Example: A list of enumeration areas in Ontario is made. From the list, we pick every 10th one, after a random start. For the selected areas, we obtain maps. For each map, we number the blocks, from 1 to N (N = number of block in that area). Using a random number table, we select two distinct numbers between 1 and N, and include the corresponding blocks in our sample. On each selected block, we start at the northeast corner, and walk around the block, selecting every 5th household into our sample (from a random start). What types of sampling methods are used here?

systematic

SRS

Systematic

multistage

Example: Comment on each of the following as a potential sample survey question. Is the question clear? Is it slanted toward a desired response?

(a)   "Some cell phone users have developed brain cancer. Should all cell phones come with a warning label explaining the danger of using cell phones?"

This will produce a positive response because it draws the dubious conclusion

(b)   "Do you agree that a national system of health insurance should be favored because it would provide health insurance for everyone and would reduce administrative costs?"

The phrasing tends to make people respond in favor of the health insurance

(c)   "In view of escalating environmental degradation and incipient resource depletion, would you favor economic incentives for recycling of resource-intensive consumer goods?"

too complicated and vague needs to be rephrased

Example: (Ch.12 # 11)

Researchers waited outside a bar they had randomly selected from a list of such establishments. They stopped every tenth person who came out of the bar and asked whether he or she thought drinking and driving was a serious problem.

Identify

(a) Population — adults, 19+

(b) Parameter of interest = proportion of people who think it is a problem

(c) Sampling frame — bar

(d) Sampling method — systematic

(e) Any source of bias
— people in the bar might not think it is a serious problem
— undercoverage

Example: (Ch. 12 # 29)

Anytime we conduct a survey, we must take care to avoid undercoverage. Suppose we plan to select 500 names from the city phone book, call their homes between noon and 4 p.m., and interview whoever answers, anticipating contact with at least 200 people.

(a) Why is it difficult to use a random sample here?

people at work ⟶ not in sample

people without phones ⎫ not in
people with unlisted numbers ⎬ sampling
                             ⎭ frame

(b) Describe a more convenient, but still random, sampling strategy.

use software to generate random telephone numbers
call at random times during the day

(Ch. 12 #30)

What about drawing a random sample only from cell phone exchange? What are the advantages/disadvantages? Do they change over time?

— undercoverage (poor people might not have cell phones)

— non-response (some have to pay for incoming calls)

— negative response