

Surveillance of Caging and Poultry Separation Behavior in Relation Toward Poultry Death Rate Caused by Avian Influenza at Bandung District

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Abstract: There are four priorities i.e., report, cook, separate and wash for preventing Avian Influenza (AI) virus transmission from poultry-to-poultry, poultry-to-animal, and poultry to human at the community level. Unfortunately, caging and separating poultry were still rarely performed by poultry owners at Indonesia. Therefore, survey of poultry caging and poultry separation conducted in Bandung district where highest incidence and prevalence of human cases of AI occur. The objectives of this survey were to determine how poultry death rate influenced by caging and poultry separation behaviors (separate between different species and ages, segregation during restocking). This research uses survey methods with household who kept poultry and household where sick or died poultry found as unit of analysis. Data obtained by in-depth interview by using the interview guidelines covering aspects: issues related to sick or death of poultry, caging habits, separation of different poultry species and age and also segregation during restocking. Result showed that poultry owners in the area by high poultry death rate; Panyirapan (13.19%) and Soreang (9.52%); tend to free ranging the birds; Panyirapan (54.54%), Soreang (72.72%). In addition, only 9.09% poultry owners in Panyirapan doing separation between different species, age and segregation during restocking, while poultry owners in Soreang unfortunately never separate among them (0%).

Key words: Avian influenza, caging, keeping behavior, poultry death rate, separating

INTRODUCTION

Avian influenza has emerged as a potentially lethal threat to humans in the 21st century. Since 2003, avian influenza has become a common threat to health in worldwide range. Between 2003 and end April 2008, the deadly H5N1 virus had claimed over 216 lives globally from 349 confirmed cases. Human cases of Avian Influenza were reported in 15 countries during the period 2003-2009; the highest number of cases was reported in 2006.

Indonesia was the most affected country by H5N1 Highly Pathogenic Avian Influenza (HPAI) than any country in the world. Since 2003, when it was first detected in central Java, Indonesia continues to report domestic poultry infected with HPAI, and the recorded infection rate has been increasing. HPAI has spread to 31 out of 33 provinces (Forster, 2009) and caused 113 deaths out of 139 confirmed human cases, mainly children and young adults (WHO, 2008).

Early 2004, the outbreaks begin to infect West Java. Especially Bandung District was an Indonesian District with highest incidence and prevalence of human cases of

AI. Bandung's communities have not raised sufficient public awareness of the serious danger. It is quite possible that a highly pathogenic mutant AI virus will arise in Bandung District, where the next pandemic may possibly start.

Community behaviors related to poultry in all Bandung District villages is directly related to an elevated risk of AI. The AI infection will occur if people can not avoid bad habits that unsafe. Therefore needed government programs that can induce behavior change and reduce risks of ill-health in animals and humans.

In March 2006, communicators from WHO, FAO and UNICEF met to discuss behavioral outcomes and measurement indicators to guide communication for behavior change for preventing poultry-to-poultry, poultry-to-animal, and poultry to human transmission at the community level. Four behaviors were prioritized: Report, Cook, Separate and Wash. These key behaviors form the basis of avian influenza communication strategies being implemented by most governments worldwide, but there is concern that for many poor communities they are difficult to put into practice (UNICEF, 2008).

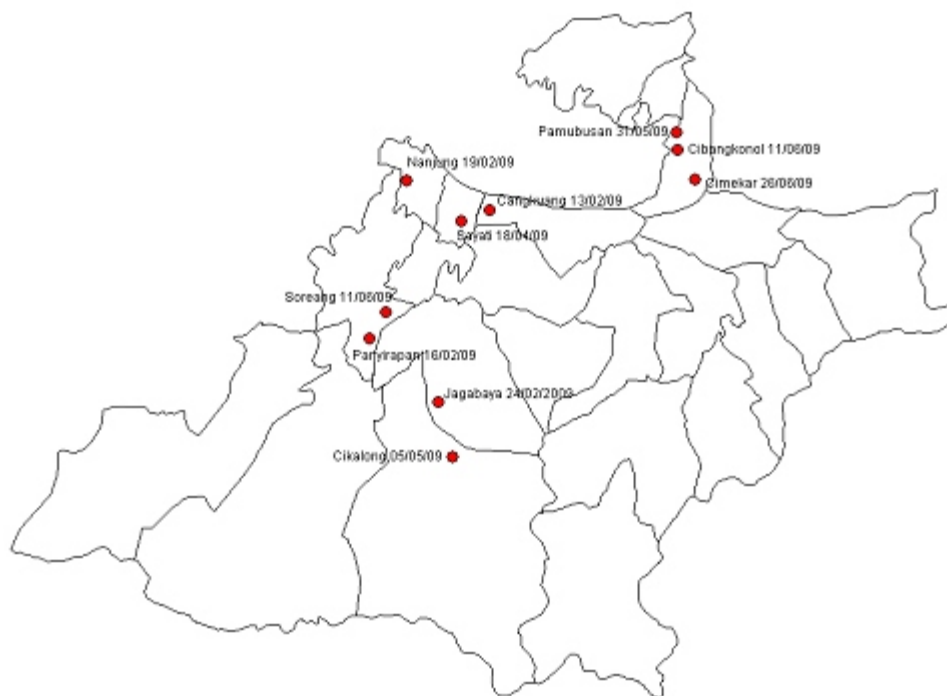


Fig. 1: Map of Avian Influenza outbreak at Bandung district from February - June 2009

In daily life, not everyone can apply the four priorities. Yakhshilikov *et al.*, (2009) reported that in Yogyakarta, only 51.58% respondents who reported any sick poultry, 86.69% respondents never prepare dead or sick poultry and they always cooked it, and also reported 88.68% respondents always wash their hand after they touch sick or death poultry, but on the other hand 79.79% of respondents were free-ranging poultry during the daytime and separated from the house at night.

The data showed that caging and separating were still rarely performed by respondents in Yogyakarta. Therefore, survey of poultry caging and separation conducted in Bandung district where highest incidence and prevalence of human cases of AI occur. The objectives of this survey were to determine how poultry death rate influenced by caging and poultry separation behaviors (separate between different species and ages, segregation during restocking).

MATERIALS AND METHODS

This research uses survey methods with household who kept poultry and household where sick or died poultry found as unit of analysis. Data obtained by in-depth interview by using the interview guidelines covering aspects: issues related to sick or death of poultry, caging habits, separation of different poultry species and age and also segregation during restocking.

This survey was held on October 2008 - June 2009 at Bandung District. Data collected from ten outbreak area (Cangkung, Panyirapan, Nanjung, Jagabaya, Sayati, Pamubusan, Soreang, Cibangkonol and Cimekar) as shown in Fig. 1, based on Livestock Services Information which every poultry owner in 200 m radius from the outbreak point confirmed about number of poultry that they kept, death or sick poultry symptoms, caging and poultry separating behaviors (separate between different kind and age, segregation during restocking).

RESULTS AND DISCUSSION

Outbreak that occurred in Bandung District much influenced by behavior of poultry owners. One of the important behaviors that are often overlooked by owners was poultry separation and caging. Table 1 showed that the owners of poultry in areas with highest poultry deaths rate; Panyirapan (13.19%) and Soreang (9.52%); has a high percentage of free ranging their poultry; Panyirapan (54.54%), Soreang (72.72%). This is directly proportional to the area that has lowest poultry death rate; Cimekar (2.35%) and Nanjung (4.24%); who have high percentage of caging tendency; Cimekar (53.33%) and Nanjung (69.23%).

In contrast it was happened in Cangkung, although the owners of poultry in the area have a behavior of free ranging their poultry (83.33%), however poultry death

Table 1: Behaviors of poultry keeping

Data	Cangkuang	Panyirapan	Nanjung	Jagabaya	Sayati	Cikalong	Pamubusan	Soreang	Cibang-konol	Cimekar
Date of Report	13/02/09	16/02/09	19/02/09	24/02/09	18/04/09	05/05/09	31/05/09	11/06/09	11/06/09	26/06/09
Number of household w/ animal	6	11	26	13	6	24	23	11	17	15
Poultry Death Rate (%)	1/143 (0,69)	12/91 (13,19)	7/165 (4,24)	6/85 (5,88)	7/121 (5,87)	14/216 (6,48)	10/185 (5,41)	4/42 (9,52)	8/142 (5,63)	8/339 (2,35)
Separating										
Separate Different Species (%)	2 (33,33)	1 (9,09)	2 (7,69)	2 (15,38)	3 (50)	1 (4,16)	5 (21,74)	0 (0)	9 (52,94)	7 (46,67)
Separate Different Ages (%)	3 (50)	1 (9,09)	15 (57,69)	2 (15,38)	3 (50)	1 (4,16)	5 (21,74)	0 (0)	9 (52,94)	7 (46,67)
Segregate during Restocking (%)	5 (83,33)	1 (9,09)	13 (50)	2 (15,38)	3 (50)	0 (0)	4 (17,39)	0 (0)	9 (52,94)	7 (46,67)
Caging										
Caged (%)	1 (16,67)	5 (45,45)	18 (69,23)	4 (30,77)	5 (83,33)	1 (4,16)	8 (34,78)	3 (27,27)	10 (58,82)	8 (53,33)
Free Range (%)	5 (83,33)	6 (54,54)	8 (30,74)	9 (69,23)	1 (16,66)	23 (95,83)	15 (65,22)	8 (72,72)	7 (41,17)	7 (46,67)

rate was low (0.69%). After the interviews conducted, it has known that the death was caused by non-infectious incident that happened a week earlier. Since the incident chicken decreased appetite, looks sick and on the seventh day the chicken was dead, then the owner reported it to the Livestock Services. At the time of the inspection found to be positive rapid test. From the interview also knew that rapid test positive results are likely caused by transmission by other poultry, because the owner told that he kept different types of poultry together on their backyard. Actually data showed that 33.33% poultry owners on Cangkuang did the separation between different poultry species, but rest of that (66.66%) kept different poultry type together on their backyard.

Separation between different species is also rarely performed by poultry owners in the area with highest poultry death rate. As well as Panyirapan area where only 9.09% of poultry owners did the separation between different species and even the poultry owners in Soreang which did not separate among poultry (0%) in their keeping behavior. This thing was related to the occurrence of virus transmission between different species, especially from wild birds or other poultry around.

Another important behavior to prevent AI virus transmission is separation between the different ages of poultry and separation new poultry during the restocking. In line with the number of poultry owners who did the separation of species, separation between different age and segregation during restocking, only 9.09% poultry owners in Panyirapan did the separation and poultry owners in Soreang never done it (0%).

In contrast to the second place, Cimekar with 2.35% poultry death rate, 46.67% poultry owner separating poultry according to different species, different ages and segregating poultry during restocking. The separation of new birds during restocking was very important, because

it is difficult to know the source of new birds to be kept. There are 6 of 10 outbreak areas (Nanjung, Payirapan, Jagabaya, Cikalong, Pamubusan and Cibangkonol) showed that poultry deaths occurred due to the entry of new birds from other area that have experienced of outbreak within a period of less than a month or the outbreak occurred at surrounding area.

The separation of different species and bird ages, would contribute to limiting the spread of HPAI virus (FAO *et al.*, 2005). It is closely related to virus transmission occurred, in which each species and age level of poultry have different resistance to a virus attack. The differences ages also affect the poultry immune system toward the virus attack.

CONCLUSION

Separation of poultry and caging is a very important to note by the owners of poultry. These two things are related closely to the poultry death rate caused by avian influenza virus identified through the rapid test. Poultry owners in the area by high poultry death rate; Panyirapan (13.19%) and Soreang (9.52%); tend to free ranging the birds; Panyirapan (54.54%), Soreang (72.72%). In addition, only 9.09% poultry owners in Panyirapan doing separation between different species, age and segregation during restocking while poultry owners in Soreang never separate poultry at all (0%)

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