



From September 2006 through September 2008, CARE International in Vietnam implemented a pilot project on community-based surveillance for avian and human influenza (AHI) supported by the Centers for Disease Control and Prevention (CDC) and Abbott Laboratories. On September 18th & 19th, 2008, CARE partnered with HAI Associates and FAO to share information about their past models of community-based surveillance, evaluation results from recent projects, and lessons learned. The three organizations have piloted two different approaches to AHI surveillance. FAO under the support of the Japanese Trust Fund project has developed and implemented a community-based active surveillance approach, CADS (Community Active Disease Surveillance) which uses participatory epidemiology skills.

Glossary

ADB	Asian Development Bank
AHI	avian & human Influenza
AHW	Animal Health Workers
AI	Avian Influenza
AusAID	Australian Agency for International Development
BCC	Behavior change communication
CADS	Community Active Disease Surveillance
CAIC	Community Avian & Influenza Committees
CBS	Community Based Surveillance
CDC	Centers for Disease Control
CoP	Chief of Paravet
FAO	Food & Agricultural Organization of the United Nations
HPAI	Highly-pathogenic avian influenza
IEC	Information, education and communication
ILI	Influenza-like illness
INGO	International Non-Governmental Organization
MARD	Ministry of Agriculture and Rural Development
MOH	Ministry of Health
PAHI	Partnership in Avian & Human Influenza
ToR	Terms of Reference
TOT	Training-of-trainer
USAID	United States Agency for International Development
USD	United States dollar
VHW	Village Health Workers
VND	Vietnamese dong
WHO	World Health Organization

Introduction

From September 2006 through September 2008, CARE International in Vietnam implemented a pilot project on community-based surveillance for avian and human influenza (AHI) supported by the Centers for Disease Control and Abbott Laboratories. On September 18th & 19th, 2008, CARE partnered with Abt Associates and FAO to share information about current and past models of community-based surveillance, evaluation results from recent projects, and lessons learned. The three organizations have piloted two different approaches to AHI surveillance. FAO under the support of the Japanese Trust Fund project has developed and implemented a community-based active surveillance approach, CADS (Community Active Disease Surveillance) which uses participatory epidemiology skills. CARE International in Vietnam and Abt Associates, respectively under the support of CDC and USAID, have developed and implemented a CBS model based on regular volunteers' active surveillance visits with the goal of enhancing surveillance capacity and behavior change at village level. Both approaches are designed to complementing the current, formal surveillance and response system in the piloted areas. This dissemination workshop presented the key findings and recommendations from the respective FAO, CARE and Abt evaluations, which have focused on the relevance, impact and sustainability of the different models. In addition, this workshop provided an opportunity to share experience with other diseases community-based surveillance and response models and to identify lessons learnt and recommendations to inform the design of future AHI CBS model in Vietnam. Additional presentations were made by Department of Animal Health within the Vietnam Ministry of Agriculture and Rural Development (MARD), National Institute for Hygiene and Epidemiology within the Vietnam Ministry of Health (MOH).

Key partners at the workshop also included: USAID, CDC, AusAID, World Bank, ADB, the Japanese Embassy, WHO, representatives from the Partnership in Avian and Human influenza (PAHI), INGOs, representatives from the General Department of Preventive Medicine and Environmental Hygiene within the MOH, representatives from the Department of Livestock Production within MARD. Representatives from animal health and public health authorities and mass organizations from 15 provinces in Vietnam were present.

The following report summarizes the key findings from the evaluation of CARE's AHI CBS model, lessons learned and recommendations for taking community-based surveillance forward.

Background: How does the community-based surveillance model work?

CARE began implementing community-based AHI programs in 2004. Over the years, CARE has seen improvements in knowledge and awareness. Surveillance and reporting from the household to the district level, however, remained a consistent gap, leading to the design and piloting of a community-based model on AHI surveillance.

Local partners at administrative levels closest to communities – village, commune, and district – take the lead in implementing surveillance activities. The model creates two additional roles at the community level: the surveillance coordinator and the surveillance volunteer. Surveillance coordinators are recruited from the commune level human health and animal health workers. Surveillance volunteers come from commune level Women’s, Farmers’, and Youth Unions, in addition to other volunteers from the community and private-sector. These two additional roles help to bridge the gap between households and the formal reporting system.

CARE also recruits trainers from district or province level human and animal health departments to participate in training-of-trainer (TOT) workshops on surveillance methodology, zero disease reporting, key AI prevention and control messages, and adult learning techniques. These sessions prepare participants to train surveillance volunteers at the commune level to identify AI cases, record appropriate information, and alert authorities to contain suspected cases.

After receiving training from CARE and provincial or district government, each volunteer begins visiting a fixed number of households (typically 40) in his or her own village on a weekly basis. For each household visit, volunteers complete human and animal surveillance forms with data on key indicators of ILI (influenza-like illness) in humans and AI in poultry. A separate form is used to compile information from household visits on a monthly basis, which volunteers submit to their surveillance coordinator. In addition to completing reports, the volunteers attend monthly village level meetings where they discuss challenges and opportunities with other volunteers and the surveillance coordinator. Additionally, the surveillance coordinator meets with the commune council AI committee. These steps link the community-based surveillance network to the existing national surveillance system.

For the volunteers there are two types of reporting:

- 1) If there is a suspected HPAI case, the information is immediately reported.
- 2) If there are no suspected cases, zero reporting and additional information on behavior change at the household level is submitted during a monthly meeting between the surveillance coordinator and volunteer network

For a suspected case a volunteer is expected to immediately alert the commune-level AI committee (a government structure) which immediately alerts the district-level AI committee. The district then alerts human and animal health departments as necessary. Because suspected cases are reported immediately, the monthly reporting that volunteers do serves two purposes: it ensures that volunteers are active and it provides community leaders with information on uptake of prevention techniques in their community.

In the model developed by CARE Vietnam, volunteers do regular household visits to look for suspected H5N1 cases in poultry and humans. It is important that the objective of household visits is clear. It is unlikely that a volunteer’s visit will coincide with an event at the household. However, household visits create a space for interpersonal communication to promote behavior change for prevention and can improve willingness of households to report.¹ Therefore, the communications role the volunteer plays is a crucial element.

¹ For more information on the impact of the CBS model, please see the full evaluation report at: <http://icarenews.care.org/avianflu.html>

It is possible that a volunteer may come across a recent outbreak that has not been reported. During the piloting of the CBS model, a volunteer did come across a case (the poultry had died three days prior) that alerted the volunteer network and community leaders to the presence of the virus in their community. The outbreak was contained to three farms that could have spread further had the initial case gone undetected.² In addition to behavior change and new outbreak detection, volunteers may discover events that were not reported (i.e. “cold” cases) that help community leaders to understand if there is significant underreporting happening.

AHI is a complex disease for creating surveillance systems because there are often multiple channels of reporting: hotlines, human health department, animal health department, community leaders, etc. A key element of the CBS model is consolidating reporting lines and ensuring that human and animal health sectors both receive information and collaborate during suspected outbreaks. The model also simplifies and clarifies reporting channels for households and community leaders.

Evaluation Methodology

In addition to a team of independent consultants and CARE staff, experts from MoH and MARD (Department of Animal Health) at the national level were recruited to participate in the design, execution, and analysis of the results. The evaluation team in each province also included:

- 1 provincial human health official
- 1 district human health official
- 1 provincial animal health official
- 1 district animal health official

The evaluation team looked at projects implemented in both the North and South of Vietnam and compared intervention communes with control communes. The evaluation was divided into two components: quantitative and qualitative. The evaluators conducted surveys of two populations, households (N=957 random selection, intervention communes n=331; control communes n=626) and the volunteer network (n=62).

For the qualitative section, the evaluation team conducted in-depth interviews with the following:

- local government staff at the provincial, district and commune levels
- animal health and human health workers in the commune and,
- the private sector.

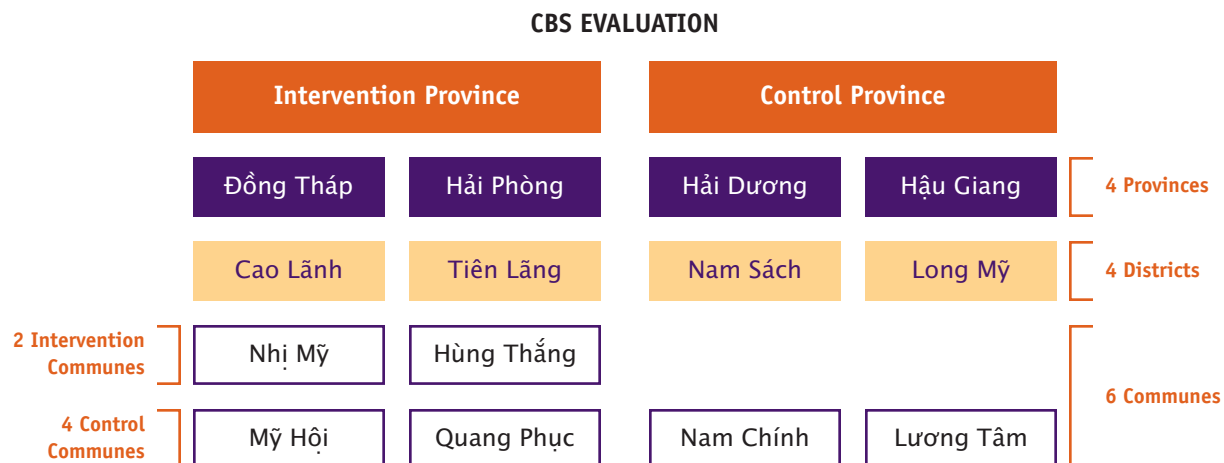
The team also did interviews and focus group discussions with households and volunteers to enhance the findings of the quantitative data.

This document only analyzes the differences between intervention and control communes without comparison to a baseline. Therefore, it is important to note that the independent evaluators and the evaluation team determined

² For more information, please refer to *CARE Vietnam’s Community-based Surveillance Model: Bringing the Fight to Flu. A Case Study of Outbreak Detection and Rapid Response to Avian Influenza in Vietnam’s Haiphong Province* at: <http://icarenews.care.org/avianflu.html>

that there were no other programs likely to effect changes in the control and intervention communes. Additionally, intervention and control sites were matched for key demographic factors to reduce the likelihood that the results could be attributed to intrinsic differences between the communes.

Figure: Households health seeking behavior when experiencing flu symptoms



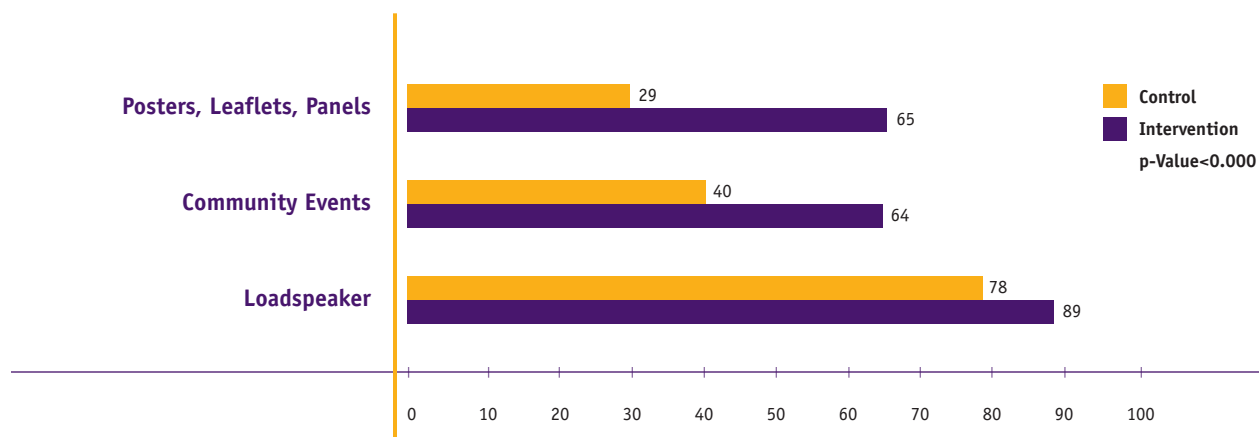
Highlights of Evaluation Results

Access to information

Access to information is the first step in improving knowledge and promoting behavior change. Though national media campaigns (radio and television) have reached most households with basic awareness of avian influenza, more in-depth information is often necessary for households to make changes in livelihood activities and health and sanitation practices.

The evaluation findings show that implementation of the CBS model improved households' access to information. Households in the intervention commune were more likely to have received IEC materials and have access to information through community events and loudspeaker broadcasts than the control communes.

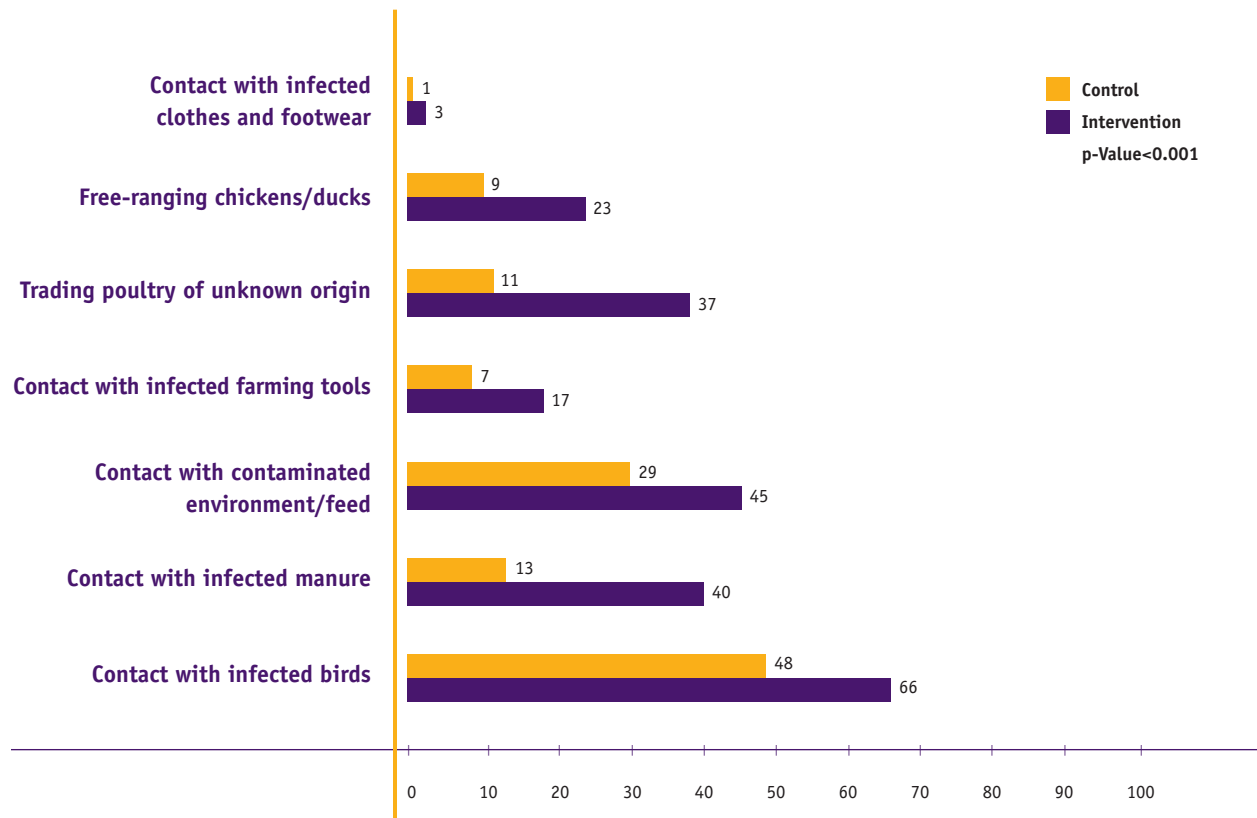
Figure: Comparison of household access to IEC materials in control and intervention communes



In the intervention commune, surveillance volunteers were listed as the 3rd most important source of information after television and loudspeaker. Interestingly, the surveillance volunteers were ranked as more likely to be an important source of information than veterinarians or village health workers. While surveillance volunteers probably have less knowledge of AI, they are likely more accessible to households and more active in promotion of behavior change.

Knowledge

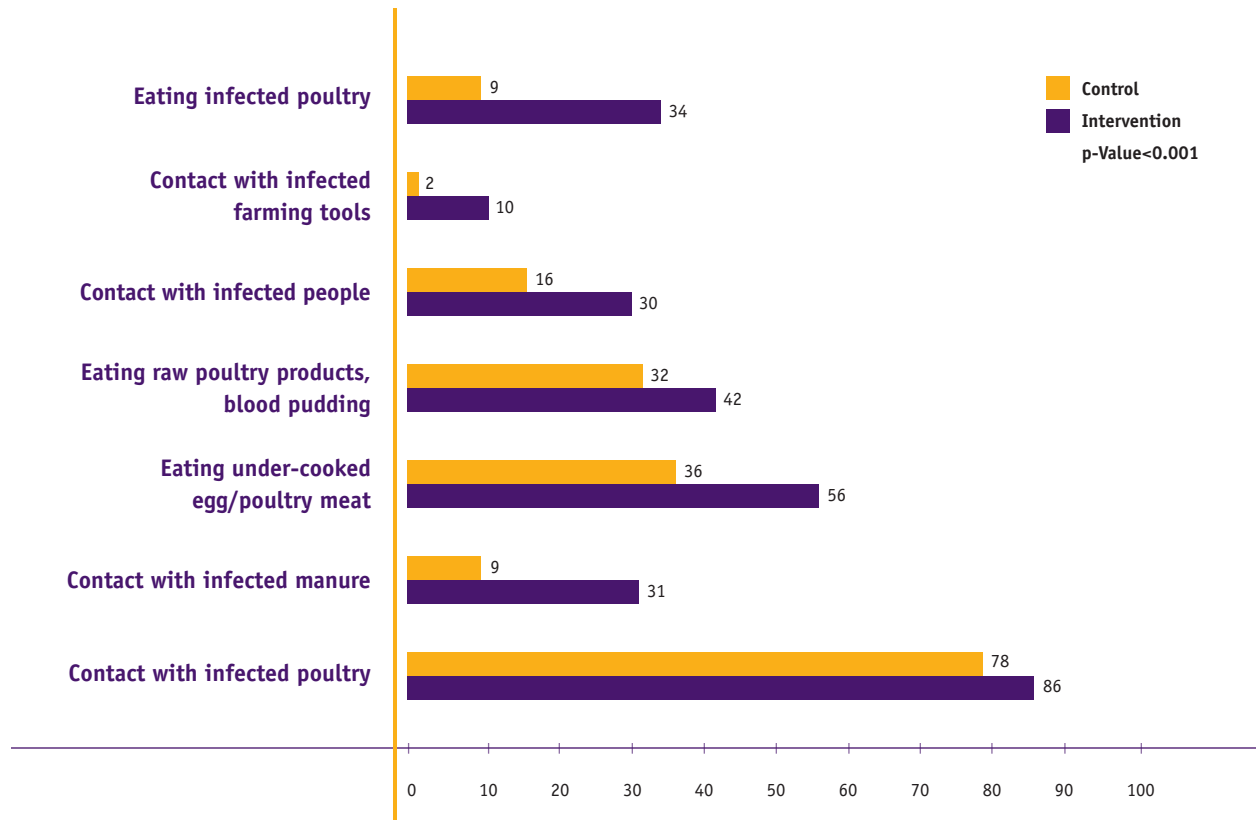
Figure: Percentage of households who know H5N1 bird-to-bird transmission routes



Knowledge was significantly improved in every category of understanding how H5N1 spreads (from poultry to poultry and from poultry to humans) and how to prevent infection (in poultry and humans).

Through national awareness-raising campaigns and widespread media reporting of mass outbreaks, knowledge of AI transmission through contact with infected birds is high (78% in the control commune). As avian influenza is a complex disease requiring a number of behavior changes related to human and animal health, increased understanding of multiple infection routes is a key prerequisite for households to consider broader changes in their poultry-raising and hygiene practices.

Figure: Percentage knowing the AI transmission routes to humans

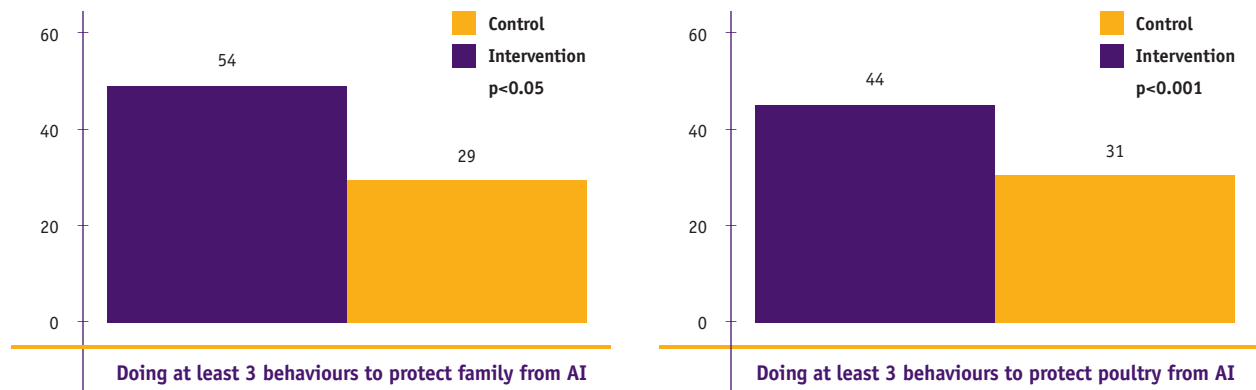


Behavior change

Behavior change is notoriously hard to achieve for any health related behavior. AHI is particularly challenging because there are a myriad of behavior changes necessary to protect humans from infection and another set of behavior changes to reduce vulnerability of household poultry from becoming infected.

Encouragingly, the evaluation demonstrates the effect of the model goes beyond improving knowledge and actually has success in changing multiple behaviors. Households in the intervention site were more likely to engage in at least 3 behaviors to protect their family from AI and 4 behaviors to protect their poultry from AI.

Figures: Titles Here



It is clear that previous communication campaigns have already impacted behaviors in Vietnam. For instance, a high percentage of households report that they cook poultry thoroughly before eating it (91% in intervention and 85% in control). Slaughtering poultry, however, involves several risky practices with lower rates of households adhering to recommended preventative practices. The evaluation demonstrated significant improvement in areas such as hand washing and cleaning surfaces in the intervention communes.

Figure: Actions households take to protect themselves & their families when slaughtering poultry

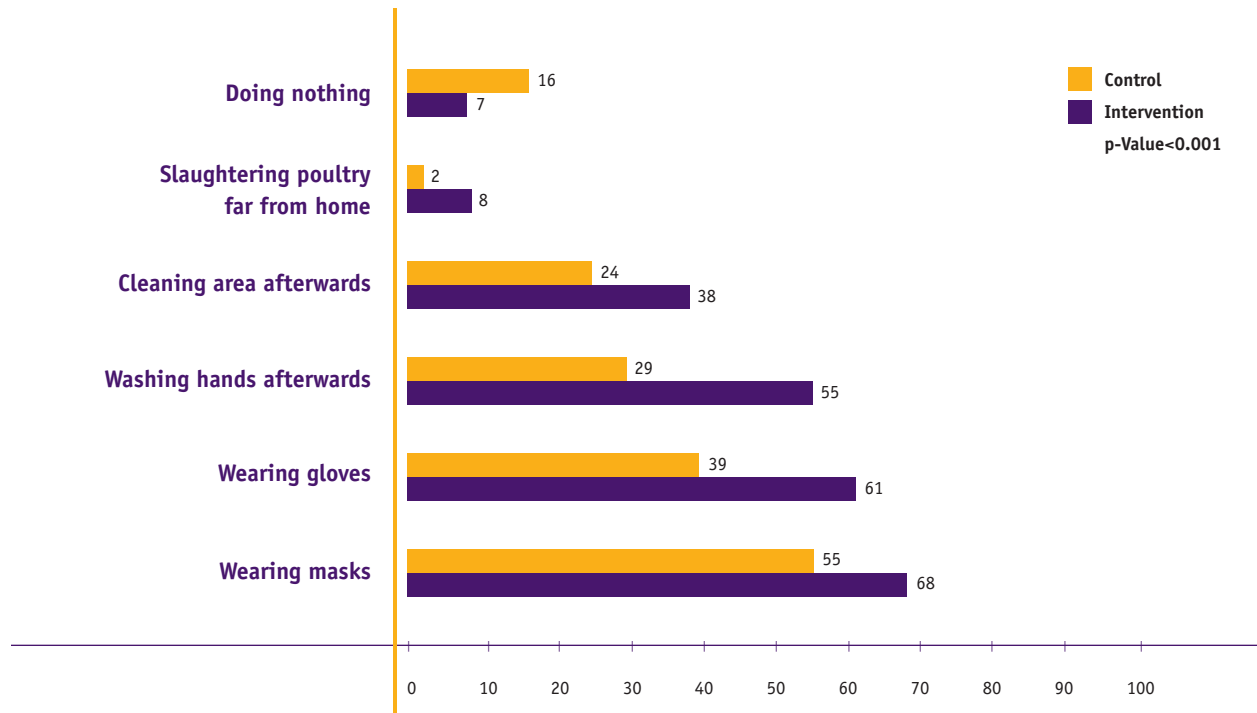
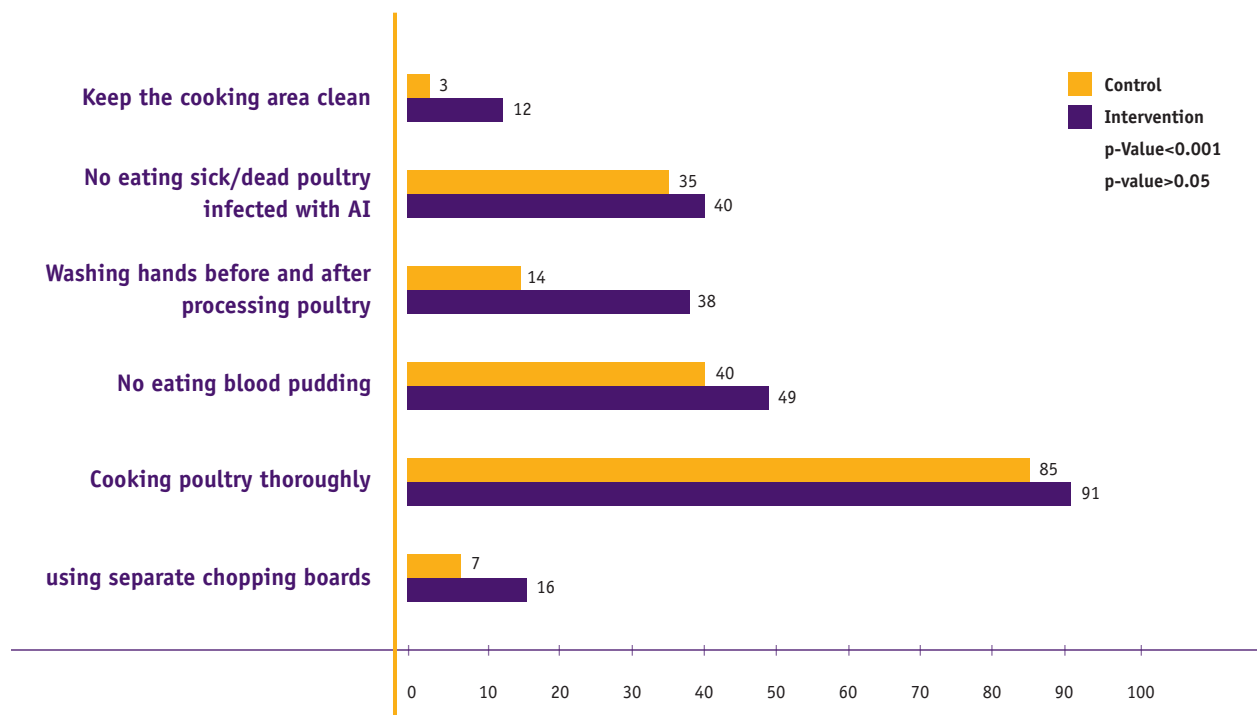


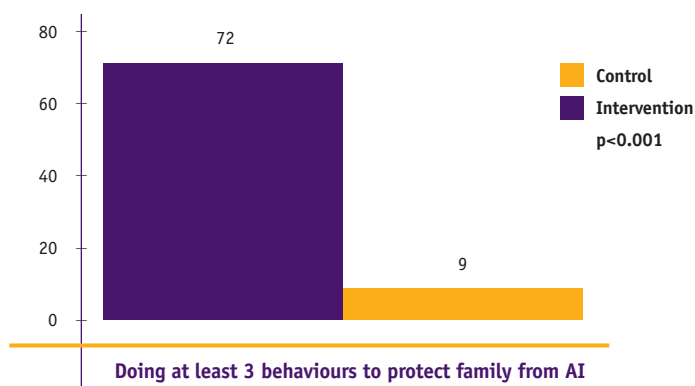
Figure: Actions households take to protect themselves & their families when cooking poultry



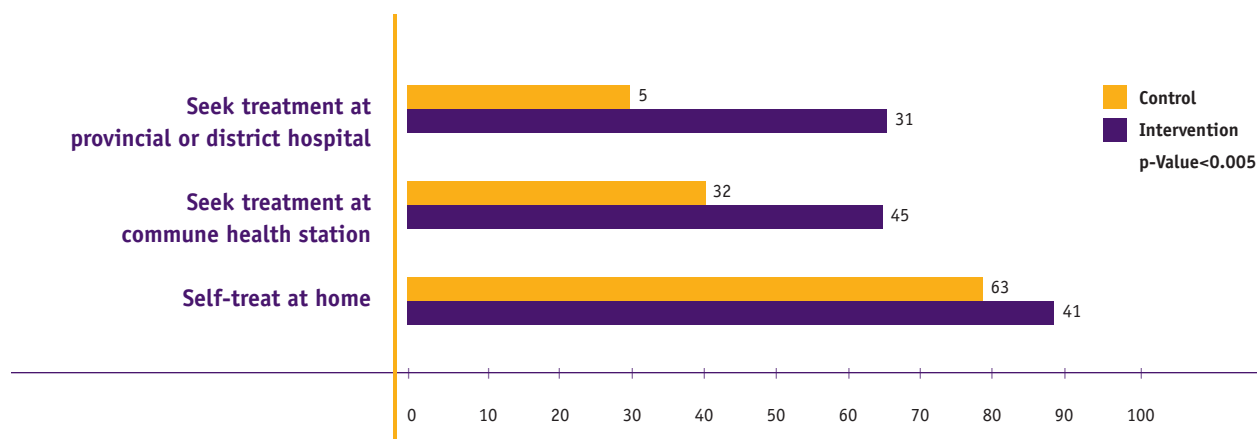
Reporting and Health Seeking Behaviors

As CARE Vietnam’s model focused most prominently on surveillance and behavior change related to reporting possible outbreaks in poultry and infection in humans, it is encouraging that the largest difference between the intervention and control groups related to reporting. While the model somewhat increased intention to report (88% in intervention versus 79% in control), households in the intervention commune were eight times more likely to actually report a poultry death. For households that had experienced a poultry death (n=110), 72% in intervention communes reported the deaths while only 9% in control communes did so.

Figure: Households which experienced poultry deaths and reported to a surveillance volunteer or relevant authority



Human health seeking behaviors are an equally important result of the evaluation as the model aims to increase awareness of signs and symptoms in humans and encourage households to seek care and report illness. Nearly all households had experienced flu in the past two years. For the intervention commune, 76% of households sought care at the commune health station or district hospital compared to 37% of households in the control commune. Households in the control communes were more likely to self treat.

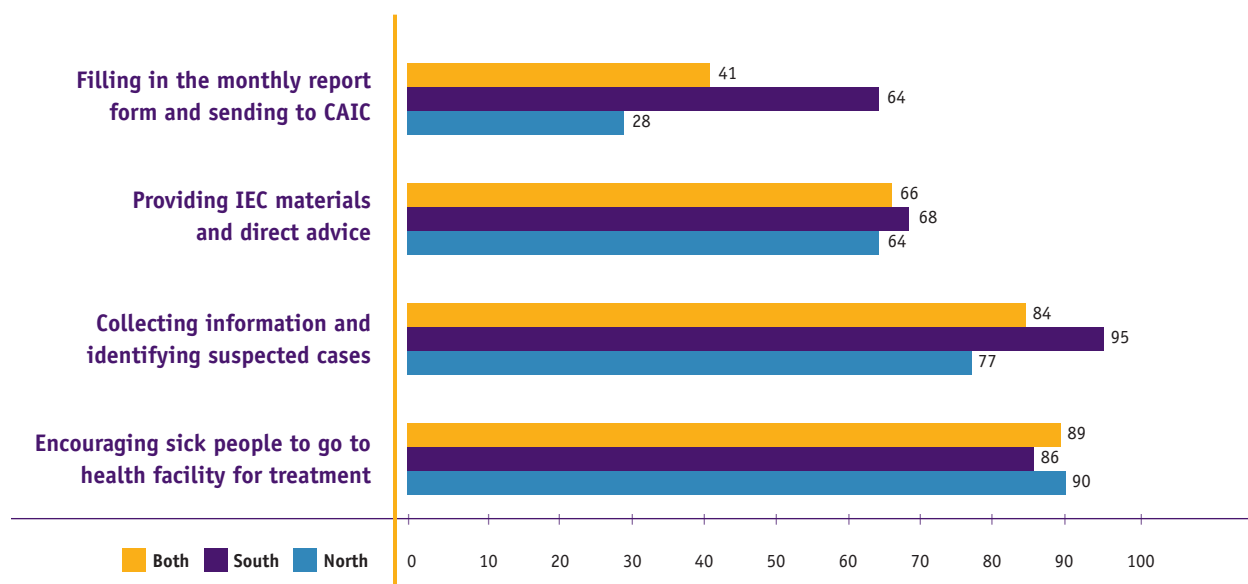


Sustainability of Volunteer Effort

As this was a pilot model, it was not expected that local government would take on activities after implementation, but that there would be an evaluation of impact, refinement of activities and commitment of additional resources

before sustainability was possible. However, the evaluation did look at sustainability of volunteer effort and found encouraging results. 95% of volunteers said they would continue project activities even after the project was finished. Though it might be expected that volunteers would either intend to follow-up or would not feel comfortable telling an interviewer that they would not continue, it is interesting to see volunteers felt they could continue some activities without incentive.

Figure: Activities volunteers indicated they will continue with no additional incentive



Though some of the more intensive volunteer activities may not continue such as filling out the surveillance forms, it is likely that volunteers will remain change agents in their communities and continue to report suspected cases to commune authorities, with 98% saying they would continue to report.

Qualitative Findings

The focus group discussions and key informant interviews revealed informative qualitative results in two key areas: issues with volunteers and issues with integration of the model into the formal surveillance system and multiple sectors (human health, animal health and mass organizations such as the women’s and farmers’ union)

Discussion with community members revealed that communities had too high expectations from volunteers, expecting them to be able to diagnose avian influenza³, for example. Also, though the general population cited volunteers as an important source of information, larger-scale farmers did not believe volunteers could provide them with advice since the farmers had more experience raising poultry.

The second set of issues that were raised concerned integration of the model into the formal surveillance system and working with multiple sectors. The model was designed to connect the community with district-level response if and only if there was a suspected outbreak, which is a common characteristic for models drawing on event-based

³ Only a laboratory test can confirm H5N1 and volunteers were not trained to do any testing, only to report

systems of surveillance. In the absence of an outbreak, however, district officials expressed interest in knowing what was occurring at the community level. While some officials actually utilized the model in unexpected but interesting ways, others had no connection at all. For instance, paravets sometimes used the volunteer network to support vaccination campaigns or other activities. District-level health facilities, however, sometimes had limited if any contact with the network. A balance must be found between the benefits of collaboration and the potential of creating an additional supervisory burden on district and local government.

Multi-sector collaboration continued to be a hurdle, as it has in many communities and bureaucracies around the world. Though the model successfully brings together the power of community mobilization through mass organizations with the technical sectors of the village animal and human health workers, as seen by the impact on behavior change, collaboration is still hindered by who is seen as the “owners” of the model. In the current model, volunteers from mass organizations were implementing activities. Therefore, technical staff from human and animal health sectors may not have felt ownership of the model, even though the volunteers should be an extension of their role in the community. Another issue that was raised with multi-sector collaboration is, in the absence of outbreaks, what sort of collaboration do we expect from these sectors? Though we defined how we wanted animal and human health to interact during a suspected outbreak, more needs to be defined for routine interaction, if any is desired at all.

Recommendations and Way Forward

Three key areas were discussed with partners and technical experts to improve the design of the model:

- 1) Targeting
- 2) Sustainability
- 3) Multisectoral Collaboration & Integration

The following reflects the discussions of key partners and recommendations that were distilled for the way forward.

Targeting

Targeting is the most important strategy element for a community-based model of surveillance to be cost-effective, sustainable and scalable. Community-based models require high inputs of human resources and some amount of financial resources. Such an intensive model for a rare disease is not meant to be implemented in all communities. Resources should not be spread thin across large geographic areas or demographic groups. Instead, targeting strategies based on risk should be employed to direct resources where they can be most effective.

Better targeting strategies have been a key strategy of the CBS model from the beginning. Currently, for example, CARE only implements the model in high risk provinces. However, as new research better predicts where there is a risk of H5N1 and a risk of human cases of H5N1, targeting strategies can be more specific and nuanced.

Targeting high risk populations

During the period when the model was designed and first implemented, higher numbers of outbreaks necessitated more frequent visits of volunteers to households. As vaccination and public awareness campaigns have improved

prevention and reduced the prevalence of the circulating virus, weekly visits are agreed by all partners to be unnecessary. Monthly or quarterly visits are more appropriate.

Another factor, however, is do volunteers need to visit all households in a community? Conversely, do they need to visit some households more than others?

As you can see from the figure below, according to the evaluation results volunteers seem to be tailoring their visits according to risk. While households that sold to middle men and others in the commune were more likely to receive visits monthly or weekly, those not raising poultry were more likely to be visited once or twice a year. This suggests that communities and volunteer networks are already able to determine what criteria they might use to formulate a community targeting strategy.

Figure: Percentage of volunteers visiting households, 2007 – 2008, reported by volunteers

Region	Types of raising	Weekly		Monthly		Every 3 Months		Once or twice/year	
		2007	2008	2007	2008	2007	2008	2007	2008
North Vietnam	No raising poultry			100	100				
	Raising for self-consumption			100	100				
	Selling to people in the commune			100	100				
	Selling to middlemen	32	10	68	90				
South Vietnam	No raising poultry	14	10	44	38	5	10	38	42
	Raising for self-consumption	14	18	46	46	40	36	0	0
	Selling to people in the commune	24	29	53	57	23	10	0	4
	Selling to middlemen	22	28	66	62	6	5	6	5

In addition to households with large numbers of backyard poultry intended for sale and trade, households raising backyard poultry near commercial, semi-commercial or duck-raising farms should be considered as high risk.

Characteristics of low-risk households which probably require less frequent visits include:

- Households not raising poultry
- Households that are not in the vicinity of duck-raising, semi-commercial or commercial farms
- Households that are demonstrably practicing prevention techniques

These households may be visited less frequently, if at all. Other suggestions raised the idea the volunteer visits should be more frequent at the onset of the program so that households both identify the volunteer network and its purpose and receive interpersonal communication about AHI. Once activities are successful, visits could be reduced.

Targeting by season

Earlier in the epidemic, there was a clear seasonality to outbreaks of H5N1 in poultry with the colder months being a peak time. More recently, however, these patterns have not been clear. Therefore, it was not recommended that volunteer activities follow seasonal patterns. It was thought, however, that timing is still an important factor for determining when volunteers are more active in a community. Suggestions included:

- Tet (lunar new year holiday where there is movement, buying and selling of poultry)
- vaccination campaigns
- seasonal movement of poultry (determined at local level)
- seasonal density of poultry raising (determined at a local level)

Geographic targeting

Recent research in Vietnam allows us to identify areas where the virus is more likely to be present (at provincial and district level). It was agreed that geographic targeting of high risk districts was an important strategy. However, for the community-based model, additional qualitative profiling is necessary. For example, a district may be high risk based on the high volume of commercial and semi-commercial poultry raising. While this may increase the risk of HPAI in poultry, the human cases of H5N1 infection tend to be from the backyard sector. Additionally, the community-based model is not appropriate for the commercial sector.

At the workshop additional criteria for at risk communities were defined, including communities with:

- Backyard poultry farms in the vicinity of commercial or semi-commercial farms
- Large numbers of duck-raising households and farms
- Large numbers of backyard poultry near duck-raising areas

Additional profiling characteristics of high risk districts that might be considered include:

- Mixing of sector III and IV poultry farms
- Weak surveillance systems (either animal or human)
- Significant market chain activities

Participatory mapping at district and commune level could be an important tool for identifying high risk areas, activities and demographics to base the implementation of activities.

Targeting outbreaks

Even with careful targeting, H5N1 is a moving target. How can we increase the mobility of the model to target outbreaks occurring in areas where the model has not been implemented? Two recommendations were discussed: rumor surveillance and a more flexible approach to human resources.

Rumor surveillance could potentially be used to launch volunteer activities. District vet stations, commune leaders and provincial authorities should all be aware of the volunteer network and able launch door-to-door visits to look for any suspected cases when there are outbreaks in nearby districts or provinces or rumors of outbreaks in the community.

Trained human resources should also be mobile during an outbreak. If an outbreak occurs in a district or commune that does not have an established network, provincial leaders could approve that trained surveillance coordinators from one district assist the outbreak district by doing a rapid training for volunteers. Volunteers would then perform household visits, looking for cases and sharing prevention messages as an emergency response.

Sustainability:

There was a particularly vibrant discussion around sustainability at the workshop. Many of the questions raised about sustainability are outside the scope of the model and are related to overall resources devoted to health at the community level and funding for avian influenza prevention nationwide. However, several issues were identified as underpinning sustainability of the CBS model and recommendations were made to improve the potential for sustainability.

Active versus Passive Surveillance

Active surveillance, for any disease, is expensive. Because the risk of an avian influenza outbreak in poultry or infection in humans is low compared to the overall population, active surveillance probably only needed when there is an increased risk. Passive surveillance is less expensive, but it still requires financial input. Because the possibility of detecting a “fresh” incident of AHI is small, volunteers are, in a certain sense, actively encouraging households to report through the passive system. Therefore, active surveillance may only be needed when there is an increased risk and the main role of the volunteers should focus on encouraging reporting and other BCC messaging.

However, some partners expressed that it would be extremely helpful to continue zero reporting systems at the community level, even if volunteers were only visiting households once a month or once a quarter. As one participant said, “knowing nothing is going on in a community and having nothing reported from community are very different”. If the objective is to have regular reports to district to ensure that there is very likely nothing happening, then a routine system for zero reporting is necessary. However, if the objective is to spread BCC messages and improve participation in the passive system, then there are many strategies that could be employed

Each of these objectives poses different sustainability questions and has implications for implementation of the model in such areas as volunteer selection and training. However, it is not necessarily the place of CARE to decide such questions and there is no one right answer for the entire country of Vietnam. Provincial and district level government, rather should be involved and make decisions about priorities in their area.

Integration of Volunteer Activities

If the objective of local government is the latter, spreading BCC messages and improving participation in the passive system, then selection of volunteers becomes particularly important in design and implementation of the

model. For sustainability purposes, it would be important to choose volunteers amongst community members that already have responsibilities in the community (and the requisite allowance for public service), making the model more cost effective and ensuring a consistent incentive for volunteers. Volunteers would be supporting passive surveillance system with either less frequent visits or visits combined with other activities (e.g. BCC on other health issues). However, volunteers would need to be selected that were enthusiastic about communication and enthusiastic in the role in the community, as women union volunteers are now.

Broader Roles for the Surveillance Network

One surprising result of the model is that local government and paravets used the volunteer surveillance networks for their own activities, including vaccination campaigns. Local government often found the network to be a useful mechanism for AI and safe poultry raising activities. Through the current model there may be a danger in overloading volunteers. However, local government support for the network through the Commune AI Committee could be one path to sustainability of volunteer activities.

Multisectoral Collaboration & Integration:

The Role of Volunteers in the CBS Model

Though surveillance volunteers were usually clear on their role in the CBS model, the evaluation revealed some amount of confusion on the part of community members, technical sectors from local government and community leaders. Consequently, expectations for volunteers were sometimes too high. To avoid this scenario in the future, workshop participants clarified the roles of each actor in the surveillance system and agreed that additional awareness raising of these roles should take place in the future.

Role	Person in charge
Observing and advising households on AI prevention behaviors, including encouraging households to immediately report poultry deaths to AHWs, VHWs, village leaders or the CAIC (strengthening passive surveillance system)	Volunteers
Detecting in the community and immediately reporting any AI suspected cases on poultry and humans.	Volunteers
If there is a zero reporting system, compiling information on a monthly report form to be shared with CAIC, commune Vet Board and commune health station	Volunteers
Visiting households to further investigate suspected AI cases reported by volunteers or households	AHWs: call for help from District Vet Station if need for sampling VHWs: will advise to refer to commune health station or district hospital
Coordination/leadership of volunteer surveillance network	Commune Chief of Paravet
Sampling of suspected AI cases when required after investigation from AHWs/VHWs	District or Provincial level technical agencies
Response	Initially from Commune AI Committee in collaboration with volunteers support and following instructions from the Province or District Rapid response Team

Multisectoral Collaboration and Ownership of the CBS Model

While the surveillance volunteers are not intended to be technical experts, they do need to work closely and, ideally, be supervised by trained by a technical agent at the community level. Currently the CBS model is designed so that members from mass organizations such as Women Union and Farmers' Association serve as surveillance volunteers and VHWs and AHWs serve as the Surveillance Coordinator. In reality the VHWs and AHWs have not always had the time to play this role in all communities due to their other work load and insufficient number. Because the mass organizations are more active in the model, there is often less ownership from the technical sectors

An alternative approach to explore would be to involve the new Chief of Paravet (CoP) position which was made official in January 2008 and should (in theory) be effective in every commune. The CoPs are paid 540,000 VND (about 33 USD) per month, partly from Sub Department of Animal Health and partly from Provincial People's Committee. A review of the central level guidelines and ToRs for this position would be the first step in understanding how this coordination role could be integrated into the CBS model.

Other methods for increasing technical sector ownership of the model are to increase the current credibility of paravets through training and support and to encourage them to increase their visits to farmers and report suspected cases. Similarly involving private sector pharmacist in the CBS model (beyond the basic training on early detection and reporting) would strengthen their understanding and incentive to report.

Integration with the Formal Surveillance System

One question that arose as part of the evaluation was, what information, if any, should be reported to district level animal and human health departments in the absence of an outbreak? During the workshop it was agreed that it would be important to share the data collected by volunteers to the relevant technical sectors even if there were no cases. However, the actual paperwork from the volunteers is not the appropriate format. Instead partners would need agreement with Preventive Medicine Centre and Sub Department of Animal Health at provincial level on:

- 1) what are the data which would be useful for them to receive in order to support the existing weekly/monthly reporting system;
- 2) the format of reporting;
- 3) the frequency of reporting

This recommendation is also organically tied to building sustainability by meeting more closely the objectives of local government.

Summary of Key Recommendations

Targeting:

- 1) The CBS model should not be implemented all communities. Rather, communities should be selected on the basis of predictive mapping of H5N1 risk in recent research with additional qualitative profiling. Criteria for areas that should be targeted include communities and districts with:
 - Backyard poultry farms in the vicinity of commercial or semi-commercial farms
 - Large numbers of duck-raising households and farms
 - Large numbers of backyard poultry near duck-raising areas
 - Weak surveillance systems
 - Significant market chain activities
- 2) Activities should not be tailored to a specific season. Rather, if activities will be more or less intensive at certain times of the year they should be based on human activity and possibly defined locally.
- 3) Participatory mapping at district and commune level could be an important tool for identifying high risk areas, activities and demographics to base the implementation of activities.
- 4) Trained human resources should also be mobile during an outbreak. Provincial and district government should be aware of the resource and be able to mobilize human resources to other districts during an outbreak
- 5) Household visits should be reduced to monthly frequency with more intensive activities at the onset to launch the network and raise awareness of volunteers' roles.
- 6) Volunteers should focus their efforts identifying and targeting high risk households, visiting them more frequently than low risk households

Sustainability:

- 7) Provincial and district level government should be involved and make decisions about priorities in their area to determine if the objective of the surveillance system is to support a zero-reporting mechanism down to the village level or if the objective is to improve reporting to the passive system and preventative behaviors. The current CBS model could be adopted for either objective and local government participation would improve sustainability.
- 8) Where feasible, community members who already receive a public service stipend should be recruited as surveillance volunteers and activities such as household visits should be integrated with other forms of disease surveillance and/or health promotion.

Multisectoral Collaboration & Integration

- 9) Clear guidance on roles and responsibilities should be developed and shared as part of the implementation of the model. Even if the volunteers are clear on their role, communities or community leaders may not fully understand
- 10) The district health and animal health departments should be consulted to understand what type of reporting they would like on a regular basis
- 11) The role of the Chief Parvet should be considered for integration in the model