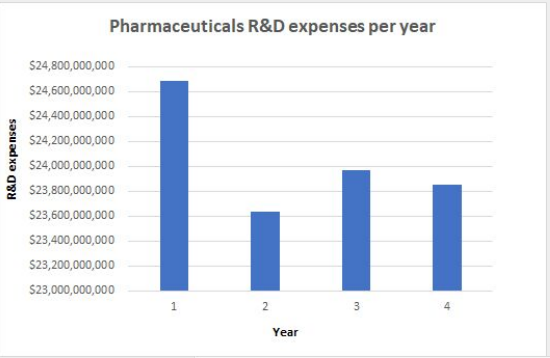
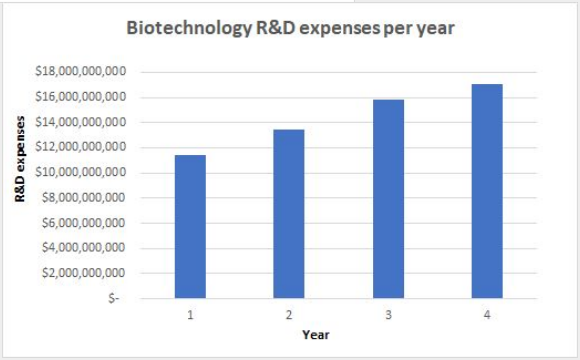
Does the pharmaceutical sector have similar expenditure levels for Research & Development than the biotechnology sector on a year-by-year basis?





These two bar charts display the R&D expenses for pharmaceutical and biotechnology companies from year one to four. The graphics demonstrate that on a year-to-year basis, R&D expenses for pharmaceutical companies greatly exceed those in the biotechnology sectors. Every yearly R&D expense in the pharmaceuticals is at least $20,000,000 whereas the highest expenditure yearly in biotechnology was only about $17,000,000.

The 4-year mean for R&D expenses in pharmaceutical is $24,035,275,000 while the mean for biotechnology sector is $14,446,623,750. The standard deviation for R&D expenses in pharmaceutical is $455,728,379.45 while the standard deviation for biotechnology sector is $2,513,854,201.72. The median for R&D expenses in pharmaceutical is $23,909,500,000 while the median for biotechnology sector is $14,613,816,500

From these statistics, the average pharmaceutical R&D expenses far exceed the average in biotechnology sector--based on the mean. Because the standard deviation for biotechnology is far greater than pharmaceutical, there is greater variability in R&D expenses for biotechnology despite the graphics shown. Of the 4-year total, the higher median for pharmaceutical means suggests that this is a value such that 50% of the R&D pharmaceutical expenses on a entire 4-year basis fall above $23,909,500,000