Hamburger bacterial contamination study

2 treatments, randomly assigned to hamburger patties

active: proposed new treatment to reduce bacterial growth

control: no antibacterial

After 96 hours at 4C, measure bacterial load

units are colony forming units (cfu) per gram of meat

patty treatment cfu rank

11 active 0.02 1.0

2 active 0.03 2.0

1 active 0.11 3.5

9 active 0.11 3.5

12 control 0.17 5.0

3 active 0.18 6.0

10 active 0.19 7.0

7 control 0.22 8.0

8 control 0.35 9.0

5 control 0.53 10.0

6 control 0.57 11.0

4 control 2.50 12.0

Rank sum (of controls): 55



two-sided p-value = 0.0086 (exact = permutation test)

Normal approximation = 0.010