

Seroprevalence of avian influenza A/H5N1 among poultry farmers in rural Indonesia, 2007

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Background

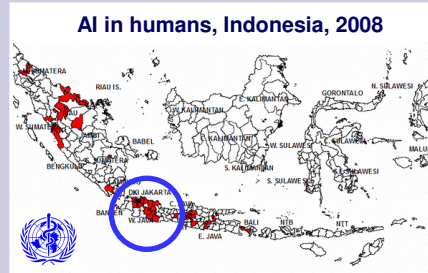
Influenza

- Types: A, B, C
- Subtype of A: H1-16

Re-assortment of genes

H1 to H16 H1 to H3

- Pandemics: 1918, 1957, 1968
- Spanish Flu (1918): 20–40 million deaths



Background

- 2003: First detection of H5N1 in poultry in Indonesia
- 2005: First human case in Indonesia
- As of May 2008 in Indonesia:
 - 133 cases, 103 deaths (resp. 35 and 43% of global)
 - 31 of 33 provinces infected poultry
- Thailand 2004 (Hinjoy et al, EID 2008): 0% seroprevalence among farmers

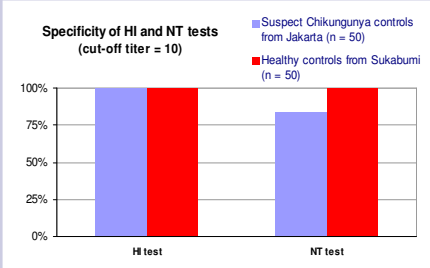
Methods

Objectives

- To estimate prevalence of human H5N1-infections among poultry farmers in rural West-Java (blue circle on the map), Indonesia
- To study risk factors for H5N1 seropositivity
- To strengthen public health and diagnostic capacities

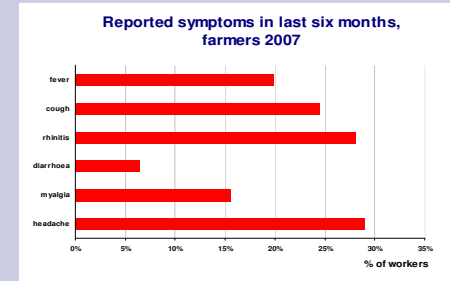
Study design

- Cross-sectional seroprevalence study among workers of 12 farms in West-Java, Jan. 2007
- Questionnaire: demographics, activities at work, medical history, clinical symptoms, vaccination status, oseltamivir intake, use of personal protective equipment (PPE), time and type of exposure to sick or dead poultry at work or at home, knowledge of avian influenza (AI)
- Serology: positive if hemagglutinine-inhibition (HI) using horse ery's at NIHRD Jakarta AND neutralization (NT) test at NIID Tokyo are >40



- N = 495 (of 622 workers at 12 farms)
- median age = 29 years (23–36)
- 71% male
- residence: 95% on the farm
- poultry on farm: 83% layers, 13% kampung chickens
- 76% kept petbirds in or around the house
- 0 (0%) HI and NT positive
- smoking: 77.8% of men, 2.1% of women
- 85.9% reported to be afraid to become infected with AI
- knowledge: AI symptoms: 77.2% fever, 70.0% cough

Results



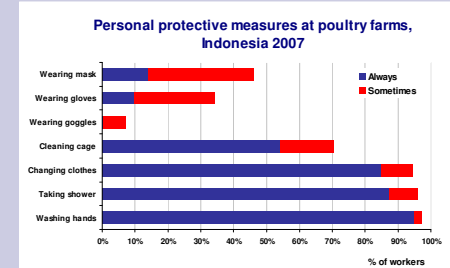
0%
H5N1 seropositive



Photo of poultry farm, West-Java

Working activities at the farm

	No. of workers (N = 495)	%
Feed poultry	192	38.8
Collect eggs	143	28.9
Collect poultry	50	10.1
Clean cages	32	6.5
Slaughtering	28	5.7
Administration	21	4.2
Sell poultry	15	3.0



Discussion

In this setting, there seems to have been limited transmission, which could reflect:

- low transmissibility of this H5N1 virus
- limited seroresponse of the farmers
- low susceptibility of the workers
- low sensitivity of the HI and NT test

Limitations:

- one-point serum sample
- recall and responder bias, healthy worker effect

Conclusions

Among West-Java farmers:

- Low seroprevalence (0%)
- Although high exposure to poultry, limited use of personal protective equipment and other protective measures

Low H5N1 seropositivity in West-Java farmers

Recommendations

- Serological tests need further validation
- Farmers: PPE, compensation, separate living and farming, disinfection of stables
- Enhance (inter)national surveillance
- Government regulations and sanctions
- Second sampling (cohort study)