following institutions: Research Institute for Tropical Medicine (RITM), National Epidemiology Center (NEC) of the Department of Health (DOH) and the Centers for Disease Control and Prevention (CDC), was initiated.

OBJECTIVES

- To establish an effective and efficient Influenza Surveillance System in the Philippines
- To collect continuous information on the influenza strains circulating in the Philippines and provide these isolates to the WHO Global Influenza Surveillance Network for use in vaccine production and research.
- To detect as early as possible the emergence of new antigenic variants of influenza virus including those with pandemic potential of human Avian Influenza.
- To monitor, analyze and disseminate epidemiologic information on influenza activity for public health intervention and case management.
- To provide a foundation for strengthening health systems to sustain surveillance activities at the Local Government Unit level.
- To strengthen the capabilities of the National Influenza Center at RITM and the National Epidemiology Center in the establishment of a national influenza surveillance system in the Philippines.

METHODS

- Surveillance activities were conducted in at least one regional hospital and one health center in selected regions of the country.

- The regions included in the surveillance include facilities in identified regional 'hot spots' , i.e. migratory pathways of local population of ducks and poultry, as well as tertiary level hospitals to initiate surveillance among hospital admitted patients.

- At the surveillance sites, epidemiological and clinical information are collected from influenza-like-illness (ILI) consulting patients. On two specific days, nasopharyngeal and/or throat swabs are collected.

- Specimens are transported to the NIC, which is manned by 9 medical technologists. The NIC is capable of virus isolation and subtype identification and to WHO Collaborating Center for confirmation and higher antigenic characterization.

- Dissemination of the influenza surveillance information includes incorporation of data in the WHO FluNet and the NEC database which is linked to the Department of Health.

RESULTS

- Since June 2005 to March 2008, 18 health centers, 10 regional hospitals and 5 tertiary hospitals at the National Capital Region participated in the network. A total of 21, 791 ILI cases were reported during that period. Of these, specimens were collected from 11,097 cases which yielded 1,609 virus isolates (14.50%). The most common isolates were Influenza A A/New Caledonia/20/99/(H1N1) - like (19%), Influenza A A/New York/55/2004(H3N2)-like (18 %) and Influenza B B/Malaysia/2506/2004-like (9%).

- Figure 1 shows the distribution of ILI cases and the confirmed influenza cases reported per morbidity week since June 2005. The number of sentinel sites recruited increased as the surveillance progressed with a corresponding increase in the number of ILI cases reported. During 2006 and 2007, specimens obtained during morbidity weeks 26 to 30 yielded the highest proportions of influenza virus isolates. Figure 2 shows the geographical location of the regional surveillance sites and the distribution of ILI cases in each region were shown in Table 1. Majority of the cases came from the northern and central regions of the country. Table 2 shows the distribution of viral isolates. Around 58% of the virus isolates were Influenza

virus with most cases being Influenza A . For the age distribution of the ILI cases and confirmed influenza cases, majority were found in children aged less than 10 years (Figure 3).

- A sub-study was conducted by the Tohoku University wherein the samples negative for any viruses were tested through PCR to identify other possible viruses. Out of 185 negative samples, 3 were identified as positive for Human Bocavirus and 2 for Human Metapneumovirus.

CONCLUSION

- For an efficient , functional and sustained surveillance network, the Philippine system needs sustained collaboration with and feedback to local government units and other stakeholders. We plan to continue with current activities.

AREAS NEEDING WHO SUPPORT

- Training of NIC laboratory staff on PCR, cell culture and egg inoculation
- Capacity building of regional laboratories
- Development of rapid containment procedures
- Development of a nationwide influenza information system

ACKNOWLEDGEMENT

- Local Government Units of Sentinel Sites, DOH Centers for Health Development, and staff of the National Influenza Center at RITM and NEC

FIG 1. Distribution of ILI cases, with specimens, and confirmed Influenza cases by morbidity week, All sites, Jun 2005-Mar 2008

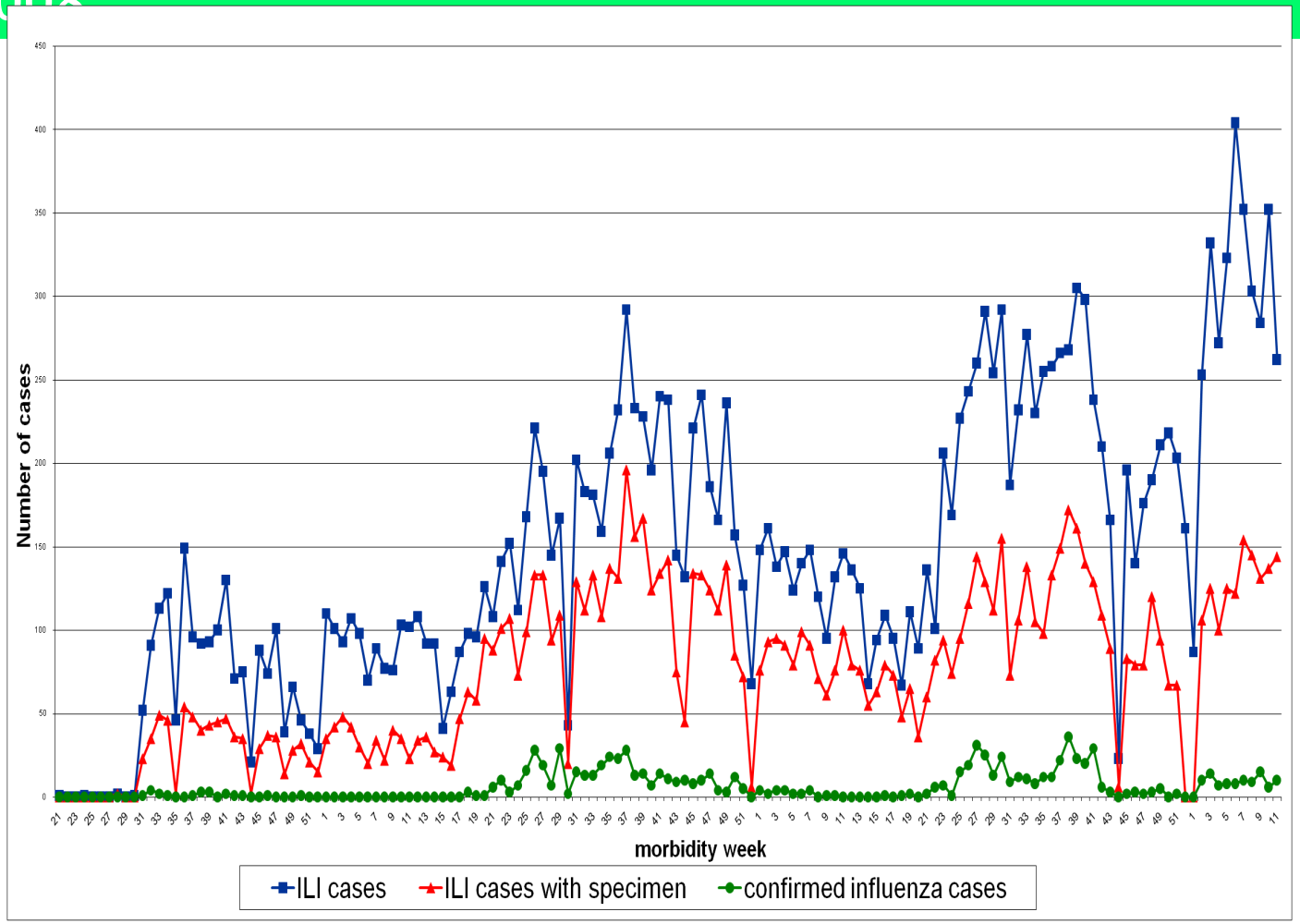


FIG 2. Geographical location of the Influenza Surveillance Regional Sites

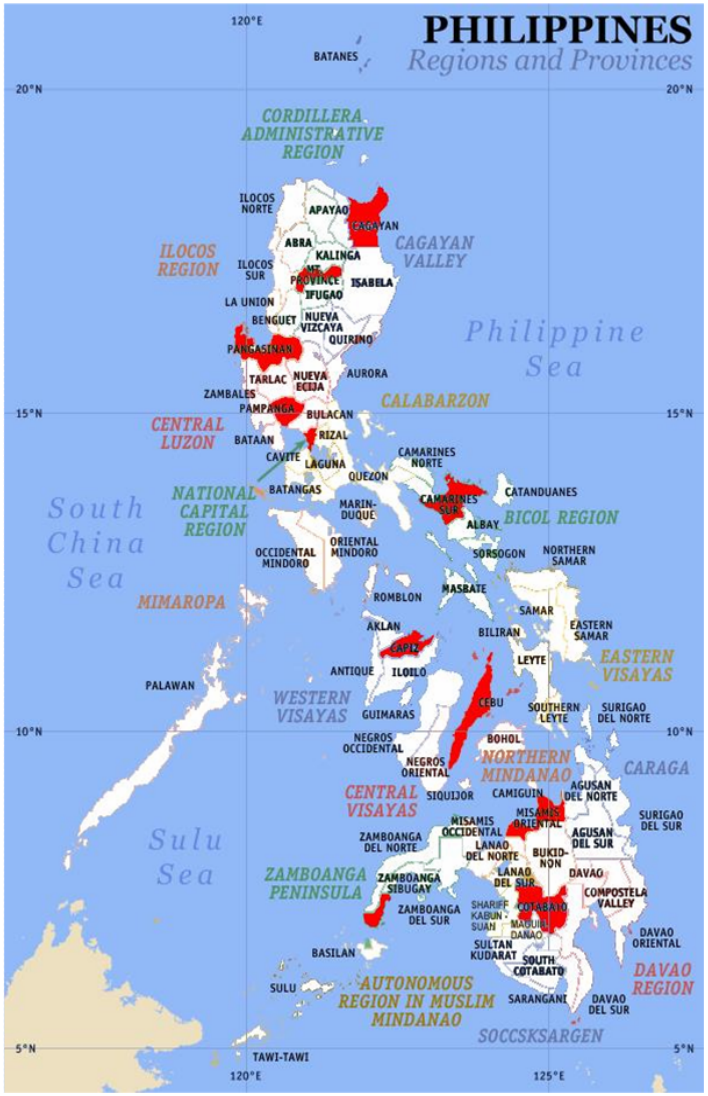


Table 1. Distribution of ILI cases pe

Region	Frequency	%
National Capital Region	8190	38%
Cordilllera Autonomous Region	2810	13%
Region I – Pangasinan	302	1%
Region II - Tuguegarao	413	2%
Region III - Pampanga	2424	11%
Region V – Naga	1089	5%
Region VI – Roxas	459	2%
Region VII – Cebu	2126	10%
Region IX – Zamboanga	1112	5%
Region X – Cagayan de Oro	1883	9%
Region XII – Cotabato	983	5%
TOTAL	21791	100%

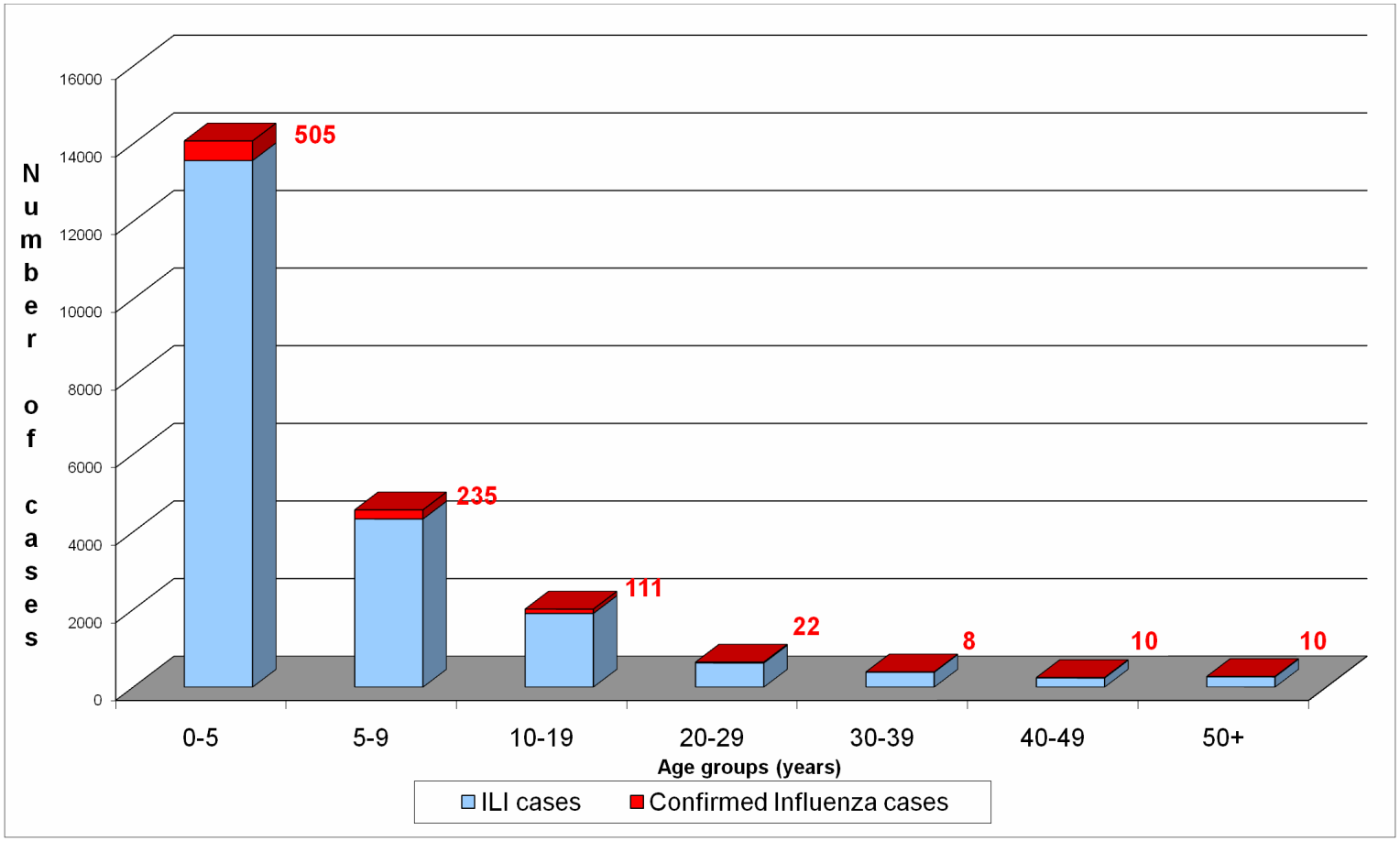
TABLE 2. Distribution of Virus Isolates, Influenza Surveillance Program

June 2005 to March 2008. Specimens Tested = 11,097, Isolates=1609 (Isolation Rate: 14.50 %)

Virus isolates	Virus Isolates (%)				
	Jun – Dec 2005	Jan – Dec 2006	Jan – Dec 2007	Jan – Mar 2008	Total
Influenza A A/New Caledonia/20/99(H1N1)-like	0	162	41	108	311
Influenza A A/New York/55/2004(H3N2)-like	0	44	244	0	288
Influenza A A/Wisconsin/67/2005(H3N2)-like	0	0	1	11	12
Influenza A	0	4	11	3	18
Influenza B B/Malaysia/2506/2004-like	0	54	63	26	143
Influenza B B/HongKong/330/2001-like	6	0	0	0	6
Influenza B B/Shanghai/361/2002-like	3	9	14	83	109
Influenza B	0	0	0	9	9
Parainfluenza 3	0	33	54	17	104
Parainfluenza 1	0	0	40	15	55
RSV	0	9	37	17	63
Enterovirus	2	33	65	40	140
Adenovirus	10	90	88	65	253
HSV-1	2	30	30	17	79
Rhinovirus	0	0	0	0	0
Mixed infections*	0	5	11	3	19
TOTAL	23	473	699	414	**1609**

* Influenza A A/New Caledonia/20/99(H1N1)-like+Adenovirus=2; Influenza A A/New Caledonia/20/99(H1N1)-like +HSV-1=1; Influenza A A/New York/55/2004(H3N2)-like+Adenovirus=5; Influenza A A/New York/55/2004(H3N2)-like+Enterovirus=1; Influenza B B/Malaysia/2506/2004-like+Enterovirus=2; Influenza B B/HongKong/330/2001-like+Enterovirus=1; Parainfluenza 1+ Adenovirus=1; Parainfluenza 1+ Enterovirus=1; Parainfluenza 3+ Adenovirus=3; Parainfluenza 3+ Enterovirus=2

FIG. 3. Distribution of ILI cases and confirmed Influenza cases by age group, All sites, June 2005-Mar 2008



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