ANIMAL HEALTH INSTITUTE

IZS TERAMO
REFERENCE LABORATORY FOR CONTAGIOUS BOVINE PLEUROPNEUMONIA

Participatory Epidemiology including Abattoir Surveillance of CBPP

By Garoma Desa

December, 2025
Sebeta, Ethiopia

Outlines of the Presentation

- Introduction
- Status and Drivers of CBPP in Africa
- Purposes and Approaches of Participatory Abattoir Surveillance (PAS)
- Role of PAS in Control of CBPP
- Major Findings of PAS for CBPP
- Why PAS is Important?
- Limitations of PAS, Recommendations and Summary

Introduction (1/2)

- **Abattoir Surveillance** is the systematic inspection of animals, carcasses, and organs at slaughterhouses to identify evidence of infectious, zoonotic, or production-limiting diseases

- **Participatory Abattoir Surveillance (PAS)** is a method that combines participatory epidemiology (PE) techniques with abattoir-based inspection.

Introduction (2/2)

- **Participatory Epidemiology** is a form of active surveillance in which participatory approaches and methods are used to explore the local knowledge of livestock keepers.

- In PAS, veterinarians/meat inspectors work together with butchers, traders, and community representatives to share knowledge and interpret findings.

- PE was developed because, conventional surveys did not represent reality due to sampling and measurement biases (Spatial, project, person, seasonal and diplomatic bias).

A Picture Showing PE Techniques

Status of CBPP in Africa

- Endemic in 22 African countries, with only 4 countries officially CBPP-free.
- High recent sero-prevalence was reported: in Uganda, Sudan, and Ethiopia also remains affected in pastoral regions.
- Disease spread increasing in some areas due to drought-driven cattle movements and weak movement control.

Drivers Keeping CBPP Endemic in Africa

- Transhumance, porous borders and weak movement control
- Low coverage and irregular vaccination & imperfect vaccines
- Use of antimicrobials in the field
- Surveillance gaps and limited resources
- Weak regional coordination

Purposes of PAS for CBPP

- To detect CBPP lesions and confirm disease presence in slaughtered animals.
- To trace disease origin based on the animal's source.
- To support planning of targeted vaccination, movement control, and eradication programs.

Approaches of PAS

- Community engagement
- Training team members
- Participatory data collection
- Ante mortem inspection
- Post mortem inspection
- Sample collection
- Multi-source triangulation
- Trace-back and trace-forward activities
- Reporting and recommendation/response

Role of PAS in Control of CBPP (1/3)

Early Detection of Disease

- Post-mortem inspection at abattoirs allows for detection of CBPP lesions, even when animals showed no clinical signs on the farm.

Identifying Disease Distribution and Hotspots

- By recording the origin of slaughtered animals, authorities can trace disease back to affected herds or districts.

Role of PAS in Control of CBPP (2/3)

Evaluating Control Programs

- Regular abattoir findings provide feedback on the effectiveness of vaccination campaigns and other interventions.

Supplementing Passive and Active Surveillance

- It ensures continuous monitoring since slaughtering occurs year-round.
- Data from abattoirs can be used to validate and complement field reports.

Role of PAS in Control of CBPP (3/3)

Trade Assurance

- Data from abattoir monitoring can also support regional disease-free certification for export zones.

Cost-Effective and Sustainable Surveillance

- Abattoir surveillance uses existing infrastructure and trained meat inspectors, making it relatively inexpensive.

Major Findings of PAS for CBPP (1/3)

- **Ante mortem findings**
  - Coughing
  - Nasal discharge
  - Lagging behind
  - Emaciation
  - Dyspnea
  - Arched back

Major Findings of PAS for CBPP (2/3)

- **Post-mortem**
  - Chronic encapsulated lesions ("sequestra")
  - Marbled lung appearance
  - Pleural adhesions
  - Fibrin deposits
  - Fibrous pleuritis

Major Findings of PAS for CBPP (3/3)

- **Indications of the findings**

- Evidence of poor vaccination coverage
- Asymptomatic nature of the disease
- Chronic form is more common than acute
- Pastoral regions and border areas are more affected.

Why PAS is Important? (1/2)

- It provides a cost-effective and continuous monitoring system, especially in regions where clinical surveillance and laboratory infrastructure are weak.

- Measures the economic Loss due to condemnation
- Determine the spatial & temporal distribution of diseases
- Estimate the agreement of diagnostic techniques

- **Example**: in NE Ethiopia, a study of 192 cattle from abattoirs found 10 (5.2%) had CBPP-suggestive lung lesions; serology in these cases showed 3.4% overall prevalence.

Why PAS is Important? (2/2)

- Detects chronic or subclinical cases missed in the field.
- Provides sampling of animals from many areas.
- Trace-back geographical origin and recommend targeted vaccination.
- Supports national and regional disease control programs.
- Provides evidence for policymaking (e.g., vaccination targeting).

Limitations of PAS

- Does not capture animals that do not enter the slaughter chain
- Sickest animals may die before reaching abattoirs
- Traders may sometimes misreport origin
- Requires skilled staff for lesion recognition
- Sample traceability depends on cooperation of traders

Recommendations

- Train abattoir inspectors/veterinarians in participatory methods and CBPP lesion recognition.
- Develop standardized participatory abattoir surveillance forms.
- Integrate mobile tools (KoboToolbox, ODK) for real-time data reporting.
- Strengthen laboratory support for confirmatory testing.
- Provide continuous feedback to community stakeholders.
- Include abattoir surveillance data in national disease control strategy evaluations.

Summary

- Abattoir surveillance plays a critical role in the control and eradication of CBPP in Africa by:
- Detecting undiagnosed cases,
- Mapping endemic areas,
- Monitoring intervention success, and
- Providing cost-effective, continuous surveillance data.

Thank You for Your Attention