Semester Project

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1 Cases

1.1 Case 1

Happens 85 percent of the time. This happens because of 2 percent infection rate and on average 98 percent of the population is uninfected

1.2 Case 2

Happens the rest of the time which is 14.96 percent.

1.3 Case 3

Happens slightly less than 0.04 percent.Because the likelihood of randomly choosing more than two infected samples is low.

2 1000 People

1. Case 1: 125 x 0.872 = 109 instances requiring 109 tests

2. Case 2: 125 x 0.128 = 16 instances requiring 116 tests

3. Case 3: 125 x 0 = 0 instances requiring 0 tests

4. Test Required: 225

3 10000 People

1. Case 1: 1250 x 0.8664 = 1083 instances requiring 1083 tests

2. Case 2: 1250 x 0.124 = 155 instances requiring 1169 tests

3. Case 3: 1250 x 0.0096 = 12 instances requiring 104 tests

4. Test Required: 2356

4 100000 People

1. Case 1: 12500 x 0.88376 = 11047 instances requiring 11047 tests

2. Case 2: 12500 x 0.09848 = 1231 instances requiring 9357 tests

3. Case 3: 12500 x 0.01776 = 222 instances requiring 1962 tests

4. Test Required: 22366

5 1M People

1. Case 1: 125000 x 0.967704 = 120963 instances requiring 120963 tests

2. Case 2: 125000 x 0.002608 = 2460 instances requiring 2502 tests

3. Case 3: 125000 x 0.029688 = 3711 instances requiring 37409 tests

4. Test Required: 160874