VETERINARY CAPACITY BUILDING AND FOOD SECURITY CHALLENGES IN DEVELOPING COUNTRIES

Eugene Johnson, DVM
MPH Candidate

Master of Public Health Field Experience Presentation
Kansas State University
April 4, 2017
Presentation Overview

• Introduction
  – Veterinary Capacity building
  – Field Experience Overview

• Challenges
  – Low-resource settings
  – Meat Safety

• Capacity opportunities
  – Market Chain interventions

• Conclusions
Veterinary capacity building is the transfer of technical knowledge and skills to individuals in an effort to create sustainable change for the improvement of livestock production practices and food security in regions with limited resources.
Food Security

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. (FAO, 2017)
Four Pillars of Food Security

(WFP.ORG)
Introduction

• Veterinary capacity building involves
  – Transfer of technical skills and knowledge to individuals so they can develop long-term capabilities
Approach

- Goal based: re-establish basic services or create sustainable change
- Direct services
  - Includes delivering veterinary services
  - Valuable in crisis times
Approach

• Capacity building concepts
  – “Livestock are Lifestock”
  – Work within the National Animal Health System
  – Recognize cultural awareness
  – Approach in an integrated manner
Guyana F2F Project

• Mission: evaluate livestock production systems and veterinary capabilities.
• Activities: assessments, training workshops, and technical presentations.
Guyana, South America
A semi-autonomous agency of the Ministry of Agriculture mandated to provide services that will contribute to the enhancement of livestock production and productivity.

Aim
To provide and promote greater efficiency in the livestock and livestock product industry and to provide enhanced services in livestock husbandry, livestock health and research and to make provisions for effective administration with the view of improving commerce, trade and the export of the livestock and livestock products

(GLDA, 2016)
Field Experience Objectives

• Develop familiarity with capacity building in developing countries.
• Conduct vet assessments to determine livestock gaps and needs.
• Conduct vet assessments to evaluate public health concerns with infectious/zoonotic dz.
• Develop/utilize frameworks to conduct assessments.
Challenges of Veterinary Capacity building in Developing Countries
• Resource-poor country challenges
  – Nutrition is a limiting factor
  – Trained Vets, Markets, Transportation
  – Animal rustling
Why worry about meat safety?
Meat consumption in developing countries

Gains in meat consumption in developing countries outpace that of developed countries

[Graph showing the increase in meat consumption from 1980 to 2030 for developing and developed countries.]
Meat hygiene challenges

- Farm to slaughter biosecurity issues
- Inadequate slaughter facilities
- Lack of proper meat inspection
- Diagnostic testing and lab limitations
Local Slaughter Practices
Occupational and Foodborne Risks

Abattoir workers, butchers, vets, and farmers

- Biological agents (TB, Brucellosis, Parasites)
- Unsanitary meat processing procedures
- Undetected chemical residues (antibiotics, pesticides, toxins - lead)
Capacity opportunities
Market Chain Interventions

- Pre-slaughter farm interventions
- Meat inspection procedures training
- Improve sanitation and slaughter facilities
- Improve lab testing and surveillance
Pre-slaughter farm interventions

- Improving farm management practices can reduce (pre-harvest) biologic and chemical residues presented at slaughter.

- Capacity building approaches can be thru farmer associations and “train the trainer” methods with government field veterinarians.
Slaughter Sanitation concerns
Slaughter Sanitation concerns

- Limited veterinary food inspection; often Ministry of Health inspectors with limited training
- Limited disease testing capability
- Animal/pathogen traceability
- Lack of farmer reimbursement for condemnation
- Consumer expectation for fresh processed meat
- Waste due to mishandling carcasses; Lack of cold storage facilities, inadequate sanitation
Meat Inspection Procedures
Veterinary Services Laboratory
Measures of success

- Market chain is enhanced
  - Farm to Fork value chain
  - Internal sustainment
  - Safe food products

- Animal disease surveillance is active
  - Samples collected, tested, and diagnosed
  - Biosecurity enhanced
KEEP
FOOT & MOUTH
DISEASE
OUT
OF
GUYANA

DO NOT:

- Bring uncooked meat from abroad - especially South American and European countries
  *Nao trazer carne crua do exterior - especialmente dos países Sul Americanos e Europeus
  *No trazer carne cruda del extranjero especialmente de los países Sudamericanos y Europeos

- Bring live animals (cows, goats, sheep, pigs etc.) from abroad without permission from the Guyana Livestock Development Authority
  *Nao trazer animais vivos (gado, cabras, ovelhas, porcos, etc) do exterior sem permissão da Autoridade Responsável pelo Desenvolvimento de Pecuária na Guiana
  *No traer animales vivos del extranjero sin permiso de las autoridades de Desarrollo de la Ganadería de Guyana

- Bring hides, skins or any animal parts without permission
  *Nao trazer couros, pelos ou quaisquer partes de animais sem permissão
  *No traer pieles o partes de los animales sin permiso

Guyana Livestock Development Authority
Tract OLDA, Plantation Mon Repos,
East Coast Demerara, Guyana, South America
Tel: 220 2664, 210 6558 Email: glidae@agriculture.gov.gy
Conclusions

• Veterinary capacity-building can be driven from within with guidance from external players.

• Enforcing minimum standards for hygiene, sanitation, and meat inspection procedures with veterinary participation through government supported legislative actions.
Conclusions

- Improving meat inspection procedures and simple laboratory testing capabilities.

- Construction of basic slaughter facilities adapted to local capabilities and resources.

- Approaching capacity building in an integrated manner to synchronize efforts with animal health officials.
MPH Core Competencies

• **Pathogens/Pathogenic Mechanisms**
  – Infectious organisms causing foodborne disease

• **Immunology/Host response**
  – Undernourished people/animals have weak immunity
  – Increases susceptibility to disease

• **Environmental influences**
  – Drought and flooding affect disease/toxin exposure

• **Disease surveillance**
  – Critical within the National Animal Health System

• **Effective communication**
  – Veterinary capacity assessments support host nation public health sectors
MPH Courses

- MPH 754  Introduction to Epidemiology  3  F2015
- MPH 802  Environmental Health  3  F2015
- MPH 701  Fund Methods of Biostatistics  3  S2016
- MPH 818  Social/Behavioral Bases of Public Health  3  S2016
- MPH 720  Admin of Health Care Organization  3  Su2016
- DMP 710  Introduction to One Health  2  F2016
- DMP 888  Globalization/Coop & Food Trade  1  F2016
- DMP 815  Multidisciplinary Thought/Presentation  3  F2016
- DMP 854  Intermediate Epidemiology  3  S2017
- DMP 840  Field Experience  6  S2017
- Total  KSU CREDITS  30
- Transfer Credits (KSU CVM)  12
- Total  MPH Program Credits  42
Acknowledgements

A special thanks is offered to the following individuals for their support.

F2F Guyana Field Experience
  Dr. Marc Knobbe
  Dr. Carla Huston

U.S. Army Public Health Activity
  Dr. Darrin Olson
  Kayla Hammonds, Food Safety Officer

Committee Members
  Dr. Robert Larson, Major Professor
  Dr. Paige Adams
  Dr. Justin Kastner

KSU MPH Program
  Barta Stevenson
  Dr. Ellyn Mulcahy
References


QUESTIONS?