

STAT 231 — LECTURE 15

Bartosz Antczak

Instructor: Michael Wallace

October 16, 2017

Today

Continuing with our Influenza A study from last lecture.

15.1 Influenza A Study (cont'd)

15.1.1 Problem

Within our problem, we're also concerned with **attributes**. Some attributes of interest are

- The proportion of children who contracted influenza A while taking vitamin D
- The proportion of children who contracted influenza A while taking the placebos

Empirical studies are designed to solve three problems:

- **Descriptive:** determining a particular attribute of the population
- **Causative:** comparing the relationship between two variates (e.g., does wearing hockey helmets affect the risk of getting a concussion?)
- **Predictive:** predict the response of a variate for a given unit

15.1.2 Next Step: the Plan

The purpose of the **plan step** is to decide what units are available for study, what units will be examined, and what variates will be collected and how.

Definitions

- **Study Population:** the collection of units available to be included in the study
- **Study Error:** occurs when the attributes in the study population differ from the attributes in the target population (e.g., sampling people based off their land line telephone number — here, you're primarily targeting older people)

A **target population** is entire population you want to target (e.g., all of Canada, every undergraduate student in Ontario, etc.).

A **sample population** is the group of units that were actually included in the study.

Population Hierarchy Example

Target (All STAT 231 students)



Study (Everyone in class today)



Sample (20 students)