

AP Statistics

1. Modern Managed Hospitals (MMH) is a national for-profit chain of hospitals. Management wants to survey patients discharged this past year to obtain patient satisfaction profiles. They wish to use a sample of such patients. Several sampling techniques are described below. Categorize each as simple random, stratified, systematic, cluster, or convenience sample.

- _____ a. Obtain a list of patients discharged from all MMH facilities. Divide the patients according to length of hospital stay (3 days or less, 3 - 7 days, 8 -14 days, more than 14 days). Draw simple random samples from each group.
- _____ b. Obtain lists of patients discharged from all MMH facilities. Number these patients, and then use a random number table to obtain the sample.
- _____ c. Randomly select some MMH facilities from each of five geographic regions, and then survey all of these hospitals' discharge lists.
- _____ d. At the beginning of the year, instruct each MMH facility to survey every 500th patient discharged.
- _____ e. Instruct each MMH facility to survey 10 discharged patients this week and send in the results.

2. From the list of people below, you want to draw an SRS of six people to survey. Using the random digits provided, who would they be?

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|------------|-----------|------------|------------|----------|-------------|-----------|
| 1) Mary | 2) Joe | 3) Susan | 4) Alice | 5) Bill | 6) Jose | 7) Kathy |
| 8) Herbert | 9) Lucy | 10) Sean | 11) Howard | 12) Tom | 13) Gay | 14) Julie |
| 15) Neil | 16) Ralph | 17) Louise | 18) Sam | 19) Alex | 20) Tanisha | 21) Doug |

5 3 3 4 0 7 1 5 4 6 0 5 2 3 3 5 3 9 4 6 6 8 7 4 3 7 2 4 6 0 2 7 6 0
 4 5 4 0 3 8 8 6 9 2 0 7 5 1 1 8 8 9 1 5 4 1 2 6 7 1 6 8 5 3 8 4 5 6
 0 0 6 9 4 0 5 9 7 7 1 9 6 6 4 6 5 4 4 1 2 0 9 0 3 6 2 3 7 1 2 2 7 2

3. Explain how to use a stratified sample design to select your survey participants in question 2.

4) Identify the source of bias in each of the following surveys:

- a) A uniformed police officer interviews a group of 50 college freshmen. He asks each his/her name and if he/she has used an illegal drug in the last month.
- b) A survey about the food in the school cafeteria was conducted by passing out questionnaires to students as they entered the cafeteria. A drop box for completed forms was on a table by the cash register.
- c) In a census in Russia, 1.8 million more women than men reported that they were married.
- d) A political party mailed questionnaires to all registered voters in Texas, asking whether or not the party should support the death penalty. The voters mailed the completed questionnaires back in an envelope provided.
- e) The magazine *Harley Davidson Today* contains a survey asking whom readers admire most in America. People wanting to respond must tear out the survey and mail it in.