



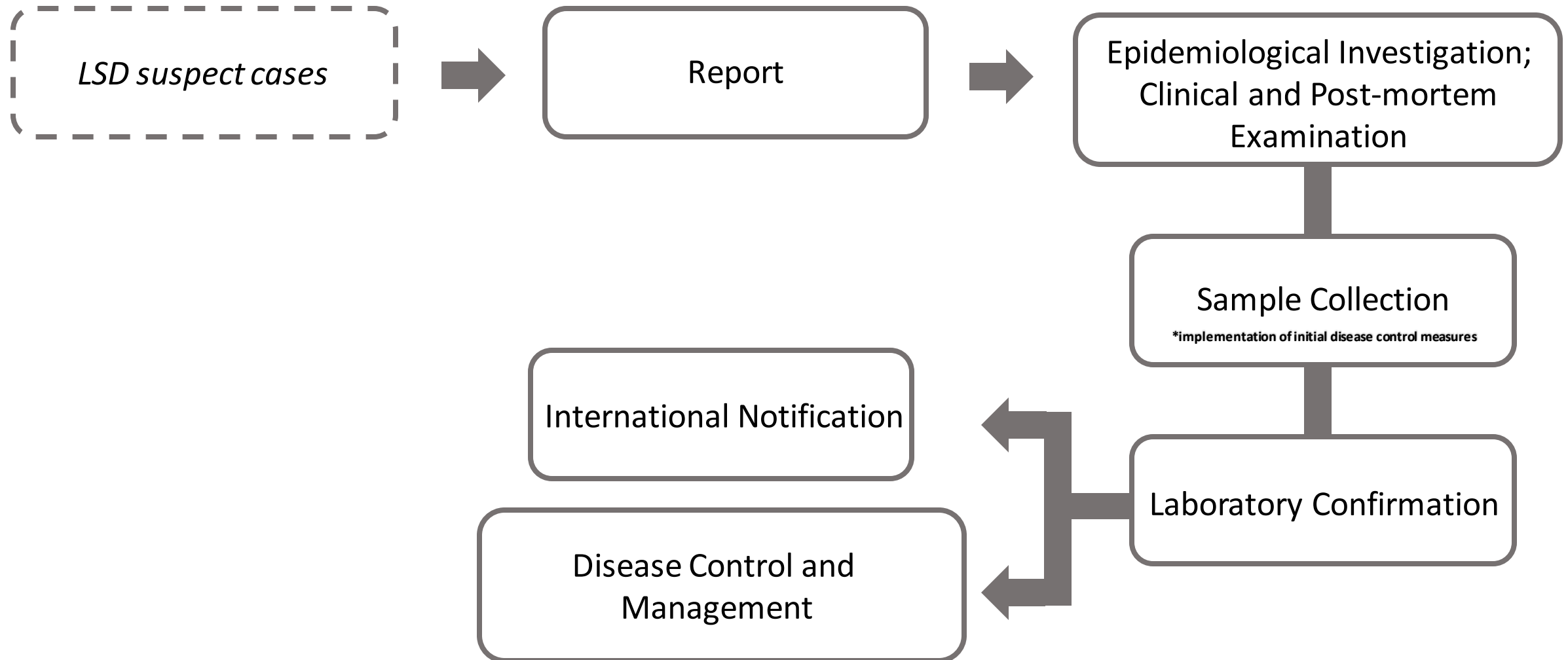
LUMPY SKIN DISEASE: A CASE-CONTROL STUDY DESIGN

Philippines

P R E S E N T E D B Y :

Dr. Joanna Marie David, Dr. Anthony Bucad, and Dr. Kiara Garcia

How to investigate the outbreak ?



Case definition and define controls

Case Classification

Suspect Case	Animal showing two or more of the following clinical signs: a. Loss of appetite b. Ocular discharge c. Nasal discharge d. Enlarged lymph nodes e. Mouth ulcer f. Multiple nodules on the skin 1-5cm in diameter g. Abortion h. Mastitis i. Orchitis
Confirmed Case	A suspected case with detection of presence of viral agent thru VNT or PCR
Epidemiological Unit	Farming household

Case definition and define controls

CASES

- Farming households in Neverland with sick cattle that showed clinical signs/lesions suggestive of the LSD (such as multiple nodules on the skin measuring about 1 - 5 cm in diameter) with an index case confirmed thru PCR.
- Disease onset between June 2021 to August 2021

Case definition and define controls

CONTROLS

- Farming households with no LSD cases located within the same village in Neverland
- With production activity between June 2021 to August 2021

*Data on cattle for both Cases and Controls shall be gathered from the **registry** of the **Local Government Units** as reported to the **National Agency**.*

Stakeholder involved

- Cattle raisers/producers
- Local veterinarians and/or Animal technician

Source and transmission

- Sample size
- Questionnaire
 - Who:* farming HH
 - How:* field survey
 - When:* September 2021
- USD 30,000
- Data Analysis and Interpretation

Questionnaire

Outbreak Investigation for Lumpy Skin Disease (Philippines)

Name of the Farm: _____

Owner: _____

Address:	Barangay	Mun/city	Province
	GPS	Long	lat

Contact details: _____

Date of interview: _____

Type of farm:

Commercial

☐

Population: _____

Backyard

Population: _____

Species and Age of Animal	Type of Animal (Dairy, Meat, Breeder, Draft)	Breed of Animal	No. of Heads
Cattle			
Less than 1 year			
1-3 years			
More than 3 years			
Buffalo			
Goat			
Sheep			
Others (please specify)			

Transport of Live Cattle

1. Source of stocks:	
Farm source	
Address	
2.a. Do you practice isolation of newly arrived stocks?	
2.b. If yes, how long? ____no. of days	
3a. Do you sell live animals in the market? Yes or No?	
3b. What do you do with unsold animals? ____return to farm ____slaughter ____others (please specify)	

Indirect and Intrauterine (feed, water, body fluid, skin lesions, semen, milk); Vectors; and Season

Housing	☐ Shed ☐ Corral ☐ Open field
Feeding Management	☐ Feeds ☐ Cut-and -carry ☐ Grazing: ☐ Owned land ☐ Common pasture area: _____How often for the past 12 months?
Water Source	☐ Owned (e.g. deep well) ☐ Ration ☐ Communal water source (e.g. river)
Observable presence of	☐ Flies (stableflies, horseflies) ☐ Ticks ☐ Others (please specify) During what season: ☐ Warm, humid ☐ Cold ☐ All throughout
Breeding Practice	☐ Natural ☐ Owned bull ☐ Service bull ☐ Artificial Insemination _____ Who performs the procedure? _____ Where do you source the semen?

Iatrogenic

Vaccination and medication practice

☐
☐

Owner or Farm Staff

Local Animal Technician/Veterinarian

How often do you clean and disinfect equipment
(syringes, surgical tools, etc.)

☐
☐
☐
☐

After every animal

After every HH

After every cluster HH

After every village

_____ Others (please specify)

Vaccination

Do you provide vaccination to the
animal/s?

☐
☐

Yes

No

If Yes, what vaccines do you give?

☐
☐

goat pox

sheep pox

What type of vaccine?

☐
☐

Live

Killed

Other vaccines available _____

Evaluation

Consequences of LSD infection of animals are identified as follows:

1. Decrease in milk production and mastitis
2. Fertility problems and abortions
3. Emaciation and damaged carcasses
4. Damaged skins and hides
5. Costs related to:
 - a. Veterinary treatments
 - b. Deaths
 - c. Surveillance and control measures

Study size

- Surveillance area: 80 km radius from each outbreak (assuming that there is a movement control)

Please enter the ratio of controls to cases	1
Please enter the prevalence of the risk factor	75.0 %
Please enter the values for two of the following parameters, and ? for the parameter to be calculated	
Sample size (both groups combined)	?
Power	80.0 %
Relative risk to be detected	2.00

Type I error 5.0 %
Sides 2
To change these values
return to Start

Results			
	Total	Group 1	Group 2
Sample size	430	215	215
Power	80.0 %		
Minimum detectable relative risk >1	2.00	Maximum detectable relative risk <1	

[Return to start](#)

Summary /discussion

- Cases were selected in terms of relevance, specificity, and practicality while controls were determined from the population that gave rise to the cases.
- Overmatching, misclassification and selection bias were considered during selection
- Case-control study could be applied on rare diseases by providing information on a wide range of exposures that may play a role in the development of the disease.



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THANK YOU!

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