

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

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



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Content/Outline

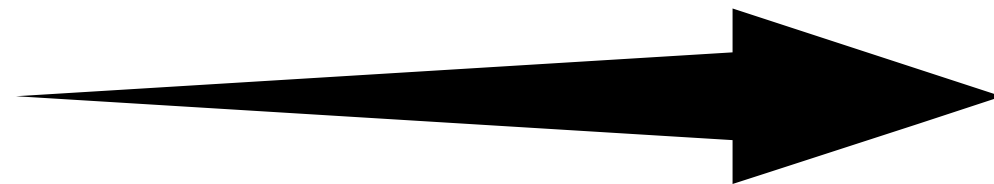
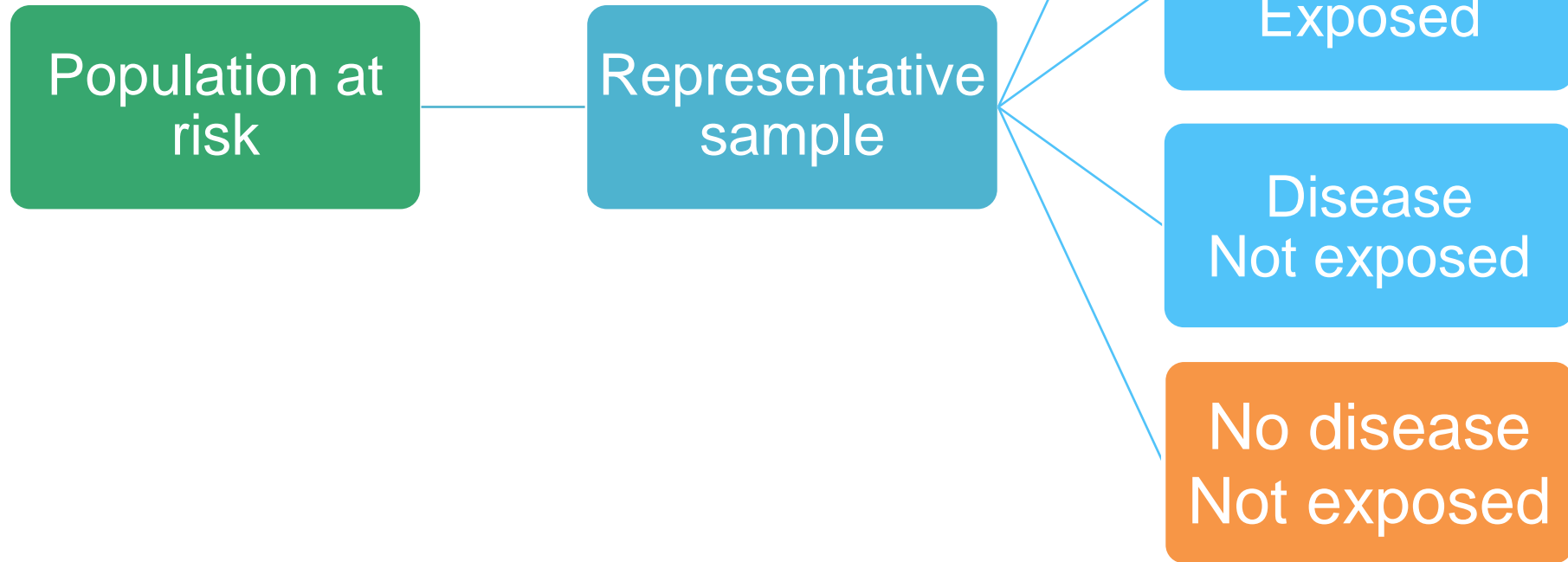
Step in outbreak investigation

1. Preparing for a field outbreak investigation
 2. Verifying that you actually have a problem
(Confirm outbreak and diagnosis)
 3. Define case and start case-finding
 4. Descriptive data collection and analysis
 5. Develop hypotheses
 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
- Part 1
- Part 2
- Part 3

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

StatCalc - Sample Size and Power

Unmatched Case-Control Study (Comparison of ILL and NOT ILL)

Two-sided confidence level: 95%

Power: 80%

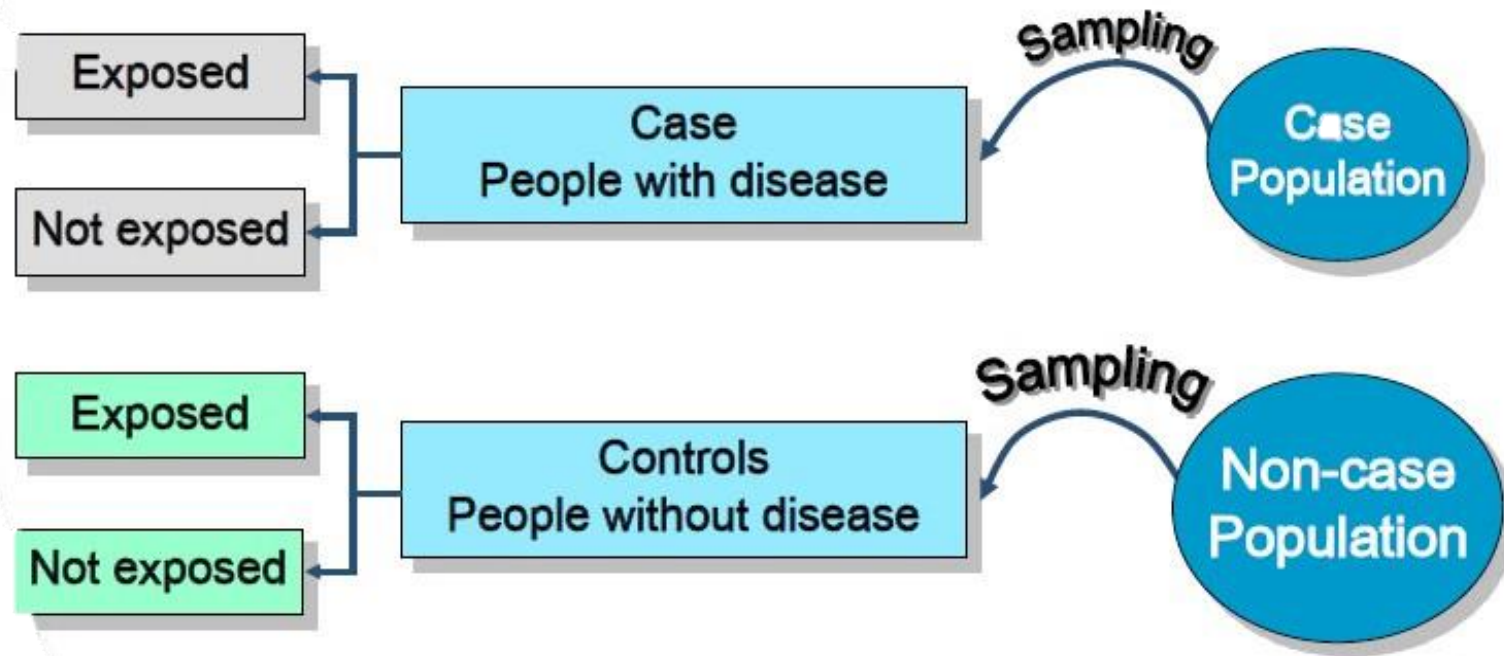
Ratio of controls to cases: 2

Percent of controls exposed: 18%

Odds ratio: 0

Percent of cases with exposure: 0.0%

	Kelsey	Fleiss	Fleiss w/ CC
Cases	39	32	40
Controls	77	63	79
Total	116	95	119

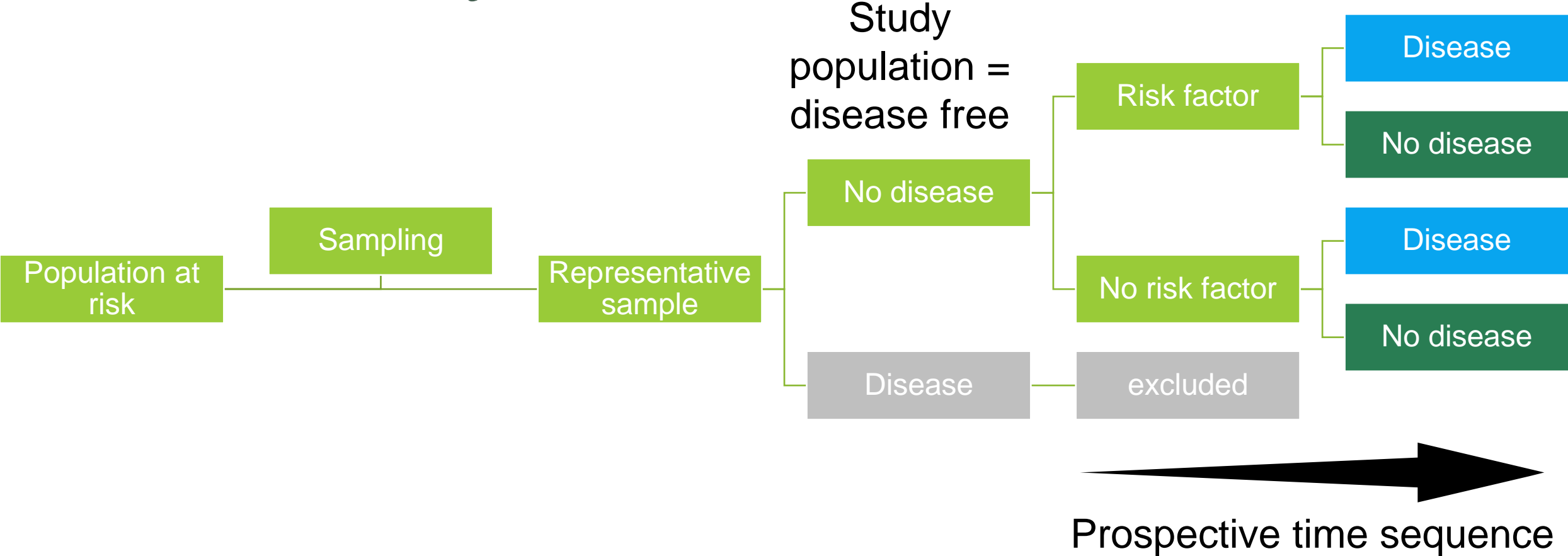


Case control 2X2 table

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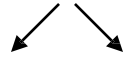
- Disease prevalence cannot be calculated because the population at risk is not known
- OR is the measure used with case-control studies

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



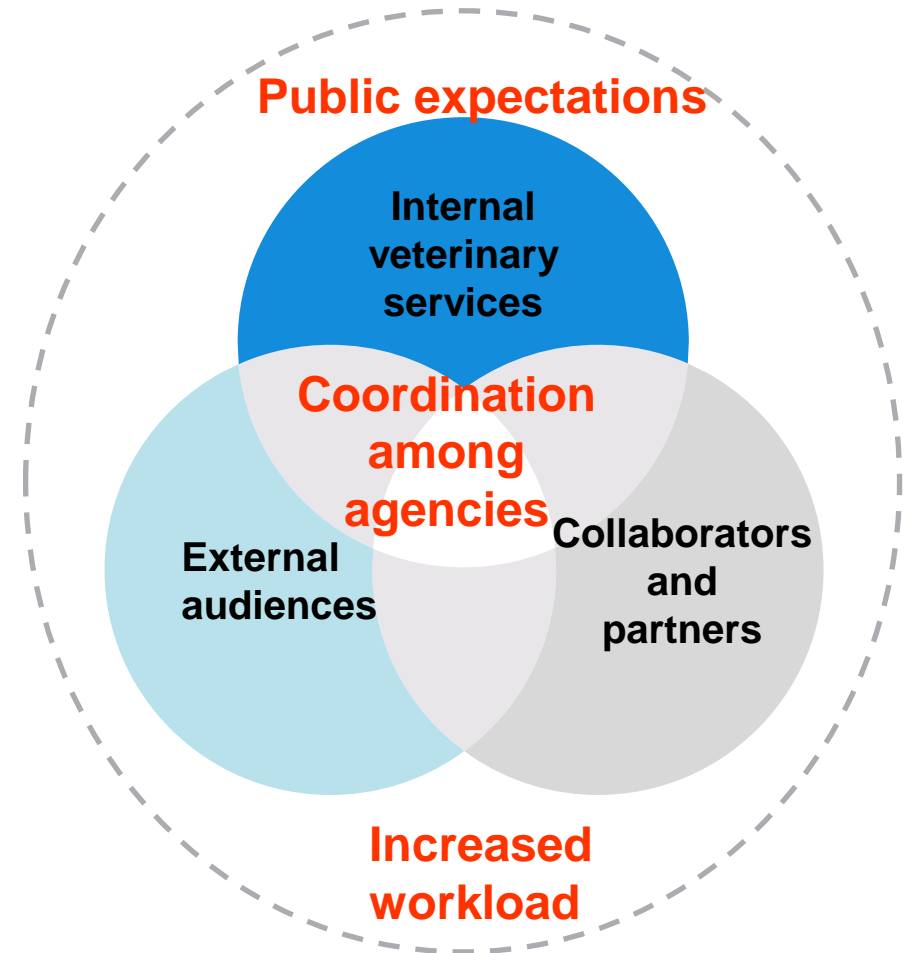
8. Communicate conclusions and recommend control measures

 Who needs to know?

 What and when do they need to know it?



Writing report



Outbreak Communication Best Practices

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

Build Trust

Announce early

Transparency

Respect public concerns



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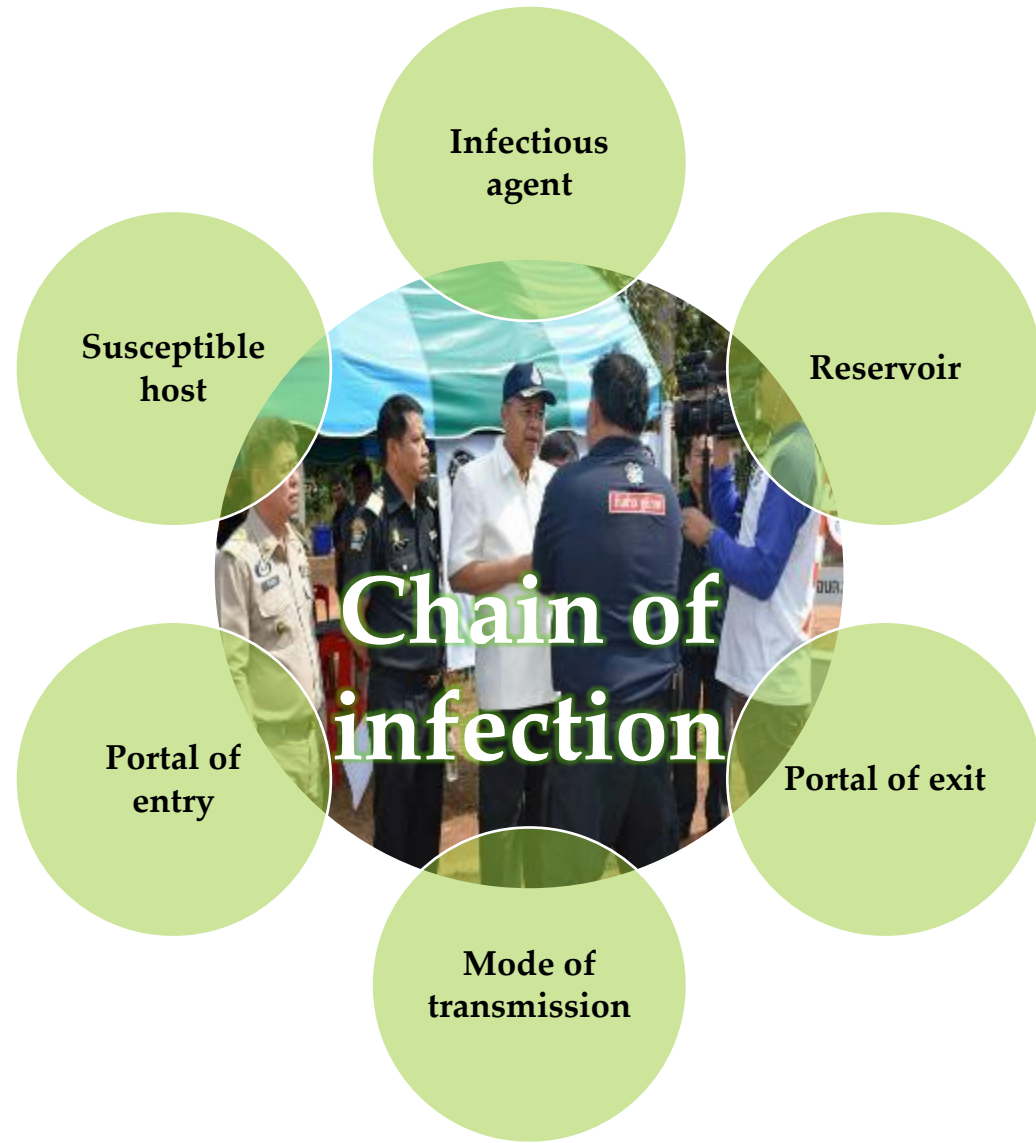
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9. Implement control measures



10. Follow-up the control implementations





Daily report

investigation How many cases, pop. At risk, source of outbreak, pathogen, laboratory, money, team, equipment, which antimicrobial/drugs should be use

Etc.

Compensation/rehabilitation

Press, Rumor

Treatment

Early detection

Report/notify

Public panic

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)

Help me please!
Why don't you do that/this those?
Why do you do this/these/that/those?