FAO/ASTF Project: GCP/RAF/510/MUL:

Enhancing capacity/risk reduction of emerging Tilapia Lake Virus (TiLV) to African tilapia aquaculture: Intensive Training Course on TiLV

4-13 December 2018. Kisumu, Kenya

in cooperation with Kenya Marine Fisheries Research Institute (KMFRI) and Kenya Fisheries Service (KeFS)

Epidemiology Session
Data Collection and Management

Based on textbook Epidemiology for Field Veterinarians: An Introduction by Sergeant and Perkins, 2015.
Adaptation from lectures by UC Davis Prof. Hird, Carpenter, Gardner, Thurmond, Perez & Kass.

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Reasons for collecting epidemiological data
Adapted from Cameron, 1999

- Identify if a disease is present in a country or region;
- Determine the prevalence and distribution of a disease;
- Determine the importance and impact of diseases;
- Identify risk factors for a disease;
- Identify and evaluate treatment or control options for a disease;
- Set priorities for the use of resources for disease control programs;
- Assist in planning, implementing and monitoring disease control or eradication programs;
- Respond to disease outbreaks;
- Meet international reporting responsibilities;
- Demonstrate disease status to trading partners;
- Monitor productivity and performance of livestock or aquatic animals;
- Evaluate diagnostic tests and screening procedures for disease; and
- Many others.

Variables, Data and Information

- **What is a variable?**
- A property or characteristic that can vary, either between animals, between groups or over time.
- In an epidemiological study, variables are the things that we measure or record about animals, groups and their environment.
- Examples:
  - Animal characteristics, such as disease state, breed, species, sex
  - Things we can measure, such as weight, antibody titer, length, height
  - Group characteristics, such as group size, location, group treatment
  - Environmental characteristics, such as soil type, water pH, rainfall.

What is data?

- Data is a collection of facts about the animal or animals being studied.

- Where variables are the characteristics being measured or recorded, data are the actual values that are recorded – the values that variables take when measured in individuals or groups.

- For example, if a variable called disease is measured in a group of five ponds of tilapias the resulting data will be a series of five values, one for each tilapia pond, with each value being either diseased or not diseased.
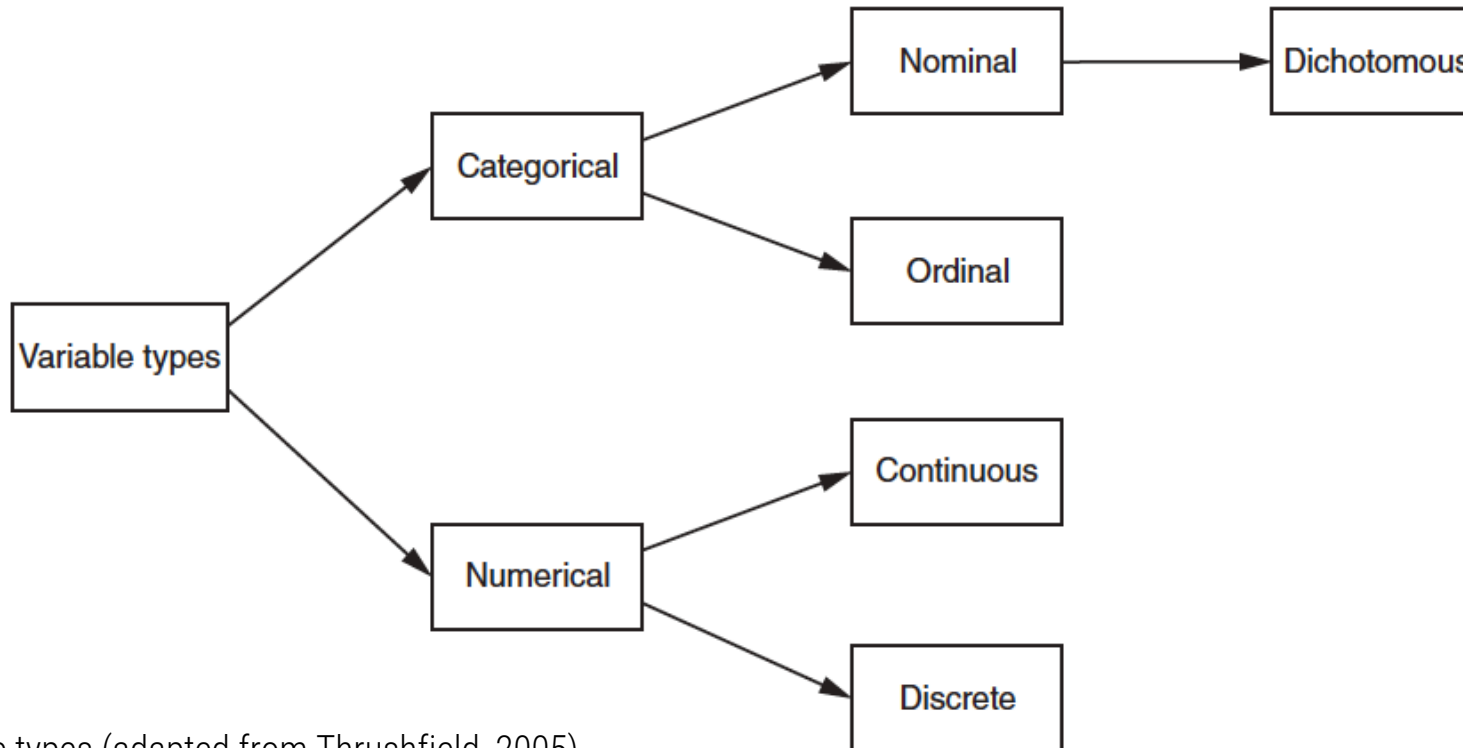
What is information?

- Data can be processed and analyzed to generate information.

- Information is therefore not just the sum of the data available.

- Information can only be extracted from data if it is organized and analyzed to provide meaning and allow interpretation.

  e.g., a database containing the results of a survey of villages for TiLV is just a collection of data. The information generated from these data might be that 20% of Tilapia farms have had an outbreak in the last 12 months, but that farms in Region A are at three times the risk of an outbreak as farms in Region B.

Variable Types

- There are two main types of variables, categorical variables and numerical variables, and several sub-types.

Epidemiological variable types (adapted from Thrushfield, 2005).

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