Considerations in a Road-Map for Technical Cooperation for Veterinary Public Health: One Health and Sustainable Development Goals

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Background

- Food safety, emerging and re-emerging zoonoses, and environmental disasters have become a global priority

- PAHO efforts in Veterinary Public Health (VPH) and alignment with “One Health” (OH) approach have always been focused towards
  - Improvement of the population health through human health-animal health-environment interface
  - Requiring inter-sectorial and inter-institutional governance mechanisms and processes
  - Furthering health goals included in 2030 Agenda for Sustainable Development
PAHO-led cooperative programs and strategies have historically incorporated a “One Health” approach:

- Continental eradication of foot-and-mouth disease
- Regional elimination of human rabies transmitted by dogs
- Promotion of food safety: from farm to fork
- Elimination of hydatid disease from Southern Cone
- Combating neglected zoonoses related to poverty

Supporting development of public and animal health services
Recent Health Events related to PVH and OH
The “One Health” Concept
The Sustainable Development Goals
The Veterinary Public Health Concept
A “Foreseeable Future” in PVH and OH
A Possible “Road Map” for Technical Cooperation in Veterinary Public Health
Zika in the Americas

Updated as of 7 July 2016

Countries with confirmed autochthonous cases of Zika virus (number)

- with vector-borne transmission

Prior to November, 2015 (2)
November 2015 (8)
December 2015 (3)
In 2016 (29)
No autochthonous confirmed cases, to date

Data Source:
Reported from the IHR National Focal Points and through the Ministry of Health websites.
Map Production:
PAHO/WHO CH4 IR ARD
Cystic Echinococcosis in the Southern Cone: 2009 - 2014

- Case-fatality rate of 2.9%; 820 deaths
- 300,000 days of hospitalization
- 15% of cases in children less than 15 years of age; environmental persistence leading to new cases
Visceral Leishmaniasis

Cutaneous Leishmaniasis

Leishmaniasis in the Americas

Case density / Area (50KM)

High : 890.642
Low : 0

Case density / Area (50KM)

High : 176.198
Low : 0
Human Rabies transmitted by Animals

Reported cases in last 10 years
Economic Impact of Some Recent Infectious Disease Outbreaks

- **SARS Worldwide**
  - $40-50 bn

- **Avian Flu (H5N1)**
  - $25-30 bn

- **Foot & Mouth**
  - UK
  - $18-25 bn

- **BSE, Canada**
  - $4.9 bn

- **BSE, US**
  - $3.2-4.7 bn

- **BSE, US**
  - $10.1-13 bn

- **Foot & Mouth Taiwan**
  - $5-8 bn

- **Classical Swine Fever**
  - Netherlands, $2.3 bn

- **Nipah, Malaysia**
  - $350-400 m

- **HPAI, Italy**
  - $400 m

- **West Nile, US**
  - $500m-1 bn/year

- **Avian flu, NL**
  - $500 m

Figures are estimates and are presented as relative size.

Zoonotic Risk by Animal Groups

- **Wildlife**
  - Campylobacter
  - Salmonella
  - Ringworm
  - Toxoplasmosis
  - Psittacosis
  - Brucellosis
  - Tularemia

- **Farmed**
  - Campylobacter
  - Salmonella
  - Ringworm
  - Toxoplasmosis
  - Psittacosis
  - Brucellosis
  - Tularemia

- **Companion/Exotic pet**
  - Campylobacter
  - Salmonella
  - Ringworm
  - Toxoplasmosis
  - Psittacosis
  - Brucellosis
  - Tularemia

- **Other synanthropic**
  - Campylobacter
  - Salmonella
  - Ringworm
  - Toxoplasmosis
  - Psittacosis
  - Brucellosis
  - Tularemia

- **Other**
  - Leptospirosis
  - Echinococcosis
  - Nipah leptoephirosis
  - E. coli (VTEC 0157)
  - Orf
  - Trichinella
  - Antibiotic resistance
  - Brucellosis
  - TB
  - Anthrax
  - Strep. suis
  - Cat scratch disease
  - Q fever
  - Cryptosporidiosis
  - Avian
Consequences of Malnutrition

Major El Niño Related Health Risk

Inextricable relation between animal, human and environment health
Humans are part of a global habitat; sharing the world with animals and plants
Humans and animals share the majority of known infectious agents
Approximately 60% of emerging diseases are classified as zoonotic
Human health also benefits from animals (e.g. animals production for food, animals as models for research of human diseases, and pet-assisted therapy)
One Health as the base of “governance of intersectoral, inter-programmatic and interdisciplinary efforts necessary to promote and protect the health status of people, animals and the environment”
Conceptual Framework of the Links Between Agriculture and Health

Agricultural producers (farmers and workers)  
Agricultural systems (types, practices, technologies, location, ownership)  
Agricultural outputs: distribution, quantity, quality, diversity, price

Labor process  
Water, air, soil, contamination  
Income generation

Access to food, water, land, and health-related services

Occupational health risks  
Water- and vector-borne diseases  
Under nutrition  
Chronic diseases  
Foodborne diseases (food safety)  
Zoonotic diseases  
Livestock diseases

Veterinary Public Health — One Health —  
Food Security & Food Safety
“One Health” Across Institutions

- FAO, OIE and WHO 2010 Agreement: sharing responsibilities and coordinating global activities to address the health risks at the human-animal-ecosystem interface

- Region of the Americas context:
  - Mechanism for technical cooperation that allow the integration of the OH concept
  - Through Tripartite Agreement, PANAFTOSA promotes leadership of health-agriculture-environment partnerships
  - Other important regional and sub-regional partners
Challenges to “One Health”

- Human innate resistance to change
- Institutional silos and interests of their constituencies
- Contested institutional leadership to drive change
- Engagement with the environmental sector
- Identification and quantification of the benefits within and among the three sectors animal health, public health and the environment
First incorporation of concept in Brundtland Report (1987) by the UN World Commission on Environment and Development:

“... the development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

These Goals are "three-dimensional" in nature, bringing together the three pillars of sustainable development:

- **Economic:** continuing to produce wealth to meet the needs of the world population;
- **Social:** reducing inequalities between peoples;
- **Environmental:** preventing degradation of the environment that future generations will inherit

The 2030 Agenda for Sustainable Development, approved by the General Assembly of the UN (2015), provides for a Plan of Action that includes 17 goals and 169 targets.

SDGs are integrated and indivisible, balancing three pillars of sustainable development (the economic, social and environmental) of global application while taking into account the different realities, capacities and levels of development of each country, respecting their national policies and priorities.

http://sustainabledevelopment.un.org/sdgs
Veterinary Public Health (VPH)

- Veterinary science has a long and distinguished history of contributing to promote and protect public health

"the sum of all contributions to the physical, mental and social well-being of humans through an understanding and application of veterinary science" (WHO, 1999)

- Human health is inextricably linked to animal health and production
  - Especially amongst developing regions where animals provide transportation, draught power, fuel and clothing as well as high value proteins (meat, eggs and milk)

- Risks for developing and industrialized countries at the human-animal interface can lead to serious public health and economic consequences

http://www.who.int/zoonoses/vph/en/
PAHO VPH Contributions

- PAHO established its VPH program in 1949

- Technical unit consolidated at PANAFTOSA, Brazil, with technical assessors at country level, supported by policy and technical committees
PAHO VPH Contributions

PAHO’s wide scope for VPH:

- Multi-disciplinary: not only involving veterinarians
- Intersectoral: food, agriculture, health, environment, wildlife, pet owners, animal welfare, others sectors
- Range of Contributions:
  - Zoonotic and foodborne diseases surveillance and control
  - Food safety
  - Antimicrobial resistance of animal origin
  - Food security, nutrition and agricultural outputs
  - Socioeconomic development (trade, employment)
  - Subsistence farming
  - Commercial livestock sector
  - Rural (urban) enterprises (indigenous people/vulnerable groups)
The VPH contributes to most of SDGs, particularly

- **SDG 1** to end poverty in all its forms
- **SDG 2** to end hunger, achieve food security and improve nutrition and promote sustainable agriculture
- **SDG 3** to ensure healthy lives and promote well-being for all at all ages;
- **SDG 13** to take urgent action to combat climate change and its impacts
Two of the nine targets and one of the four means of implementation of **SDG 3** have a direct relationship with PANAFTOSA’S technical cooperation:

- Zoonoses and emerging infectious diseases
- Food safety, foodborne diseases, integrated surveillance of antimicrobial resistance/responsible use
- Eradication of Foot-and-Mouth Disease and strengthening of veterinary services
Food Security Threat

The graph illustrates the projected growth of the population and dietary energy supply from 1970 to 2050. The population is expected to increase by 1.8% in 1970, 1% in 1990, and 0.5% in 2010, reaching a peak by 2050. The dietary energy supply is projected to increase by approximately 1.4% annually. The graph also includes FAO estimates for average calorie availability per person.
The Region of the Americas, particularly South America, is working towards the final elimination of FMD, and in the near future we foresee the whole Region being free from FMD without vaccination.
Impact of Climate Change on Disease Vectors

- **Temperature**
  - On vectors/immediate hosts:
    - Changes in distribution boundaries: higher latitudes and altitudes
    - Effects on biology and physiology
  - On pathogen stages in the vector:
    - Acceleration of pathogen development
    - Completion of cycle at higher latitudes and altitudes

- **Global Wind Patterns**
  - Changed migration of certain vectors

- **Global Precipitation Patterns**
  - Changes in length of season that vectors can survive

- **Changes in Relative Humidity**
  - Effect on vector lifespan
  - Effect on the genetic composition of vector populations

The Elephant in the Room

Indeed, even at the current rates, it is fair to assume that over one million people will have died from AMR since I started this Review in the summer of 2014.
Strategic Considerations for a “Road Map” for Technical Cooperation in Veterinary Public Health

- To incorporate the Veterinary Public Health and "One Health" approach into the strategy of governance among institutions and players involved in interface health-agriculture-environment thus contributing to achievement of objectives of sustainable development;

- To promote specific strategies of collaboration and coordination that include an integrated approach for Veterinary Public Health in the various activities carried out by the health services
  - At regional, national and local level; including research, diagnosis, surveillance, control, alert and response and prevention;
Strategic Considerations for a “Road Map” for Technical Cooperation in Veterinary Public Health

- Promote, inter-sectoral and inter-programmatic initiatives that lead to the development of internal rules and operational guidelines facilitating exchange of health information and experiences between appropriate professionals.

- The International Agencies, and PAHO in particular, should focus technical assistance to Member States:
  - Identifying areas where the approach of Veterinary Public Health can be incorporated.
  - Promoting intersectoral, inter-programmatic and interdisciplinary governance.
  - Strengthening Veterinary Public Health technical teams within the health services through training.
Thank you

Gracias