The Online R-FETPV 1st Module : Basic Epidemiology and Surveillance Data Analysis

5 April -28 May 2021

USAID FROM THE AMERICAN PEOPLE

Department of Livestock Development

Food and Agriculture Organization of the United Nations

R-FETPV Regional Field Epidemiology Training Program for Veterinarian

Part 4 of 4: Goals and foundation of a disease outbreak investigation for animal disease

Prakit Srisai

USAID FROM THE AMERICAN PEOPLE

Department of Livestock Development

Food and Agriculture Organization of the United Nations

R-FETPV Regional Field Epidemiology Training Program for Veterinarian

Content/Outline

Step in outbreak investigation

1. Preparing for a field outbreak investigation
2. Verifying that you actually have a problem (Confirm outbreak and diagnosis)

Part 1

3. Define case and start case-finding

Part 2

4. Descriptive data collection and analysis
5. Develop hypotheses

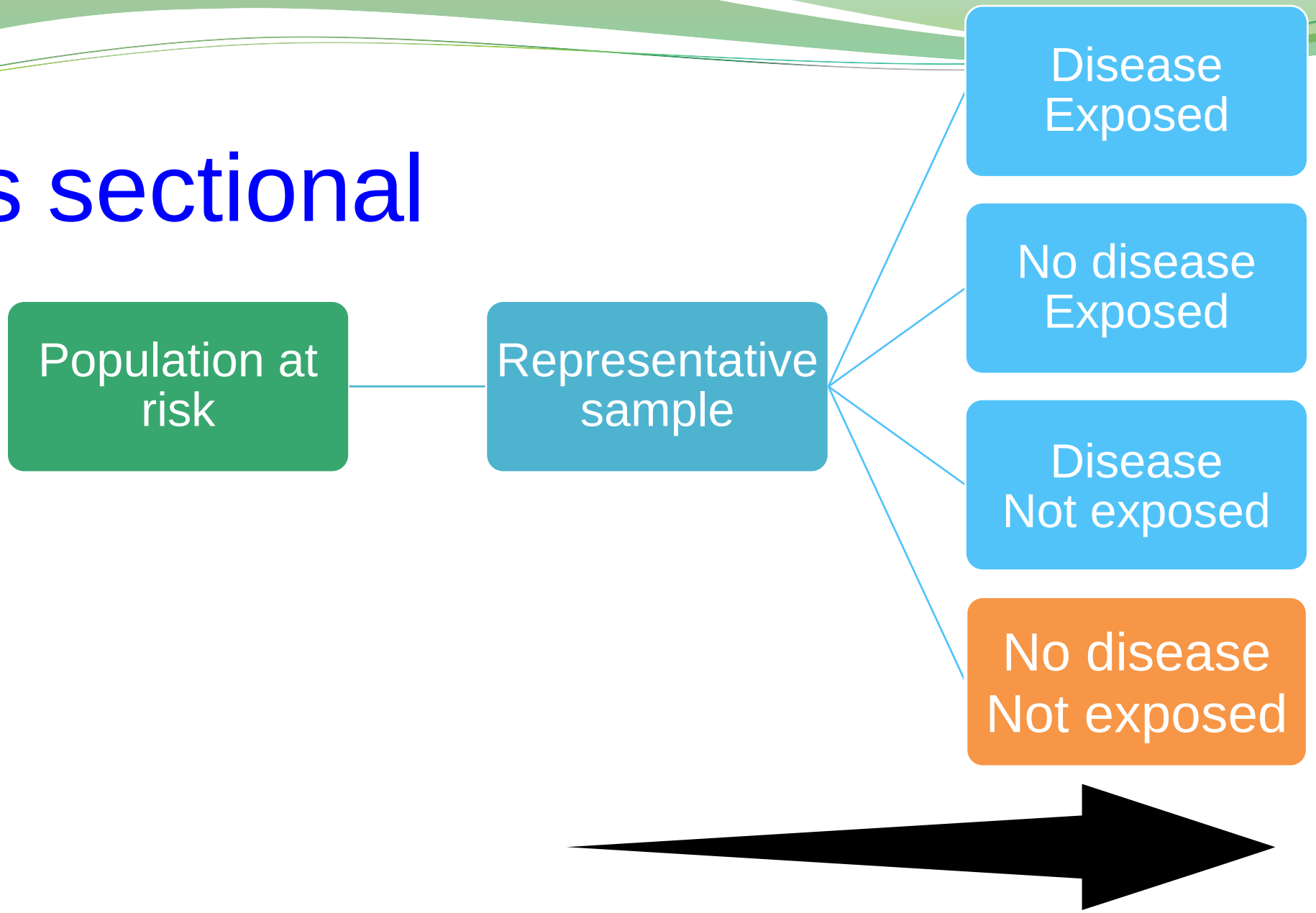
Part 3

6. Analytical studies to test hypotheses
7. Special studies, e.g., environmental and laboratory studies
8. Communicate conclusions and recommend control measures
9. Implement control measures
10. Follow-up the control implementations

6. Analytical studies to test hypotheses

- How to test our hypothesis?
  - ✓ Which study design would you plan to choose for this outbreak? And why?
  - ✓ Exposure = factors that might influence one's risk of disease
  - ✓ Outcome = refers to case definitions
  - ✓ Statistics that show a relationship between exposure and disease outcome

Cross sectional



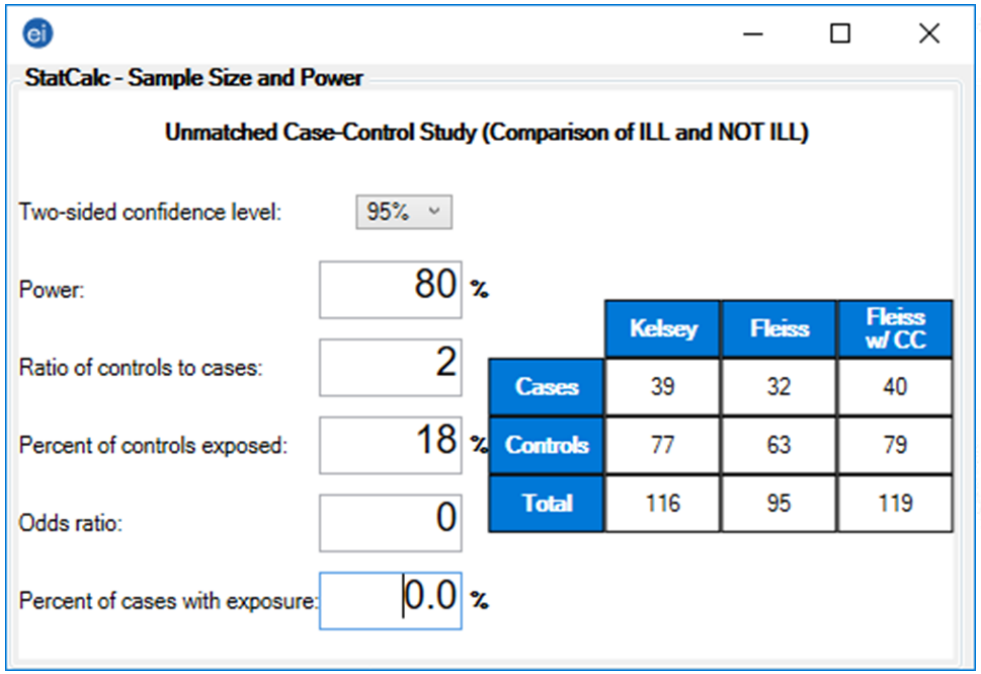
Concurrent assessment of disease and risk factor status

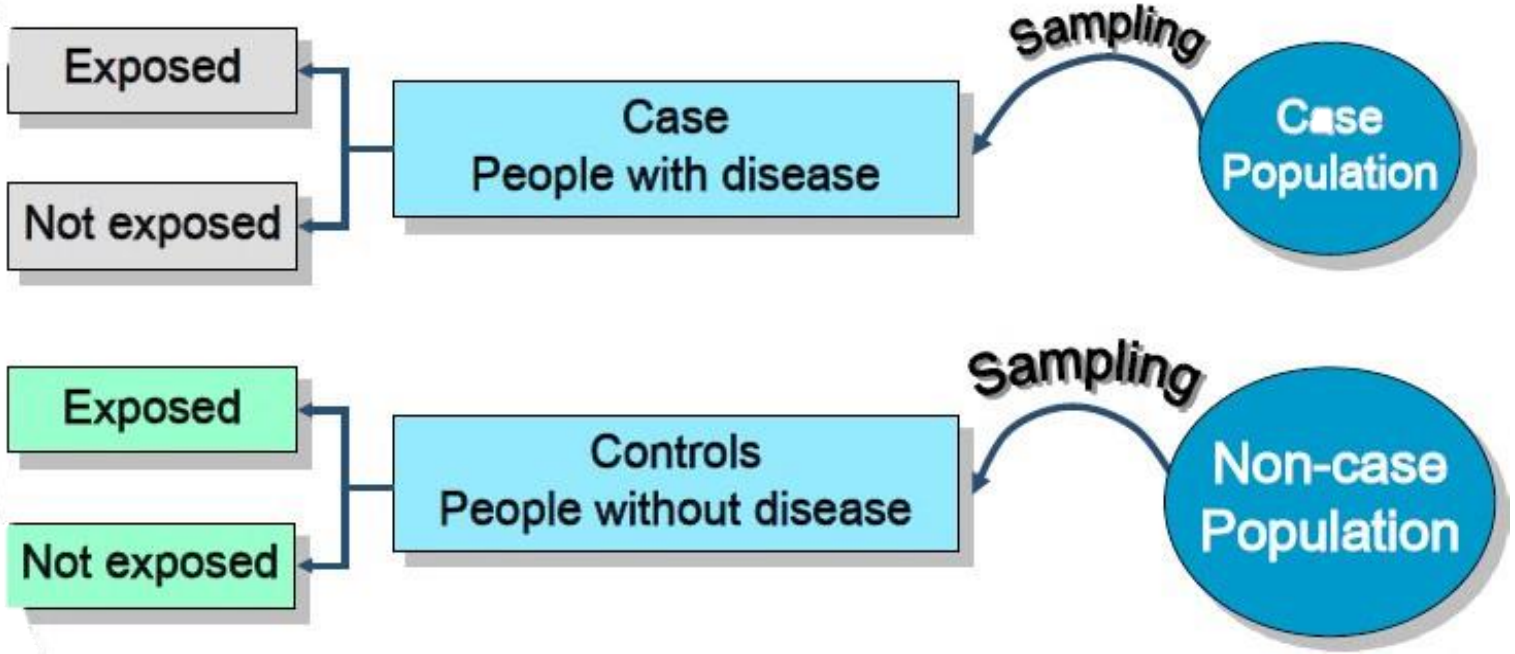
Cross sectional 2X2 table

	Disease	Non disease	Total
Exposed	a	b	**Total exposed**
Non exposed	c	d	**Total non exposed**
Total	**Total disease**	**Total non disease**	**Total of all**

- Results from a cross-sectional study allow calculation of prevalence and odds ratios

Case Control





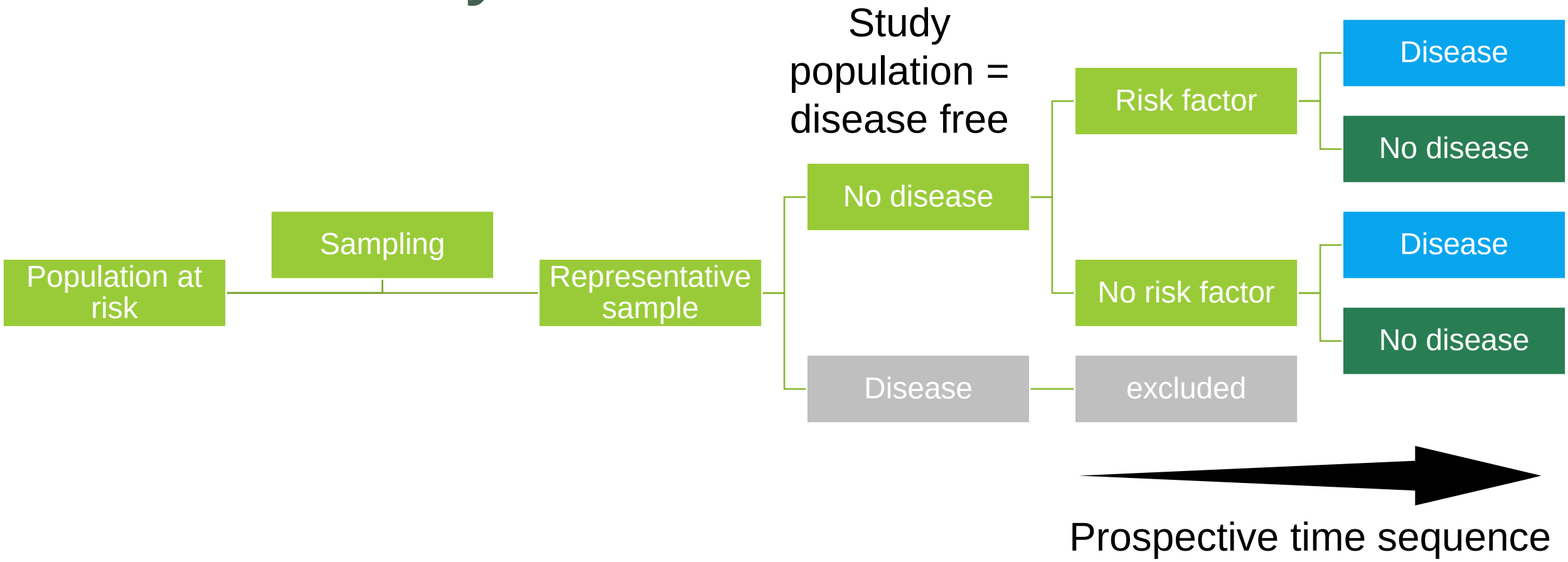
Source: FETP, 2010

Case control 2X2 table

	Disease	Non disease	Total
Exposed	a	b	**Total exposed**
Non exposed	c	d	**Total non exposed**
Total	**Total disease**	**Total non disease**	**Total of all**

- Disease prevalence cannot be calculated because the population at risk is not known
- OR is the measure used with case-control studies

Cohort Study



Cohort Study

Then,

Follow to see whether

		Disease Develops	Disease does not develop	Totals	Incidence Rates of Disease	
First Select	Exposed	**a**	**b**	a + b	$\frac{a}{a+b}$	Incidence in Exposed
	Not exposed	**c**	**d**	c + d	$\frac{c}{c+d}$	Incidence in non-exposed

Data analysis:

statistics → Bivariate analysis VS. Multivariate analysis VS. Multilevel analysis, …

Software →

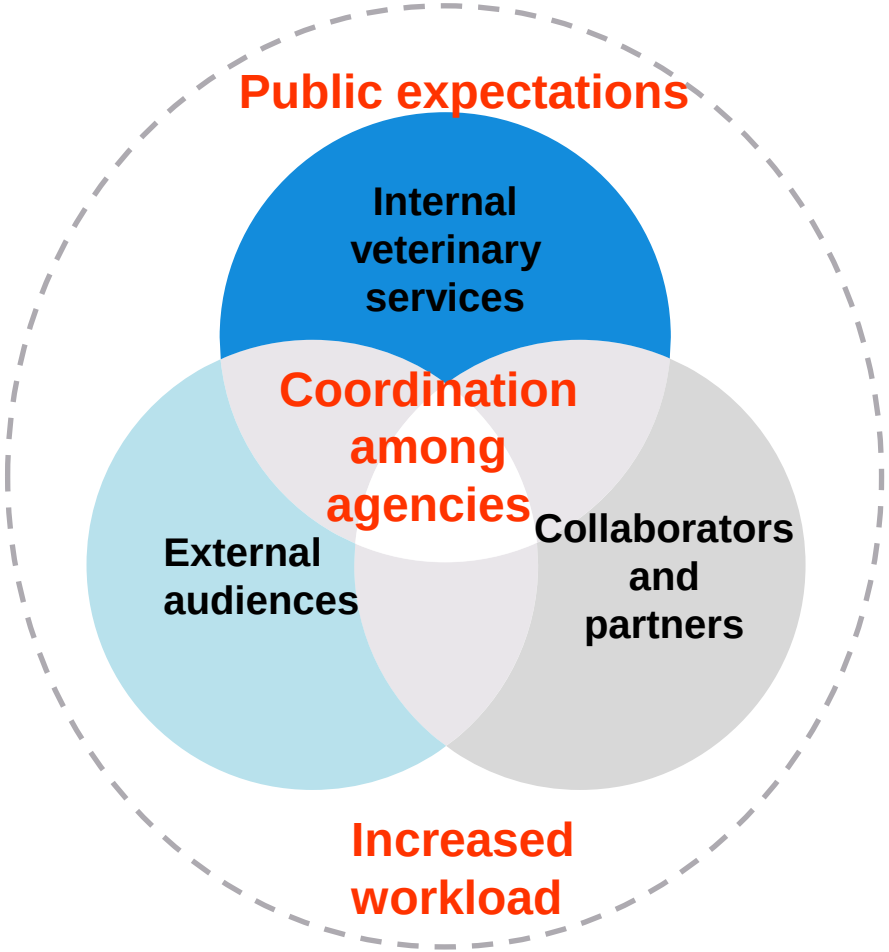
7. Special studies: Environmental study

7. Special study: Laboratory study

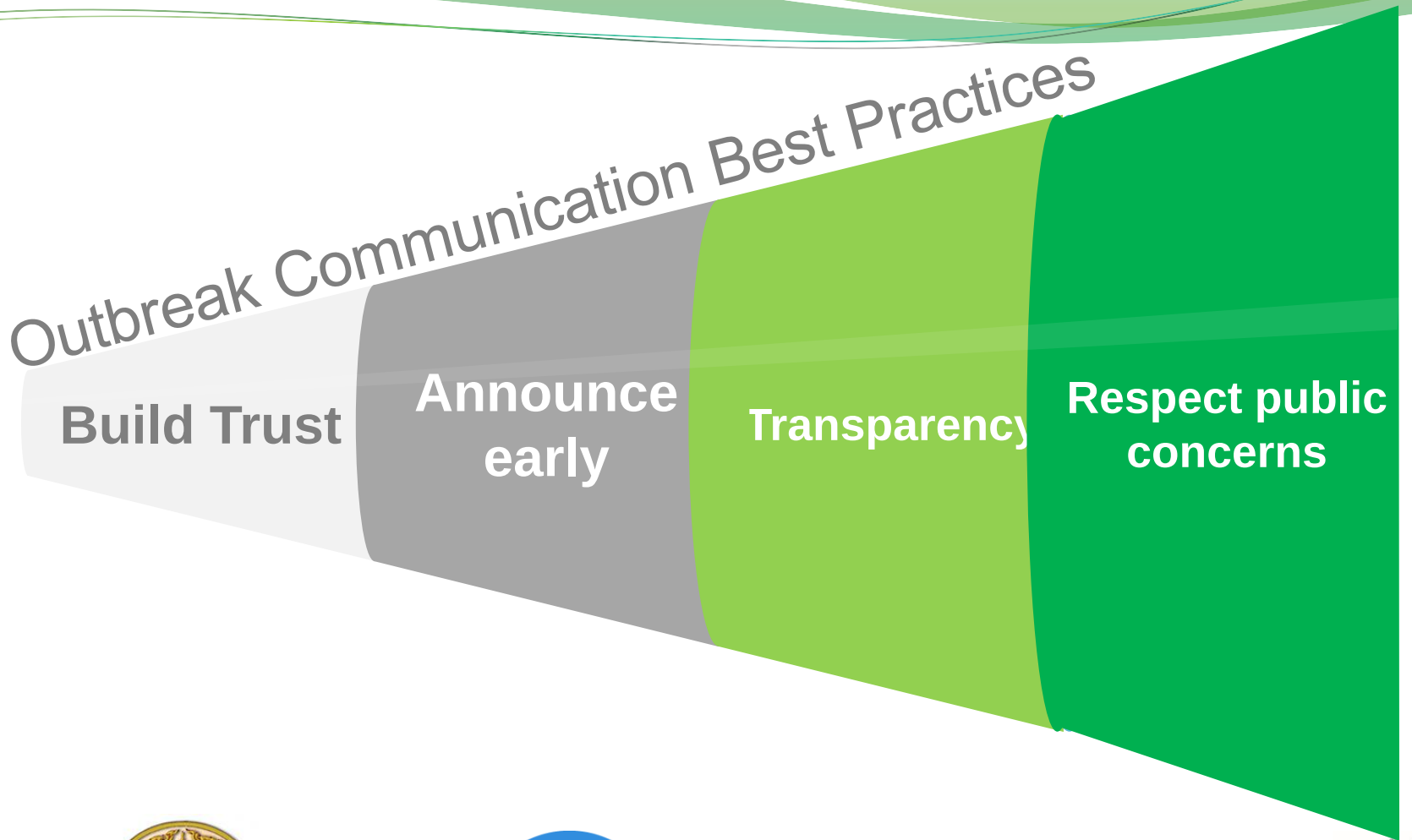
8. Communicate conclusions and recommend control measures

- Who needs to know?
- What and when do they need to know it?

Writing report



- 3 key messages + support materials
- Brief
- Understandable
- Leave room for unknow information
- Use positive terms (avoid “no” or “do not”)



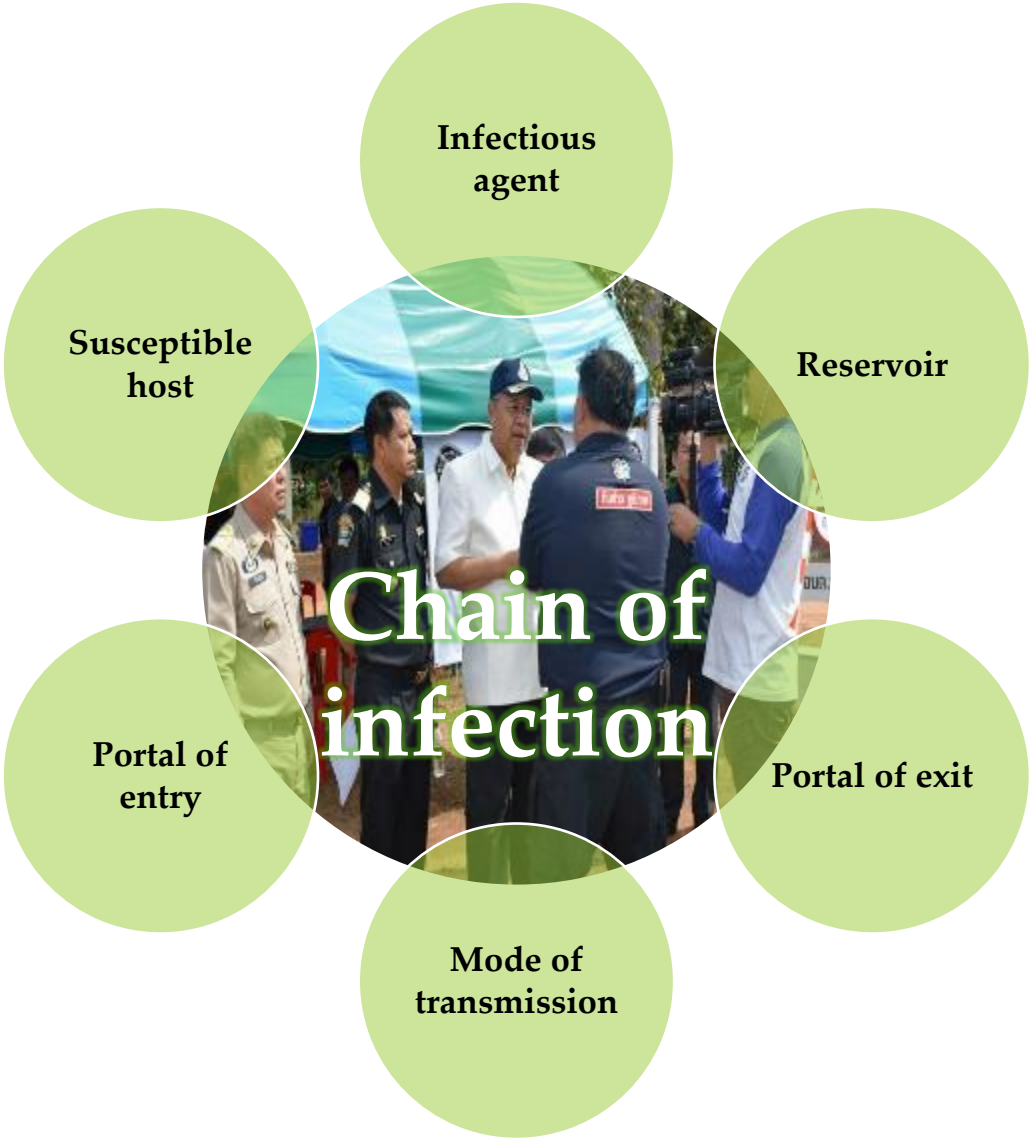
USAID FROM THE AMERICAN PEOPLE

Department of Livestock Development

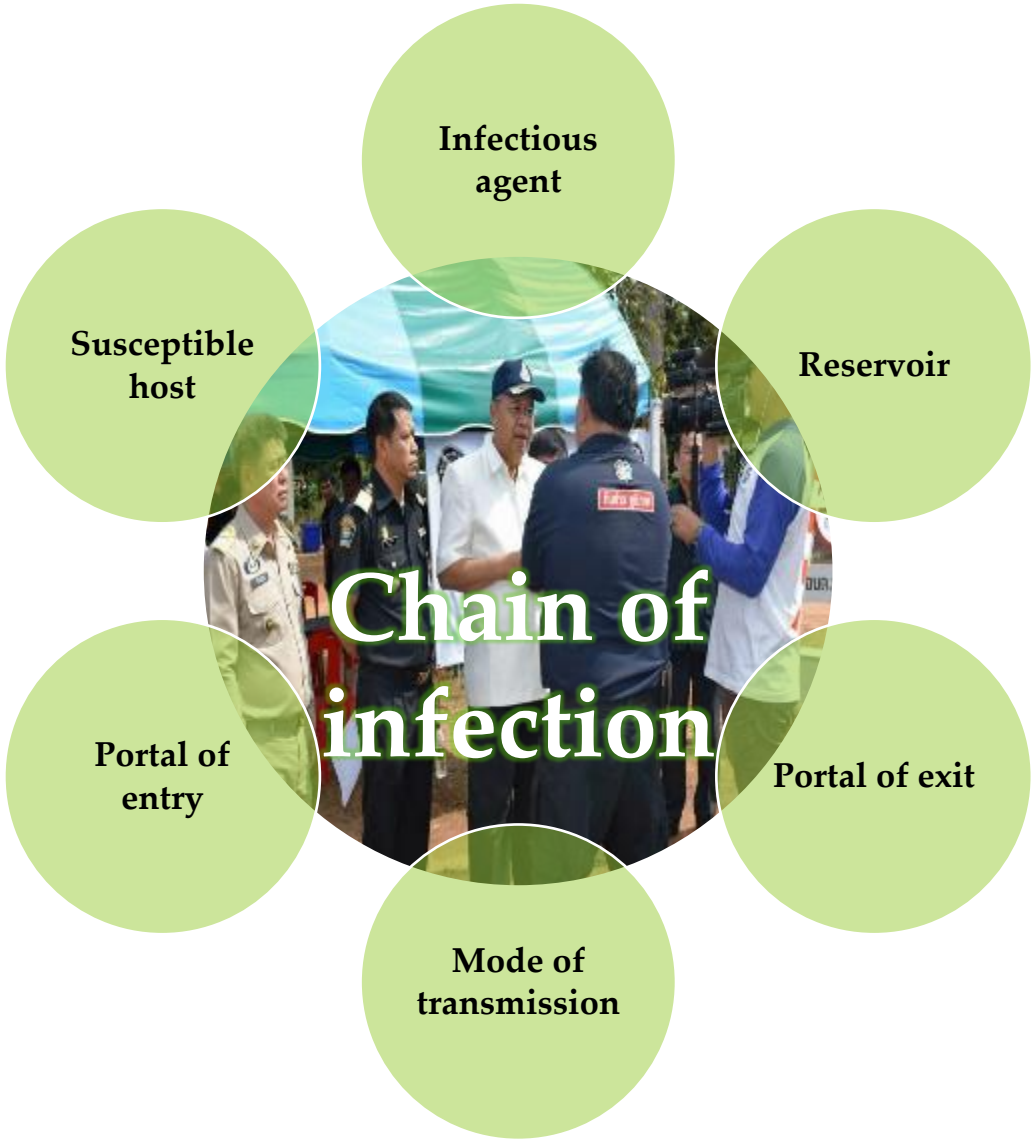
Food and Agriculture Organization of the United Nations

R-FETPV Regional Field Epidemiology Training Program for Veterinarian

9. Implement control measures



10. Follow-up the control implementations



Reference:

- A Field Manual for Animal Disease Outbreak Investigation and Management , FAO+OIE
- Introduction to outbreak investigation (https://cdn.ymaws.com/...modules/module_7_outbreak_investigat.pdf)