

## **Review of *Let's Practice What We Preach***

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The authors found that although graphical display is recommended when presenting research results, statisticians often used tabular display instead. The authors then examined seven table examples from March 2000 issue of Journal of the American Statistical Association (JASA). They were able to reconstruct well-designed graphs that make better comparisons than their original tables. The authors argued that if the main goal of using these tables is to make comparisons, the absolute numbers are not important anymore, and graphical display is better than tables in showing relative differences. Although the authors admitted that usually both readers and creators need more initial efforts to create and understand a graph than a table, graph should still be preferred since it has an obvious advantage of being simple and clear in making comparisons. Finally, the authors gave general guidelines and suggested that researchers should first identify the comparison of interest, then plot corresponding lines and add control in the graph where appropriate to make nice graphics.

I think this is an impressive article providing sufficient examples and evidence showing when and why we should convert tables into graphs in statistical papers. I agree with the authors that if the goal is to present the exact numbers, tables are preferred. For example, in clinical trials, researchers still want to know patients' exact characteristics and treatment effect size. If the goal is to make comparisons and predictions, graphics would be more suitable. We could also add tables in the supplementary in case readers are interested in the exact numbers. Making a good figure usually needs much more effort. In addition to the guidelines mentioned in the paper, we also need to consider other factors such as the choice of figure types, colors, and labels etc. Moreover, with more R packages developed for making graphics, there are more options for creators to choose from. Nowadays, using graphics in research papers is more popular and figures become a key part of the paper. I checked several papers in one of the recent versions of JASA and found most of the papers use more well-designed graphics than tables to make comparisons. Some papers still prefer using tables to compare results which I believe could be easily turned into graphics. One thing I would like to add is that the authors did not use colors in the reconstructed graphs in this paper. I think colors is a very important part in the figures and could be very informative if we use it properly. Also, comparing with tables, figures are sometimes more subjective as the creators may have preference and could choose different ways to present the data. Different readers may also perceive the information in graphics differently. From my experience, I previously made a US choropleth map [R Shiny App](#). My advisor and I had different opinions on whether to use normal US map or a US map cartogram. The normal US map, which is familiar to most people, could give insights into the relation between the data and the actual location of each state. However, it is weighted by state size visually. A cartogram could weigh each state equally, but the state location is somewhat distorted. I think this type of discussion will happen in various situations when turning tables into graphics and we need to be thoughtful.

## Questions:

1. Is it a good idea to incorporate tables with colors to highlight results that we want to show? In this way, we could combine the information in tables and graphics.
2. Usually journals have limitations in number of figures to show in the main article. We see that some authors will combine several figures and call it one big figure like the example I attach below. What are the advantages and disadvantages?
3. In the example below, the authors use stacked bar charts and a pie chart. Using stack bars seems to make the figure more compact, but we may not be able to make comparisons directly. What is your opinion about using stacked bar charts and pie charts?

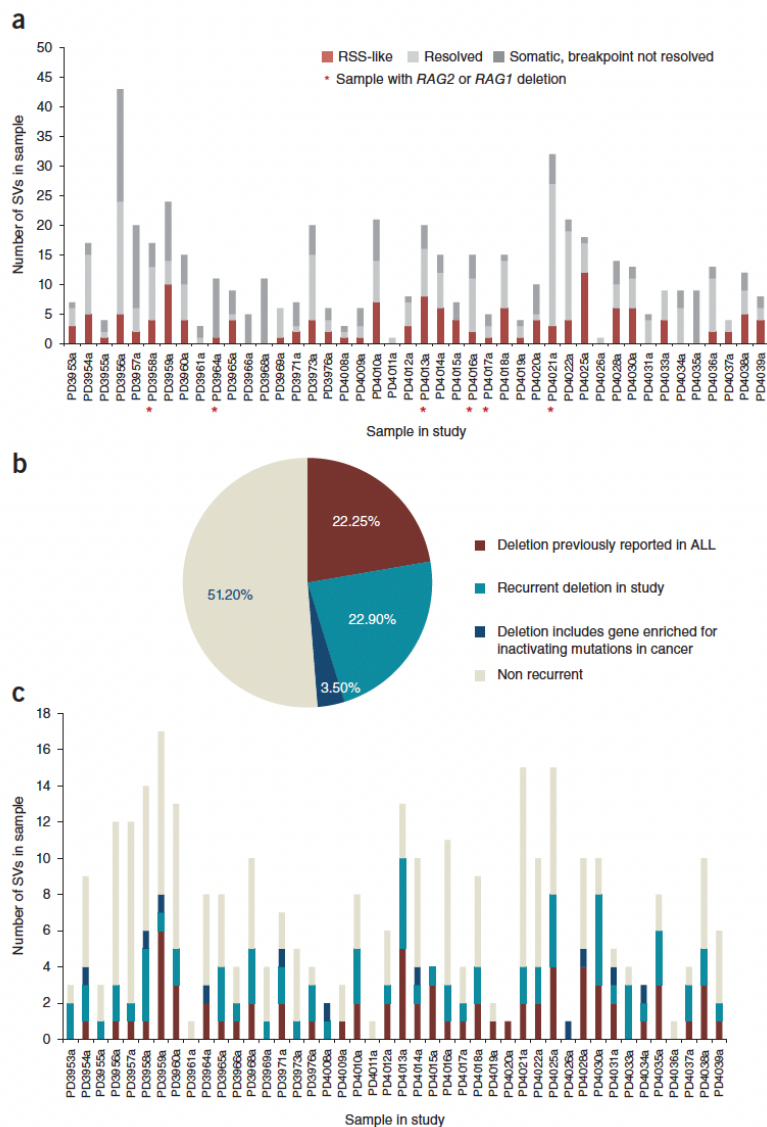


Figure 5 Characterization of structural variation in *ETV6-RUNX1* ALL.

Papaemmanuil et. al. RAG-mediated recombination is the predominant driver of oncogenic rearrangement in *ETV6-RUNX1* acute lymphoblastic leukemia. Nat Genet. 2014 Feb;46(2):116-25. doi: 10.1038/ng.2874. Epub 2014 Jan 12. PMID: 24413735; PMCID: PMC3960636.