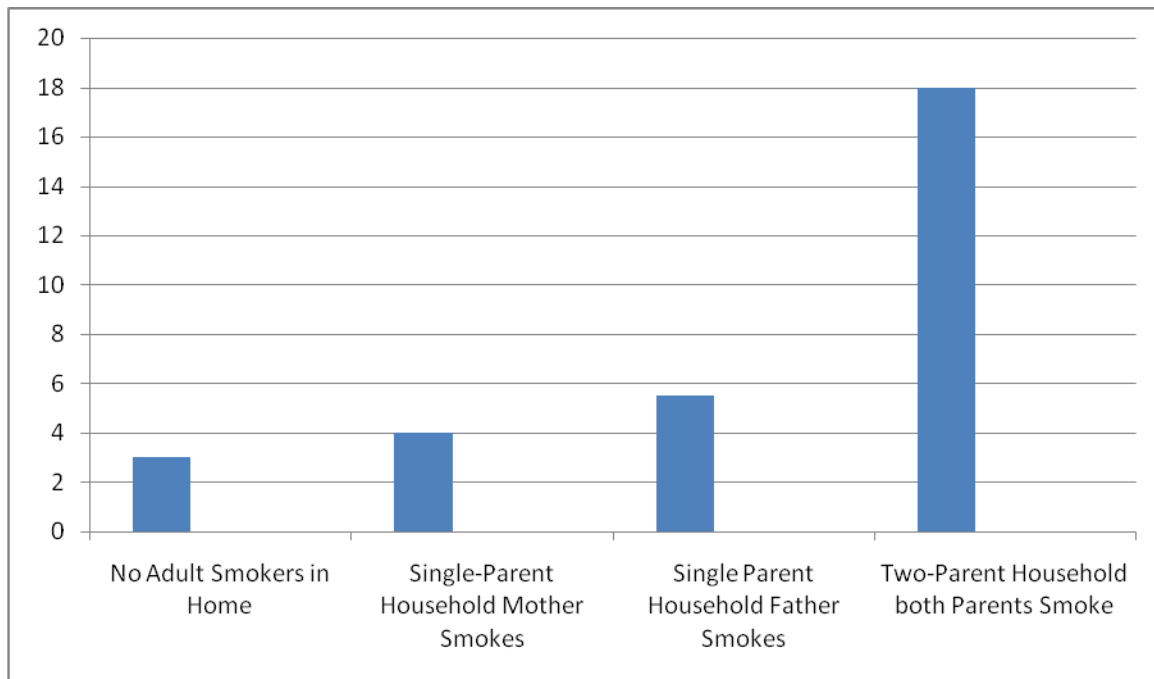# Reading Graphs and Understanding Statistics

The purpose of this exercise is to improve student's ability to interpret graphs and to ask important questions about the data they represent.

The following information is based on a "mockuments" (a mock document that is based on real research) and was provided to a group of health care providers who were exploring the possibility of opening a wellness camp for teens. Examine the graphs carefully and identify what you think the graphs mean. Next, explain how these graphs might be useful to the health care providers, and why the graphs might not be helpful.

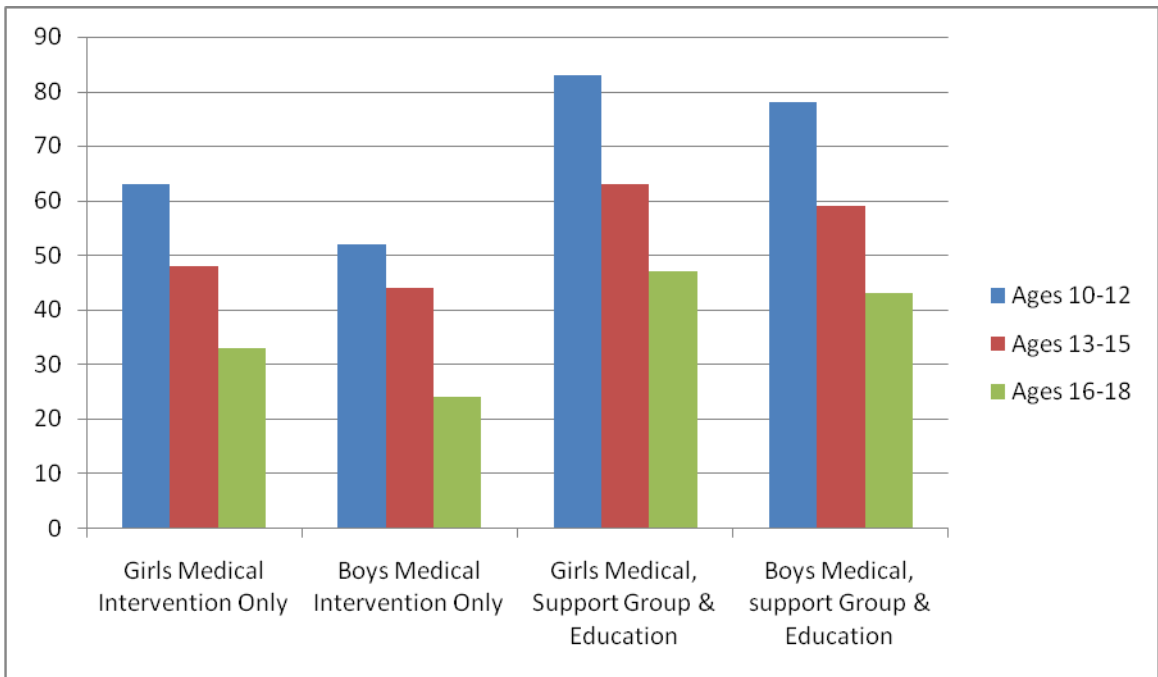Xavier L. and Chandras, S. (2002). Tobacco and Child Abuse. *Journal of Substance*, 6(2), 34-45.

Figure 1: Smoking & Sexual Child Molestation (Percent of Households Reporting Molestation)

1. What does the graph seem to indicate?

2. How might this information be useful in determining whether or not to open a wellness camp for teens

3. What are some cautions about interpreting this graph?

Chipper, R. (2005). Youngsville County Intervention Study. Youngsville, VA.

Figure 2: Percent of Adolescents Sober One Year Following Interventio**n**

1. What does the chart indicate about the success rates for various forms of intervention?

2. How might this information help health care providers who are exploring the possibility of opening a wellness camp for teens?

3. What are some variables to investigate in order to have a clearer picture of the success rates of intervention programs?

Considerations for the Xavier & Chandras Report

1. The graph does not prove causation, even though there appears to be a correlation between smoking and child molestation
2. The incidence of child molestation seems higher in households where adult males are present
3. Perhaps the reason why the incidence of molestation is not as high in single-parent households with Dads only is because there are not as many households with dads only
4. Perhaps the characteristics smokers and child molesters share is a tendency towards compulsive behavior
5. The report, though a "mockument," and not real data, does not reveal the identities of Xavier and Chandras, or the those who may have sponsored the research; we therefore know little about the potential biases built into the research

Considerations for the Youngsville Study
1. More teens who had support groups and education in addition to medical intervention, seemed to stay sober for one year following treatment than teens who only had medical intervention.
2. Boys ages 13-15 who had only medical treatment are about as successful as boys ages 16-18 who have had medical treatment with support groups and education
3. Overall the younger teens seem to stay sober more often than the older ones
4. The variables are not revealed in the chart; perhaps the reader would benefit from breaking down the data into further discrete categories, such as those teen who had family support in the home and those who did not; or, those teens who had on campus support and those who relied only on off-campus resources for education and support
5. The chart addresses those who had intervention, suggesting that they were able to afford such; how might teens whose families could not afford interventions do with intervention?