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Bernadette has also worked for the Food and Agriculture Organization of the U.N., for l'Institut de recherche pour le développement (IRD) in Cameroon on emergence of simian immunodeficiency viruses from non-human primates including bushmeat, the US Food and Drug Administration and clinical veterinary practice.

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THE JOINT FAO, OIE, WHO GLOBAL EARLY WARNING SYSTEM

Addressing Health Threats and Emerging Risks at the Human-Animal-Ecosystems Interface – GLEWS+

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The World Organisation for Animal Health (OIE)
The World Health Organization (WHO)

MAIN MESSAGE: *Cross-sectorial risk assessment of health events of international concern at the animal-human-ecosystem interface to prevent and control risks.*

BACKGROUND

The Food and Agriculture Organization (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO) recognize a joint responsibility for minimizing the health, social and economic impacts of zoonotic, high impact diseases and non-microbial health threats arising directly or indirectly from domestic or wild animals and their environments.

An important aspect of addressing and mitigating potential health threatsat the human-animal-ecosystems interface is early warning complemented by robust risk assessments to inform actions, whichsupport timely communication across agencies and sectors responsible for human health animal health, wildlife, and food safety. In response to health threats like H5N1 HPAI and SARS, the tripartite established the FAO, OIE, WHO Global Early Warning System for transboundary Animal Diseases, including zoonoses (GLEWS) in 2006. GLEWS builds on existing surveillance systemsto confidentially track and verify relevant events and provides aframework with global reach to enable the convening and pooling of expertise, data, functional networks, operational systems and stakeholders with the ultimate goal of enhancing inter-organizational coordination and supporting member countries in the detection, prevention and control of threats to health and the food chain through cross-sectoral and multidisciplinary partnership.

GLEWS+ is a powerful mechanism sets out to construct systematic, cross-sectoral, iterative risk assessment and risk communication. GLEWS+, i) links to subject areas such as wildlife health, food, biological threats; ii) drives more advanced risk assessment when a need is identified; and iii) provides opportunity forparticipation from a wider base of stakeholders.

GLEWS+represents one of the major steps within the tripartite vision to shift the paradigm from reactive to proactive preparedness and prevention through joint risk assessment for targeted and

timely action for health interventions.

The goal of GLEWS+ is to inform prevention and control measures through the rapid detection and assessment of health threats/events of potential concern at the human-animal-ecosystem interface.

This is a critical component in attaining the tripartite vision of the FAO, OIE and WHO: "A world capable of preventing, detecting, containing, eliminating, and responding to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security through multi-sectoral cooperation and strong partnerships".

A GLEWS+event includes health events of potential international concern that are attributable to domestic and/or wild animals, humans and/or the food value chain. For food safety events which have an animal aspect,GLEWS+will link closely with the FAO/WHO International Food Safety Authorities Network (INFOSAN).

THE OBJECTIVES OF GLEWS+ are to:

1. Enhance detection of health events of potential international concern at the human-animal-ecosystem interface

GLEWS+provides the framework to rapidly share information and expertise, while bringing together the complementary event verification processes of the three organizations. As a result, unjustified duplication of efforts and gaps are avoided, the power of detection is increased and the possibility of timely and cost-efficient intervention is supported.

GLEWS+is informed through existing global, regional networks or national disease surveillance and reporting systems which detect and prioritize health events of international concern. One of the most critical needs for early detection of emerging pathogens and other hazards is the existence of adequate and sensitive surveillance capacities geared towards early and reliable detection of disease events in the field.Animal disease outbreaks can provide direct early warning that enhances public health surveillance or conversely public health surveillance may trigger investigation in animals. Linking GLEWS+to functional networks that monitor and assess food-borne threats and food safety events provides the interconnectivity between these networks while recognizing the interdependence of sectors and professions implicated when considering risks at the human-animal-ecosystem interface.

Legal and regulatory frameworks provided by the WHO International Health Regulations (IHR 2005),OIE's standards (Terrestrial and Aquatic Animal Health Codes) including the World Animal Health Information System (WAHIS), and the PVS Pathway (Performance of Veterinary Services), support early detection and notification of events, including emerging events, at the human-animal-ecosystem interface in a more complete andappropriate epidemiological context.

2. Undertake joint risk assessments to inform rapid acton on all acute health events of potential international concern at the human-animal-ecosystems interface;

GLEWS+provides a resource to deliver systematic, defensible and timely joint risk assessments to provide the basis for taking integrated and coordinated action to manage and reduce the negative consequences of public health risks at the human-animal-ecosystem interface by identifying key prevention and mitigation measures and rapid dissemination of information. Risk assessments are based on comprehensive data sets housed in the three organisation; ii) include other available, complementary data;and iii) embody multidisciplinary expertise, to provide appropriate and proportional advice for response actions;

FAO, OIE, and WHO maintain different health information systems that could potentially be used to generate an assessment of zoonotic diseases most likely to be transmitted to people via contact with livestock, animal products or exposure to wildlife or vectors or the environment. The data held by each respective organisation is currently not maintained in a single IT platform, it varies in detail and content, and the rationale behind collecting the data may be different between partners; therefore, the value of inter-connectivity, data sharing and joint assessment is high. A process of combining the data from the three organizations that utilizes good practices of organizational systems to build the risk assessment will make a greater use of these datasets. In addition to legal and regulatory frameworks and notification tools provided by the WHO-IHR, OIE's standards and OIE's WAHIS-WAHID, examples of different sources are: the WHO Event Management System (EMS), the Global Health Observatory Data Repository, International Food Safety Authorities Network (INFOSAN), FAO EMPRES-i, PROMED/Health Map, the Gridded Livestock of the World, and other unofficial sources like the Wildlife Health Event Reporter and Health Map.

Joint risk assessments would result in documented risk estimations of the adverse effects likely to occur in a given population based on the consideration ofdata from a variety of sources.

3. Undertake joint risk assessments that help predict changes in endemic or seasonal disease to inform prevention and preparedness activities for health events at the human-animal-ecosystems interface;

GLEWS+ is uniquely positioned to facilitate planned risk assessments that support prevention, forecasting and preparedness especially for endemic, recurring or seasonal risks. Identifying at-risk areas or populations helps to engage key policy and operational partners before an event occurs or in its early stages. No one organisation can effectively carry out a planned risk assessment for health events at the human-animal-ecosystems interface alone. The pooling of data and expertise across the three organisations and respective networks of experts is therefore a critical component of GLEWS+, allowing for more effective coordination of cross-sectoral action.

Strengthening GLEWS+joint risk assessment activities and supplementing them with relevant data on drivers for emergence and persistence of diseases and health threats contribute to build a more complete body of evidence towards understanding trends and the epidemiology of diseases, and reinforcing preventive and predictive capacities to better assess and to ultimately aid prevention, control and effective management of these disease risks.

4. Ensure timely, coordinated and relevant risk communication for high impact health events of potential international concern at the human-animal-ecosystems interface

a. Within and between the three organisations

Health threat alerts and global early warning is a core output of GLEWS+; it should guide the actions of the tripartite members, who are the key international organizations focused on providing guidance on real and perceived risks at the human-animal-ecosystems interface. Based on the outputs of GLEWS+ intelligence activities, messages on risk assessment and options for risk management can be constructed for member states and the wider public.

b. To Member countries

Improving the communication of GLEWS+outputs with regional and national counterparts will enhance the sensitivity of detection and provide evidence for appropriate action for risk management. Strengthening theGLEWS+network with more integrated regional and country input will also improve the quality of data collected from the fieldbringing local context to support risk assessments, and improve the capacity of GLEWS+for real time event verification from the field. Member states would be direct stakeholders of early warning and risk assessment messages that could be used to translate evidence in the form of a risk assessment output into policy.

c. With the public and the international community

The GLEWS+ and tripartite websitesand the three partners organizations are the portals for communicating GLEWS+information which is considered a public international good, simplified joint risk assessment messages, and they provide options for evidence-based best practices to manage zoonotic disease threats at the human-animal-ecosystem interface (and improve food safety) in both the domestic market and at a global level.

CONCLUSION

GLEWS+ cannot function in isolation, this tripartite mechanism builds on on-going One Health work at the human-animal-ecosystems interface at global, regional and national levels that target the strengthening of systems, the legal frameworks that underpin these, providing guidance and standards, building organizational and institutional capacity and technical competencies, supporting the development of surveillance and response systems. The tripartite continues to build capacity with strategic partners in countries to strengthen and support surveillance and assessment of data being collected to inform action.

*GLEWS+*success counts on the increasing capacity of systems and networks in countries, regions and globally to perform indicator- and event-based surveillance which links public health, veterinary, food safety and other sectors. Each partnerorganisation is actively engaged in supporting countries in building capacity to detect and report events at the human-animal-ecosystems interface, investigate and respond rapidly to outbreaks, and in advocating for transparency among countries in accordance with the OIE Terrestrial and Aquatic Animal Health Codes and the WHO International Health Regulations (IHR 2005), and FAO/WHO Codex guidelines.

The global community is systematically building cross-sectoral partnerships based on comparative advantages of the partners to leverage efficiencies and increase the power of assessments to guide action to prevent and respond effectively to health threats based on the best available evidence. In this context, GLEWS+is the framework to address health threats and emerging risks at the human-animal-ecosystems interface to enhance global health security.

A few examples of experiences and strategies for supporting creation of country ownership and management capacitythat will be highlighted (these are not all labelled GLEWS but are related in-country work of which outputs/comes contribute to the GLEWS+ mechanism)

PVS and IHR strengthening human and animal institutions as well as partnership, alignment and coherence in standards and protocols when appropriate.

EPT+ USAID program to support the understanding of influenza risks emergence and spread in animal species and identifying risk hot spots areas in Asia (China, Bangladesh and Vietnam where potential pandemic viruses could emerge.

One Health in Mongolia: Under the Asia Pacific Strategy for Emerging Diseases (APSED), Mongolia has taken an initiative to clarify roles and responsibilities and create a coordination mechanismbetween veterinary, health and inspection agencies on food safety, and import and export control, that has increased generic capacity for zoonoses control and prevent. This proactive approach has attracted more resources and attention from international partners and allowed poolingto improve performance in the reduction of the risk of zoonotic in Mongolia.

The Americas: Collaboration between health-agriculture- environment has been on-going , an example is the Regional Rabies Program in the Americas, which officially started in 1983, and included in the surveillance system cases in humans, domestic animals and wild animal. In many countries the Ministry of Health and Agriculture work together to control this disease that presented a reduction of around 90% of the human and canine cases. Regional elimination for canine rabies in the Americas is set for 2015 and for South East Asia and Western Pacific for 2010.

Leptospirosis in Nicaragua; a recent publication demonstrated that volcanic type of soil and rain are drivers for leptospirosis outbreaks. This country has an Intersectorial National Plan to approach this problem.http://www.mdpi.com/1660-4601/9/11/3883

Four-way linking project a tripartite collaboration to reduce pandemic threats from influenza at the Human-Animal Interface with a focus on data from Egypt, Indonesia, and the USA to strengthen human and animal health systems to collect and link national data and the building of a national-level joint framework for risk assessment and risk communication.

Global Foodborne Infections Network (GFN) see poster on **building capacity for integrated foodborne disease surveillance**

A few challenges

- Operationalizing One Health at country level
- Commitment (Political and financial)
- Ownership of programme
- Assuring sustainability of programmes
- Weak veterinary and public health infrastructure and country capacity to deal with zoonoses events (Technical)

ABSTRACT 105:

Acknowledging that health threats do not respect boundaries and that countries are increasingly able to detect health events at the human-animal-ecosystem interface through surveillance and early warning systems, cross-sectoral risk assessments that combines data from different sources is central to guide prevention, preparedness and response to threats of international concern. Health threats monitored by GLEWS+ include animal pathogens that jump the species barrier or invade new geographical areas and food hazards that threaten food value chains.

The Food and Agriculture Organization, the World Organisation for Animal Health , and the World Health Organization , also known as the Tripartite, are the international organizations responsible for health of people and animals, and food. Together they provide opportunity for detecting and assessing health events at the human-animal-ecosystems interface to inform prevention and control measures. The tripartite have convening power to pool expertise, data, functional networks and systems with global reach to provide a unique mechanism to conduct robust and timely cross-sectoral risk assessments. This ensures timely, coordinated and relevant risk communication for health events at the animal-human-ecosystem interface of international concern within the three organizations and with the public and the international community.

The presentation will highlight the achievements of GLEWS since 2006, the new GLEWS+ direction. Tripartite examples based on demonstrated outcomes will be provided to set the stage for future next steps. GLEWS+ represents a true example of cross-sectoral collaboration at the international level that could be emulated at country level.

[1] FAO, OIE, and WHO Tripartite Concept Note "Sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interface" www.glews.net/wp-content/uploads/2011/04/FINAL_CONCEPT_NOTE_Hanoi.pdf

[2] see PL 2 "National to Regional to Global Surveillance – A Path to One Health"- Current State of Global Surveillance: Public Health, Animal Health and the Interface

[3] Food events that involve animals will link to INFOSAN but will not be duplicated.

[4] http://apps.who.int/ghodata/

[5] http://www.fao.org/AG/againfo/resources/en/glw/home.html"

[6] http://www.fao.org/AG/againfo/resources/en/glw/home.html

[7] See PS 4.3 Unprecedented Move Toward a More Coherent Approach Among Sectors for the Strengthening of National Human-Animal-Ecosystem Health Capacities