What is group testing?
Need to screen a large number of individuals for an infectious disease
- Blood collection, screening for HIV, Hepatitis B, and Hepatitis C at the American Red Cross
- \( I \) or more stages are possible
- Example: HIV testing in San Francisco (Barlow et al. 2017) used three stages

Group testing is an indispensable tool for laboratories when testing high volumes of clinical specimens for infections.

Benefits in comparison to individual testing:
- Used to screen a large number of individuals for an infectious disease
- 2-stage: Dorfman (1943) testing used in the American Red Cross
- If this group tests negative, then all individuals are declared negative
- An amalgamation of specimens from 16 individuals is a master group
- American Red Cross simply retests all group members individually

The expected number of tests and correct classifications

**Expected number of tests and correct classifications**

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Ss</th>
<th>Frequency</th>
<th>( \text{OTC} )</th>
<th>( \text{MAR} )</th>
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For all of these accuracy measures are functions of the group sizes and overall disease prevalence.