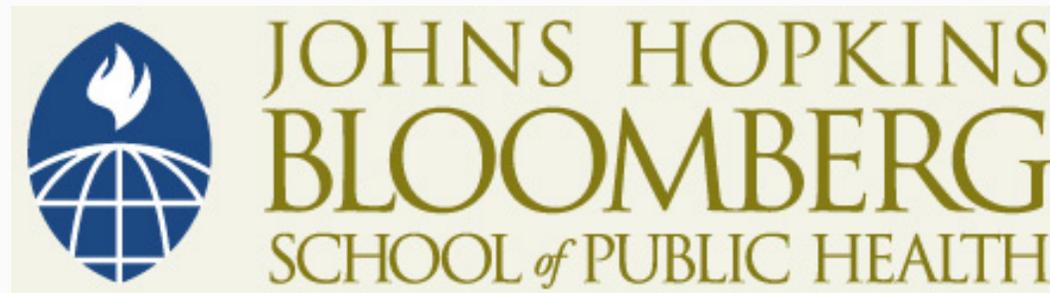


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JOHNS HOPKINS  
BLOOMBERG  
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## Lecture 9b: Practice Problem Solutions

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# Solutions

1. Referring to each of the “almost random” assignment methods detailed in this lecture (alphabetical, sequential, telephone/social security number), can you suggest how each method could yield a biased (non-random) assignment?

# Solutions

- Alphabetical
  - It is possible that certain ethnicities are more likely to have names on the first or last half of the alphabet
  - May get family members: non-independent individuals
  - This could skew the distribution in your assignment groups
  
- Sequential
  - Morning visitors at a clinic could be different from afternoon visitors in terms of employment status, job type, and lifestyle
  
- Telephone number/social security number
  - It is possible there existed underlying number assignment schemes related to subject characteristics—neighborhood, year of birth, income, etc.

# Solutions

2. Compare block randomization to simple randomization
  - **Block randomization** is a method of randomization appropriate when the total number of available subjects is small
  - While simple randomization assigns subjects to a treatment group individually, block randomization assigns subjects to treatment groups in blocks of four
  - Each of the assignment blocks is balanced (equal number of treatment and control assignments) and blocks are selected by a random method