

Four-Way Linking Project for Assessing Health Risks at the Human-Animal Interface

Project Description
August 2013

- Cross-sectoral assessment of health risks arising or existing at the human-animal interface is crucial to identifying and implementing effective national disease control measures.
- The Four-Way Linking Project supports countries in better understanding national risks to health.
- The project facilitates human and animal health systems strengthening to promote collecting and linking national data.
- The project promotes establishing a national-level joint framework for data sharing, risk assessment and risk communication.
- The project is currently being implemented in avian influenza H5N1-endemic countries that have reported human cases.

BACKGROUND: NATIONAL HEALTH RISKS and RISK ASSESSMENT

Avian influenza H5N1 virus remains a public and animal health threat. Human infections and associated deaths continue to be reported, especially from countries where the virus is entrenched in poultry populations. H5N1 also remains a pandemic threat, as these viruses could adapt or reassort, and therefore have the potential to become increasingly transmissible among humans. Highly pathogenic avian influenza (HPAI) H5N1 continues to cause huge economic losses in affected countries, particularly where the disease is endemic, through its impact on trade and animal production. As long as H5N1 viruses – and other influenza viruses potentially transmissible to people – continue to circulate in animal populations, public and animal health risks will remain.

Controlling influenza at its animal source is not only essential to protecting animal health and maintaining livelihoods in affected countries, but is the best strategy to prevent exposure and disease in humans.



Effective control of influenza in animals requires understanding the specific national-level risks at the human-animal interface. This understanding requires availability of information from at least four information “streams” - epidemiological and laboratory, from animal and human health. The information must also be linked according to where and when events took place. Linked information can then be examined and assessed by

national experts using a standard process or mechanism (located within existing administrative bodies of the national government) for routine integrated qualitative assessment (Figure1).

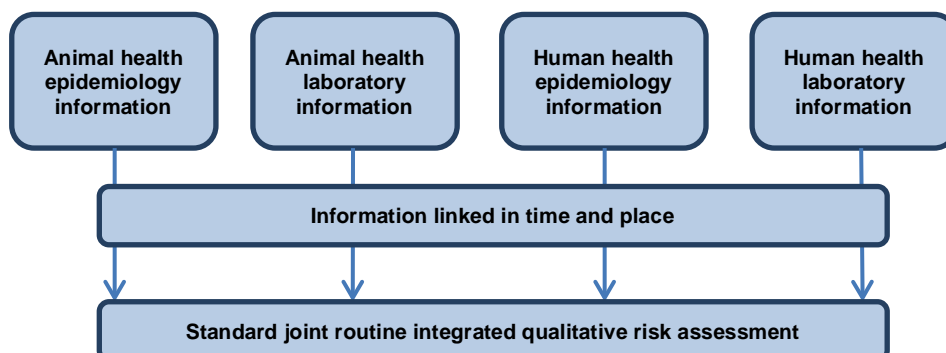


Figure 1. Linking and assessment of information from the four information streams

Such routine assessment allows existing and emerging health threats to be identified and evaluated quickly and communicated properly to decision makers. As well, improved understanding of the national animal and public health risks allows development and implementation of new scientifically-based measures to prioritise and manage or control the risks, and evaluate and improve the impact of measures already in place¹ (Figure 2).

THE NATIONAL FOUR-WAY LINKING FRAMEWORK: CONCEPT and ACTIVITIES

Two aspects of understanding of health threats at the human-animal interface in countries are built within a sustainable national framework:

- Availability of information and linking
- Joint risk assessment

Such a national framework may be used as supportive platform to align internationally-mandated influenza capacity building² and national-level projects and activities. In the long term it could also be adapted to other priority zoonotic diseases.



The Project is country-focused and directed. It flexibly addresses national strengths and gaps, uses existing structures in countries, and provides national partners with the background and tools for implementing a sustainable national data collection and risk assessment framework. National human and animal health institutes including national laboratories (including national influenza laboratories), universities, epidemiological units under the Ministries of Health and Agriculture, academic institutions, and Office of the Chief Veterinary Officer are engaged as national project partners.

Furthermore, depending on how the animal and human health systems are structured in each country, the project can involve national, regional and/or provincial offices and institutions.

¹ Including the capability of the animal health and human health sectors to keep up-to-date and to comply with the international standards and regulations (Aquatic and Terrestrial Animal Health Codes and Manuals) of the OIE, WHO International Health Regulations, and Codex Alimentarius Commission, where applicable.

² Such as WHO IHR capacity building, FAO global, regional, and national capacity building projects, and OIE PVS pathway activities (a continuous process aiming to sustainably improve compliance of Veterinary Services with international standards and their sustainable efficiency).

The project is comprised of two main in-country activities and national follow up:

1. *Review mission*

The mission is the project launch in the country. It aims to:

- map the national systems and infrastructure for epidemiologic and laboratory investigations by the animal and human health sectors
- identify strengths and linkages among the four information streams
- identify gaps as well as key areas for strengthening
- engage the national partners

In order to both model cross-sectoral collaboration and take advantage of different expertise, the mission team conducts all visits to both animal health and human health institutions together.

The review missions carried out thus far have identified key national stakeholders, reviewed reporting systems and data management in each information stream, and developed a mapping of all the partners and data, materials, and information flows among them. All existing documentation including national policy and strategies, results of previous assessments, including FAO field missions, OIE PVS missions, WHO IHR missions, and assessments conducted by external experts, are reviewed and considered. Gaps in terms of technical capacity, joint investigation, data sharing and surveillance methods have been identified in different countries, as have the possibilities to improve the daily collaboration and communication between human and animal epidemiological and laboratory information at various national administrative levels.

Mission debriefings are held at the end of each mission so that key partners from the four streams, as well as FAO, OIE, and WHO, funding partners, in-country international development agencies, and other stakeholders can discuss and confirm that the mapping is correct. Priority gaps to be addressed in the workshop are identified, and ideas about the workshop itself are defined.

2. *Workshop*

The objective of the four-way linking workshop is to bring together key national partners and build relationships among people working in the four information streams, improve understanding of national strengths and gaps, review risk assessment concepts and find effective, practical ways to share data and establish national joint risk assessment through scenario-based training, and agree on an action plan and next steps to be taken forward by the national partners.



Workshops are participatory and hands on, and focused on actively learning and immediately using principles of qualitative, outcome-based risk assessment for health events using current events as models. The impact of working collaboratively in assessing risks and being able to effectively communicate risk is experienced by all participants using scenario-based learning. Participants working in small groups are encouraged to see the perspectives and mandates of colleagues in the different functional streams. In final sessions, the participants identify current gaps in the national systems and potential practical solutions, and develop a four-way linking plan of action with immediate next steps.

At the end of the workshop the feasibility of establishing a Four-Way Linking Task Force in the country has been explored as a way to create sustained opportunities for exchange of information among the different partners and conduct regular joint risk assessments with concrete outcomes, as well as implementing other national solutions identified during the workshop.

3. Follow up

Next steps are expected to be implemented by each national four-Way Linking Task Force proposed at the workshop. However, specific activities, in particular initial meetings of task forces identified, may be supported by FAO, OIE, and WHO country offices and headquarters as needed.

PROGRESS SO FAR (as of July, 2013)

Egypt

The project was launched in Egypt in November 2010, supported by the Ministry of Health and Population (MOHP), General Organization of Veterinary Services (GOVS), the Central Public Health Laboratory (CPHL), and the National Laboratory for Quality Control on Poultry Production (NLQP). During the 10-day review mission, the team visited government partners and hospitals in Cairo and Qualubayia. Other key national partners included the U. S. Naval Medical Research Unit, No. 3 (NAMRU-3) and the USA Centers for Disease Control (CDC). Opportunities were identified for strengthening some aspects of national diagnostic capacity, implementing mechanisms for cross-sectoral data sharing and for combining and linking information from the sectors, and strengthening surveillance and improving implementation of joint investigations at governorate and local levels (including solving human resource issues). Key strengths were good communication within sectors generally, and among sectors, including joint coordinated actions at the field level, when human cases were identified.



The workshop was held in September 2011, in El Sukhna, Suez Governorate. During the workshop, animal and human health sectors from the national level structures have agreed on an action plan and next steps, including (1) to convene a national joint task force, (2) to establish a mechanism for joint risk assessment and reporting, and (3) to solve data sharing issues.

During 2012, despite political instability subsequent to the changing political situation from January, 2011, the Four-Way Linking

Task Force established at the workshop met five times (in February, March, May, September, and October) and once in 2013 (April) to share information and technical expertise, and conduct joint risk assessments. Specifically, the task force discussed, implemented, or facilitated:

- Training of CPHL staff on genomic sequencing at NLQP, and building laboratory capacities particularly on gene sequencing and linkages between animal and human virus strains
- Changing the animal specimen coding system so that test results can lead to identification of disease foci
- Identifying mechanisms of information flow and communication among all parties at national and sub-national levels to identify and open blocks
- Developing a plan to facilitate cooperation between human and animal health offices centrally and at governorate and district levels
- Enhancing internal communication among the group and creating a loop for information sharing.
- Exploring the possibility of provision of H9 primers and upgrading the gene sequencing machine.
- Discussion on the institutionalization of the Four-Way Linking Task Force in order to enable it to serve as an official technical wing of policy decision making processes for zoonotic influenza in Egypt, especially as previous structures such as the 'national supreme council' have stopped functioning since 2011.
- Response to the emergence of the avian influenza A(H7N9) virus in China. Task force members immediately began sharing news and scientific publications within the group and to other relevant partners in animal and human health sectors. The TF meeting on 11 April was dedicated to jointly planning for H7N9 response in Egypt, including integrating H7N9 with ongoing H5N1 influenza surveillance programs and ensuring diagnostic capacity.

This national task force, originally convened via the tripartite project but now self-sustaining, is well placed to become the technical advisory body to governmental decision makers to ensure science-based information is available to support national policy decisions to reduce H5N1 risks to animal and public health in Egypt.

The project in Egypt and outcomes were presented at the Prince Mahidol Award Conference (Bangkok,, Thailand, Jan-Feb 2013) by Dr Soheir AbdelKader on behalf of the Egypt Four-Way Linking Task Force.

Viet Nam

The project was launched in Viet Nam in June 2011, supported by the General Department of Preventive Medicine (GDPM), National Institute of Hygiene and Epidemiology (NIHE), Department of Animal Health (DAH), and National Centre of Veterinary Diagnosis (NCVD). During the 2-week review mission, the joint team visited different national stakeholders in both the North and South of Vietnam, including the GDPM at the Ministry of Health, NIHE, DAH, NCVD, Pasteur Institute in Ho Chi Minh city (PI), National Institute of Veterinary Research (NIVR), Regional Animal Health Office – RAHO 6 (Ministry of Agricultural and Rural Development), the National Hospital of Tropical Disease (Hanoi) and Hospital for Tropical Diseases (Ho Chi Minh city), as well as partners in Ha Nam, Tien Giang, and Binh Duong provinces. Opportunities for strengthening communication within and between sectors and mechanisms for joint risk assessment were identified. Importantly, at that time, the Government of Viet Nam was formalising an official interministerial circular to “guide the collaboration among different units and sectors in the prevention and control of zoonotic diseases” addressing improving cross-sectoral collaboration, which facilitated and influenced much of the discussion.

The workshop was held in February 2012, in Nha Trang, Khanh Hoa Province. During the workshop, animal health and human health sectors from the national, regional and provincial levels agreed on an action plan and next steps at the national and regional levels, including (1) to establish a mechanism for inter-sectoral and epidemiology-laboratory cooperation (facilitated by the interministerial circular), (2) to improve data sharing at all levels and harmonize data reporting and to (3) jointly perform risk assessments, in addition to specific sectoral risk assessments. Specific action plan and next steps identified at the provincial level included (1) to strengthen inter-sectoral communication, (2) to strengthen reporting procedures from the district to the provincial level and to the national level and harmonize data reporting and (3) to strengthen the risk assessment process contribution to early warning at the provincial level



As of the now, the interministerial circular is still being reviewed by the legal departments of the ministries in Viet Nam before being submitted to the ministers for approval. Other interface activities that have been taking place in the country include:

- Evaluation of collaboration activities between human and animal health sectors on AI in four southern provinces (Can Tho, Kien Giang, Dong Thap and Vinh Long).
- Workshop on strengthening the collaboration between human and animal health sectors at district and provincial level in Dong Nai province in the south.
- Training on strengthening the collaboration between epidemiology and laboratory on surveillance, investigation and response of infectious diseases for human and animal health sectors in the northern and central regions of Viet Nam.

Indonesia

The project was launched in Indonesia in December 2012, supported by the National Institute of Health Research and Development, Ministry of Health and the Directorate General of Livestock and Animal Health Services, Ministry of Agriculture. During the 12-day review mission, the joint team visited different national stakeholders in Jakarta, Bogor, Bali, Surabaya, and Bandung. Main gaps identified included lack of mechanism for routine formal communication between human and animal health, and lack of a mechanism for joint risk assessment. While joint field investigations are undertaken, they are not always followed up with ongoing coordination, joint debriefing and reporting. There is also a need for better coordination at sub-national levels, and a need for more data collected and shared particularly regarding isolates including sequencing. There also needs to be a mechanism for information sharing from research groups with government agencies.

The workshop was held in Bali from 9 -11 April 2013, attended by 34 representatives of central and provincial Ministry of Health and Ministry of Agriculture and other Indonesian institutions,³ as well as several development partners. Country and headquarters/subregional staff from FAO, OIE, and WHO facilitated the workshop. After both the practical exercises and the scenario, the participants agreed that doing these assessments jointly among sectors was more efficient and gave better results than doing them within each sector separately. At the beginning of the workshop, many participants expressed their desire that the workshop



promote better coordination between sectors and a mechanism to more rapidly and consistently share data, as well as a mechanism for joint risk assessment. These gaps, among several others, were investigated throughout the workshop, and a list of five priority gaps and potential practical solutions were developed by the participants.

The priority gaps were:

1. Task force and focal point from each sector
2. Joint investigation and prioritising this in the face of outbreaks
3. Implementation of Standard Operating Procedure (SOP) e.g. for sample collection
4. Joint data gathering, analysis and conclusion mechanism for data sharing & interpretation
5. Collaboration and joint technical training for animal health and human health

When the participants were asked to identify one key next step for each of these gaps, there was consensus on (1) the identification of a main focal point from each sector at the sub directorate level, and (2) establishment of a technical cross-sectoral task force (within the context of existing structures and mechanisms in Indonesia) to regularly discuss and coordinate cross-sectoral activities associated with sharing data, assessing, and managing risks from H5N1 influenza. Two potential focal points and four delegates agreed to bring the discussion forward, pending approval from their administrative and supervisory structures.

Bangladesh

The Ministry of Health and Family Welfare and the Ministry of Fisheries and Livestock have both approved the project. Planning for the review mission, to take place in 2013, is on-going.

³ Ministry of Health (Directorates General of DC&EH and of Health Care), NIHRD, KOMNAS, Eijkman Institute, IVR CRD Salatiga, Bali Provincial Health Department, Udayana University, Surabaya Provincial Laboratory, Hasan Sadikin General Hospital, Ministry of Agriculture (DGLAHS, DAH Jakarta, Subdirectorates Surveillance, Rapid Response Unit, DIC Wates), Disease Investigation Centers in Denpasar, Subang and Sulawesi, PUSVETMA, Bbalitvet Veterinary Research Institute, Bogor, Faculty of Veterinary Medicine, IPB, Bogor, Livestock and Animal Services of Bali and West Java province, and provincial animal health Laboratory DKI Jakarta.

ACKNOWLEDGEMENTS

This project has been technically and administratively supported by the FAO headquarters AGAH department, the FAO regional office for Asia and the Pacific, the FAO country offices in Egypt, Viet Nam, Indonesia, and Bangladesh, the OIE Headquarters (Animal Health Information Department, Scientific and Technical Department and the World Animal Health and Welfare Fund), the OIE Sub-Regional Representation for South-East Asia, the WHO headquarters (PED and FOS Departments), the WHO Regional Offices for the Eastern Mediterranean, for South East Asia, and for the Western Pacific, and the WHO country offices in Egypt, Viet Nam, Indonesia, and Bangladesh, using funds provided by USA Centres for Disease Control (US CDC), Canadian International Development Agency (CIDA), and the US Agency for International Development (USAID).

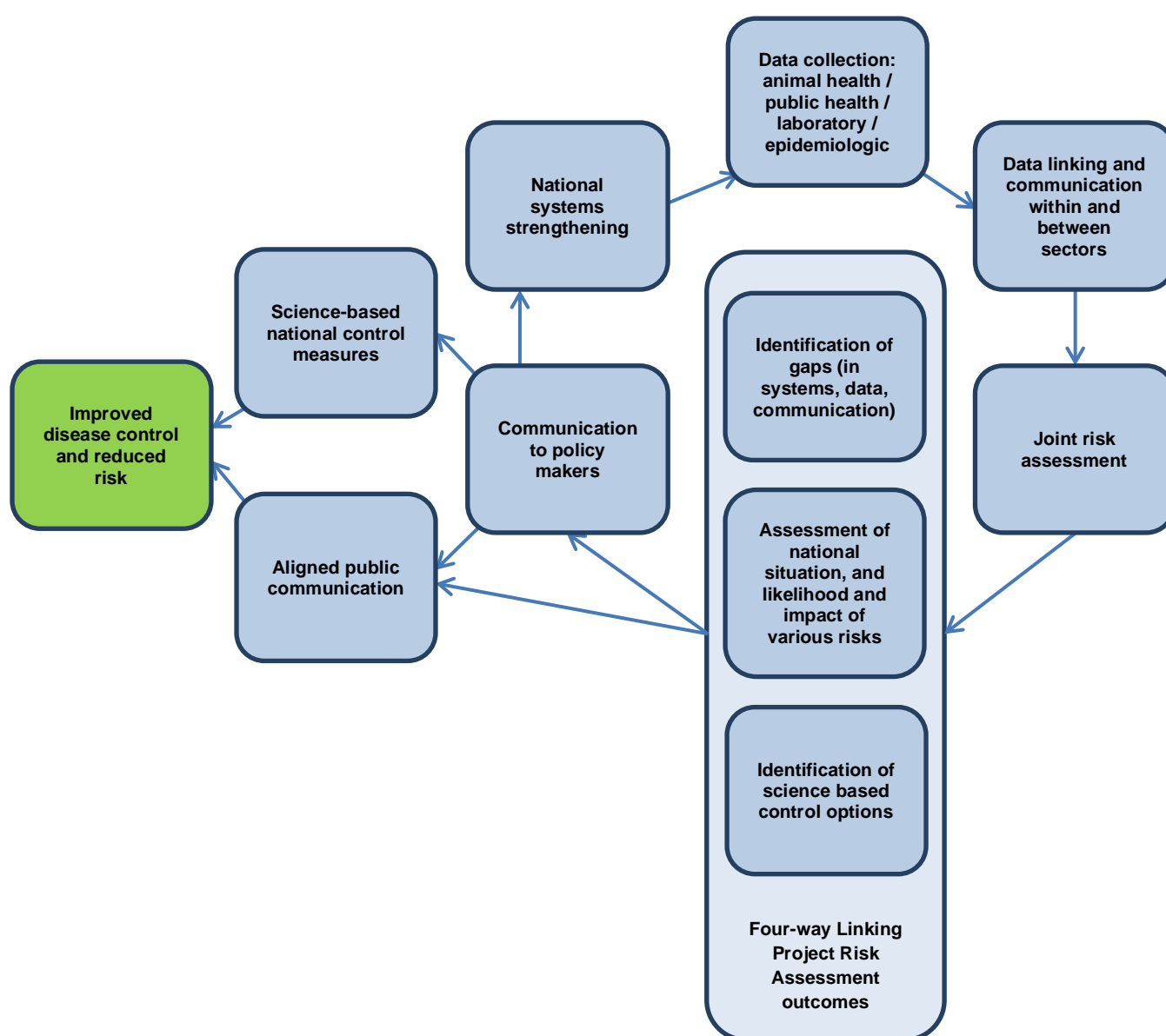


Figure 2. National four-way linking framework and outcomes