Statistics questions

Please consider and work through the following questions. Answers will be provided in the next issue.

1. You are screening normal and healthy GOOGLE employees. Your screening test is a Chem 20. Each test has a normal range representing the 95% confidence limits of normal values. What is the likelihood that any given patient will have at least 1 abnormal lab value on this test?

2. You are screening young patients for an illness that does not manifest until later in life. The illness has no clinical signs or symptoms in the young but can be identified by a laboratory test. The prevalence of the illness in the population is 1/1000. The test has a 100% sensitivity and a 95% specificity. What is the likelihood that a subject with a positive test has the illness?

3. The BRAC1 gene expression values (normalized read count) for a group of breast cancer patients and a group of independent normal individuals are presented in the following table.

Breast cancer patients	Normal individuals
2.34	1.31
1.72	0.99
2.98	1.30
1.70	1.48
2.04	1.35
2.57	1.22
1.90	1.14
1.07	1.23
2.89	1.31
3.35	1.08
1.60	2.00
4.26	0.50
1.99	1.51
1.78	1.17
2.56	1.43
4.57	1.15
0.57	1.53
1.66	0.80
2.00	1.85
4.89	1.03
4.61	1.40

What is the representative or typical BRAC1 gene expression value for each group? Do the two groups have similar amounts of variability? What is the appropriate approach to describe the data?

If you have questions or need assistance please email Gilbert Berdine at Gilbert.berdine @ttuhsc.edu or Shengping Yang at Shengping.yang@ttuhsc.edu