Group Exercise about Medical Studies

Working cooperatively with your group, consider the following questions.

1. Suppose a medical study comes to certain conclusions, but there is probability $p$ that the conclusions are invalid. How small do you think $p$ should have to be, before the study’s findings could be published in a medical journal? Do you know what the currently accepted value of $p$ is?

2. Suppose you had a bad cold, and a doctor wanted you to take a certain pill. The doctor said that a medical study had determined that the pill would cure your cold immediately, and was perfectly safe. However, there was probability $p$ that the study’s conclusions were invalid. How small would $p$ have to be, before you would agree to take the pill?

3. Suppose someone claims they have the power to make a coin come up heads every time, and then proceeds to get two heads in a row. Would you believe that they had the power? Explain.

Part II (after instructor’s demonstration):

4. Which of the following explanations do you believe best explains the instructor’s coin flip results:

   (a) He just got lucky.
   (b) He is using a two-headed coin.
   (c) He is flipping the coin just so, to make it come up heads.
   (d) He is catching the coin just so, to make it come up heads.
   (e) He is using some other physical trick, to make the coin come up heads.
   (f) He has supernatural powers, by which he is forcing the coin to come up heads.