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| Case #: | 972491 | Investigator 1: |  |
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|  |  | Investigator 2: |  |
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|  |  | Investigator 3: |  |
|  |  |  |
| Date: |  | Investigator 4: |  |
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**Case Summary**

After reading Part B of the Case Review, answer the questions below to help Dr. Rivera and his team successfully complete their clinical trial.

1. Look at Figure 1. Compare and contrast the *C. difficile* counts in patients that took vancomycin with those that took fidaxomicin.
2. Days 0-10?
3. Days 10-28?

1. Days 28-42?

Now, look at Figures 2 -5. These graphs show data about the commensal microbes that normally live in humans. The lines of the graphs compare microbial counts from patient groups treated with vancomycin and fidaxomicin. An average count found in healthy individuals is also indicated.

1. Compare the counts of each microbe between the two different treatment groups. (Figures 2-5)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Bacteroides* | *Prevotella* | *C. Coccoides* | Enterococcaceae |
| Day 0-4 |  |  |  |  |
| Day 4-42 |  |  |  |  |

1. Using Figures 2-5, how do the counts of microbes found in healthy individuals compare with the counts of these same microbes in each of the treatment groups?
2. Would you expect to see differences in the number of recurrences of *C. difficile* infections between the vancomycin and fidaxomicin groups?
3. Based on Figure 1? Explain why or why not.
4. Based on Figures 2-5? Explain why or why not.
5. Figure 6 shows the CDI recurrence rates of each treatment group of 44 patients. Calculate the percentage of patients in each treatment group that had a recurrence of CDI.

\_\_\_\_\_\_\_\_\_ % of patients treated with fidaxomicin had CDI recurrence.

\_\_\_\_\_\_\_\_\_ % of patients treated with vancomycin had CDI recurrence.

1. Dr. Rivera previously observed that there are high rates of recurrent *C. difficile* infections in patients treated with vancomycin. Based on the results of his clinical trial, why might these high rates of recurrence occur?

7. Based on these results, why might patients treated with fidaxomicin have a lower rate of recurrence?

8. Revisit the models you initially created in Part A. Based on the results of Dr. Rivera’s clinical trial, create two models (pictures/diagram with words to describe them) that show how the two antibiotics, vancomycin and fidaxomicin, affect the native gut microbes and *C. difficile*. *Hint: a series of pictures might be most helpful.*