

PhUSE CSS White Paper on Analyses and Displays Associated with Central Tendency

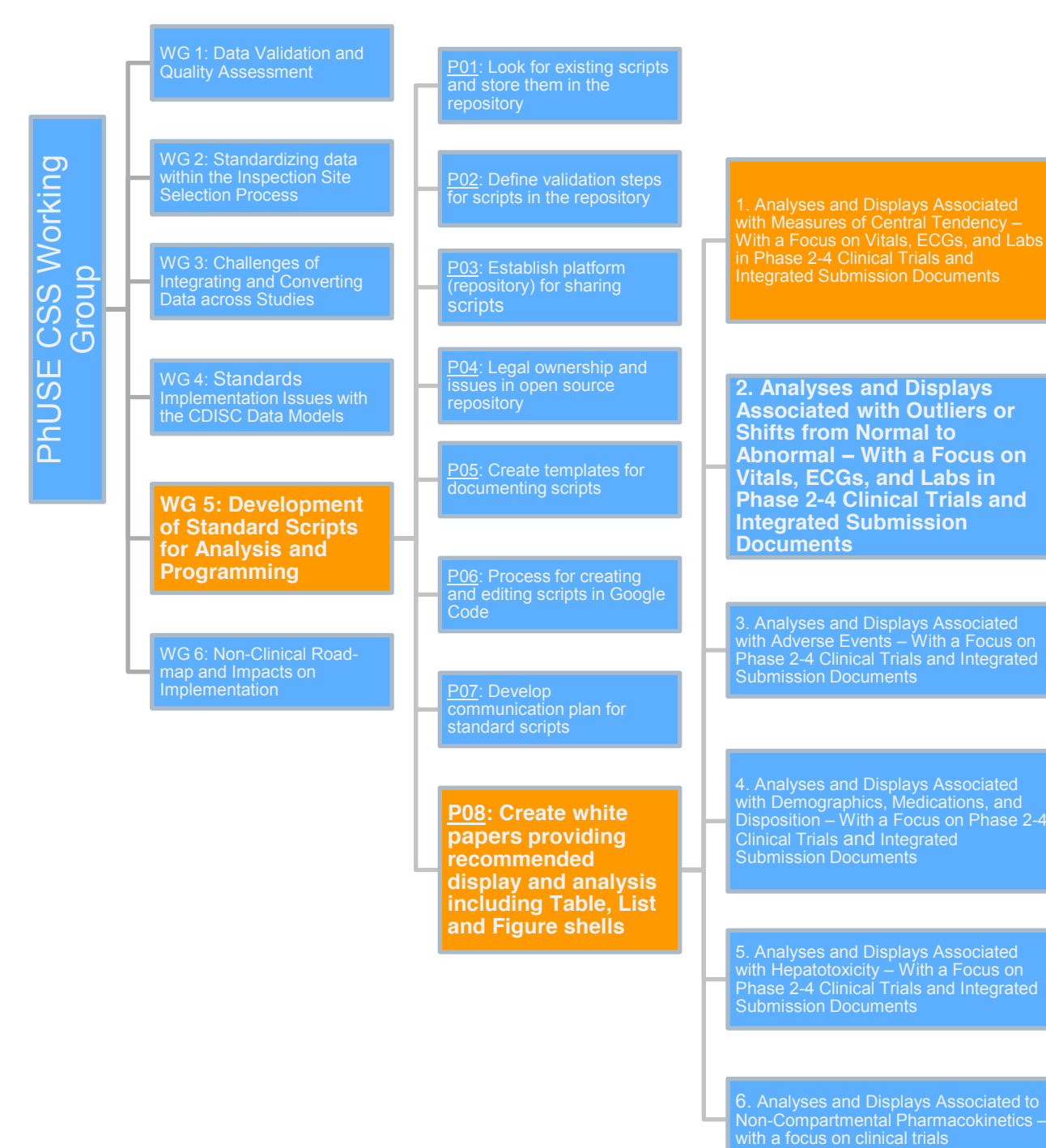
Mary Nilsson, Eli Lilly and Company, Wei Wang, Eli Lilly and Company, Qi Jiang, Amgen

ABSTRACT

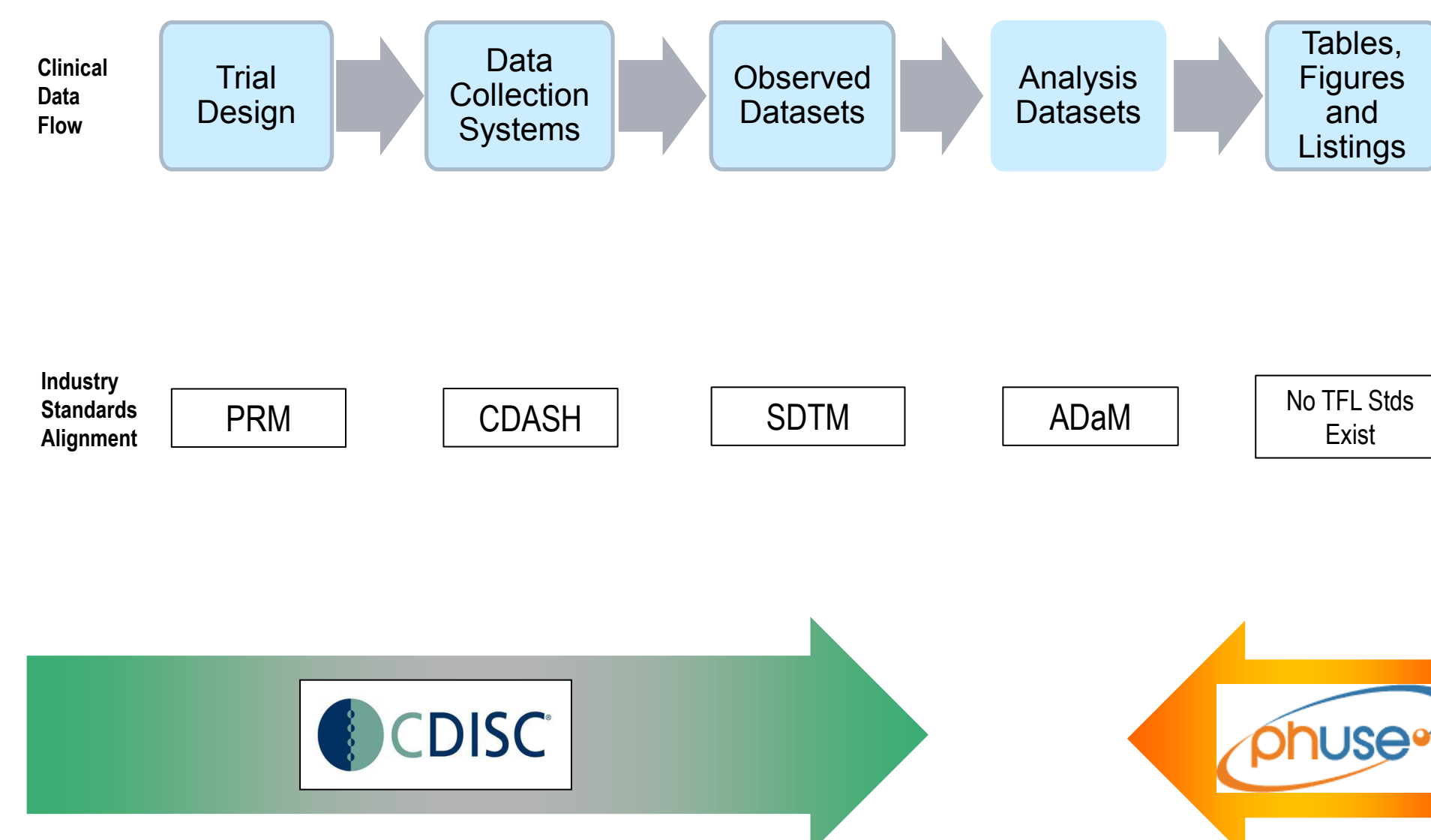
Industry standards have evolved for data collection (CDASH), observed data (SDTM), and analysis datasets (ADaM). The next step is to develop standard tables and figures! The Development of Standard Scripts for Analysis and Programming Working Group is leading an effort to create several white papers providing recommended analyses and displays for common measurements, and has developed a Script Repository as a place to store shared code.

This poster will cover the recommended tables and figures associated with measures of central tendency (e.g., means and medians), as outlined in a final white paper titled "Analyses and Displays Associated with Central Tendency – Focus on Vital Sign, Electrocardiogram, and Laboratory Analyte Measurements in Phase 2-4 Clinical Trials and Integrated Submission Documents". This poster will also cover reasons for the recommendations and various alternatives that were considered. Developing shared code to create the displays in this white paper is planned for the Script Repository. Input for improving the analyses and displays will be welcome!

The Big Picture



White Papers to Fill the Gaps of Standardization of Tables, Figures, and Listings



White Paper – Finalized October 2013

Version 1.0

1. Analyses and Displays Associated with Measures of Central Tendency – Focus on Vital Sign, Electrocardiogram, and Laboratory Analyte Measurements in Phase 2-4 Clinical Trials and Integrated Submission Documents

Version 1.0
Created 10 October 2013

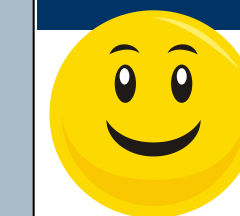
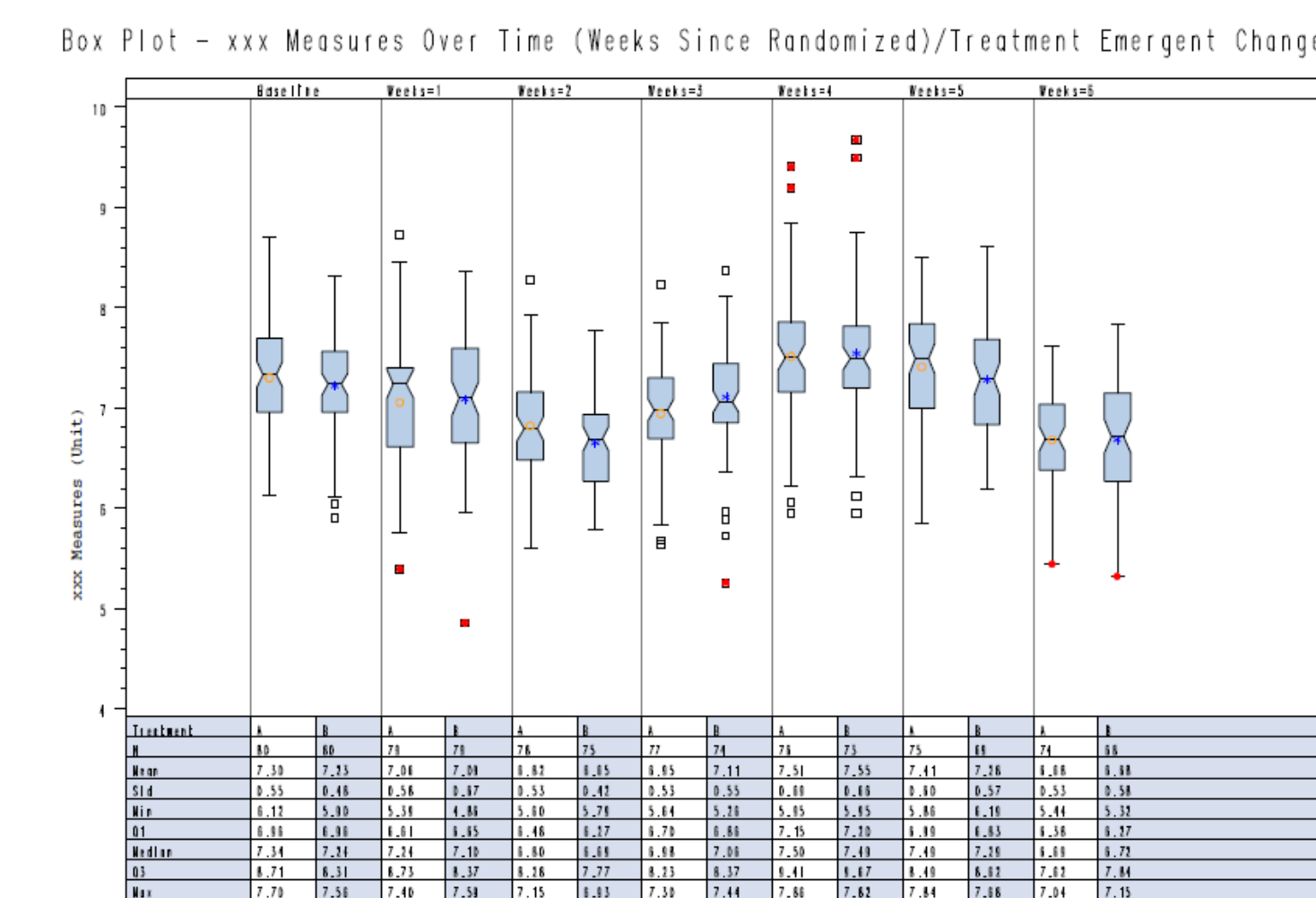
A White Paper by the Computational Science Symposium Development of Standard Scripts for Analysis and Programming Working Group

This white paper does not necessarily reflect the opinion of the institutions of those who have contributed.

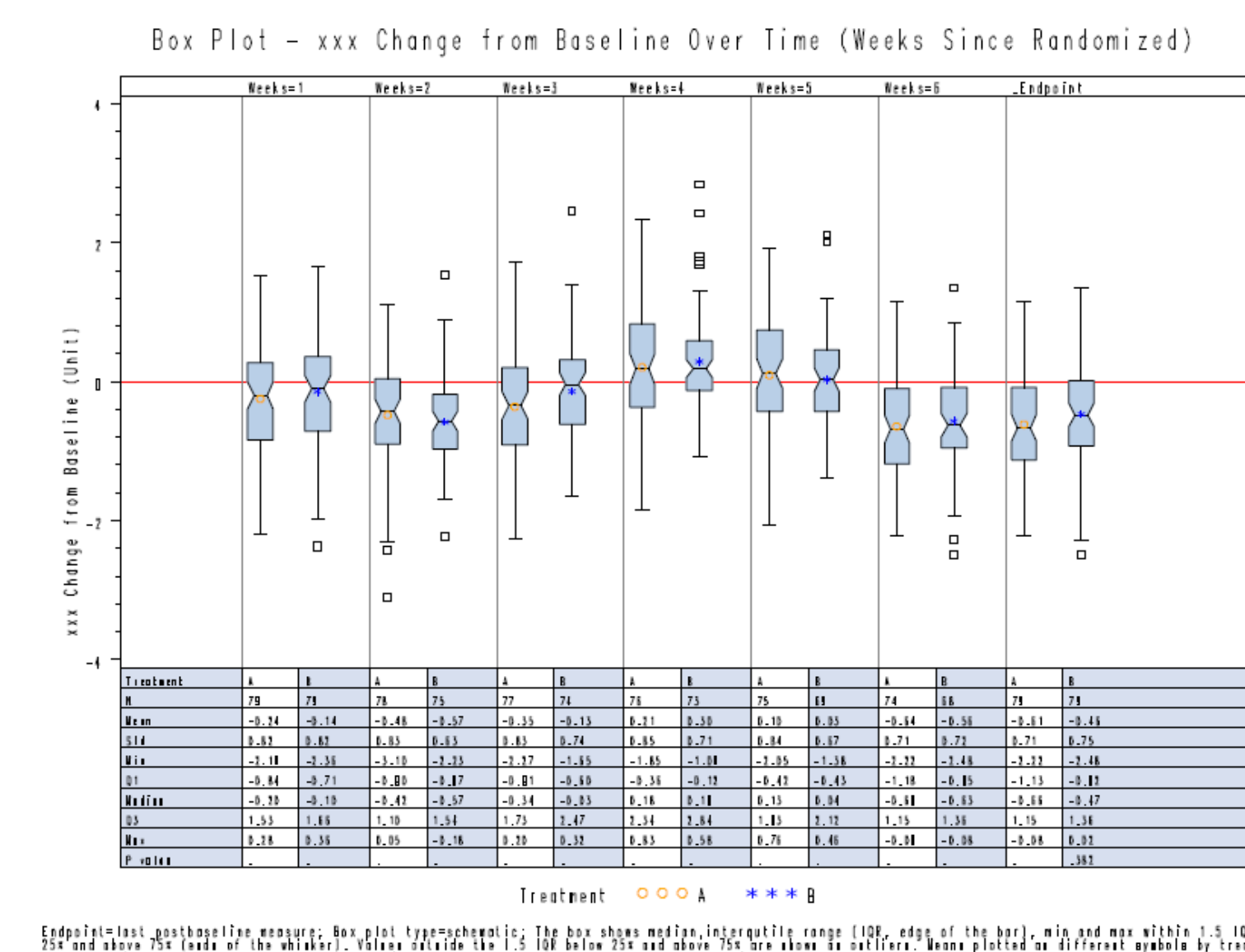
Examples of Discussed Topics

General Considerations
Whether to report P-values and Confidence Intervals
Handling of unplanned measurements
Handling of measurements post drug exposure
Laboratory Units and Transformations
ECG Correction Factors

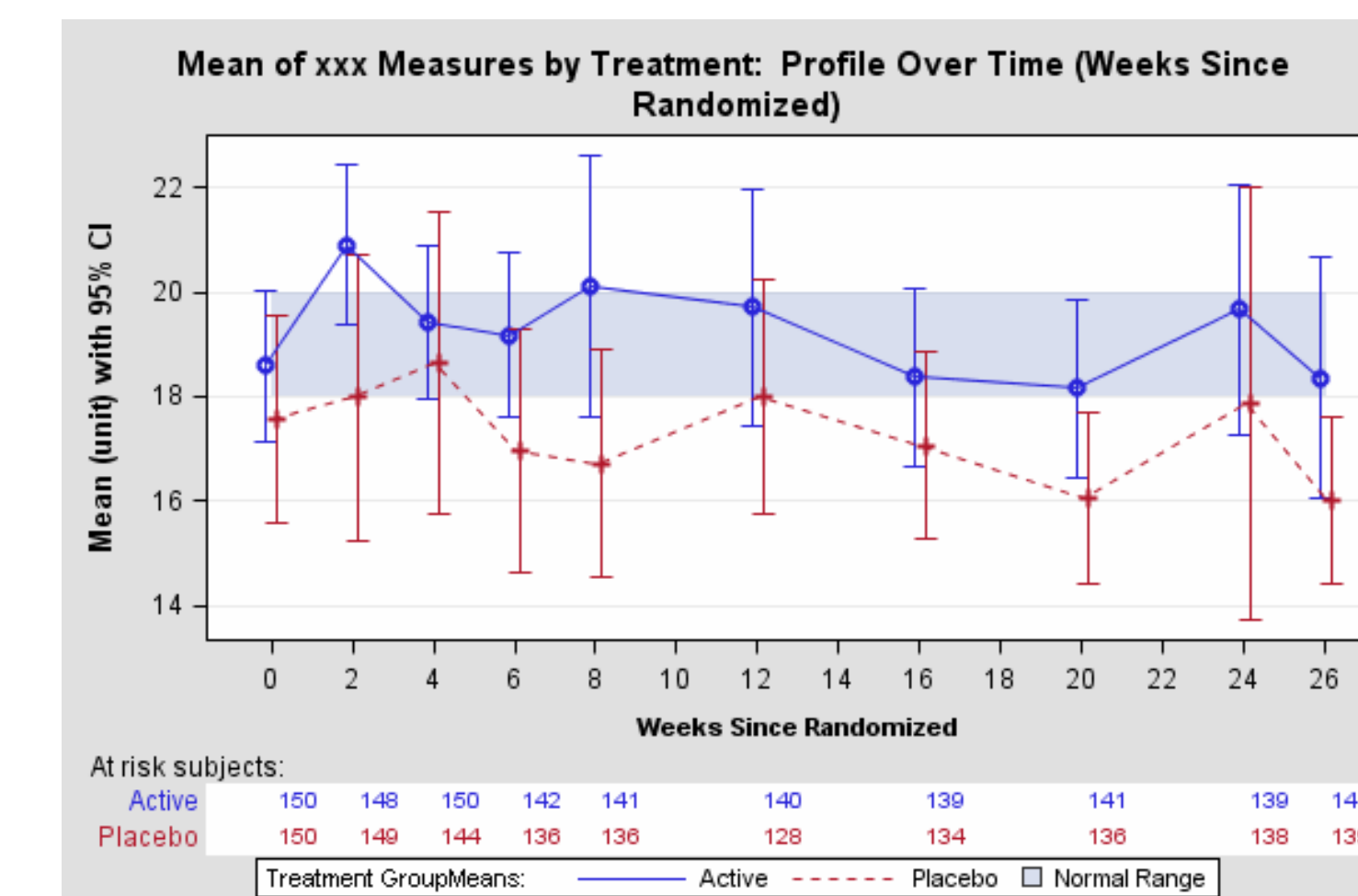
Recommended Tables and Figures



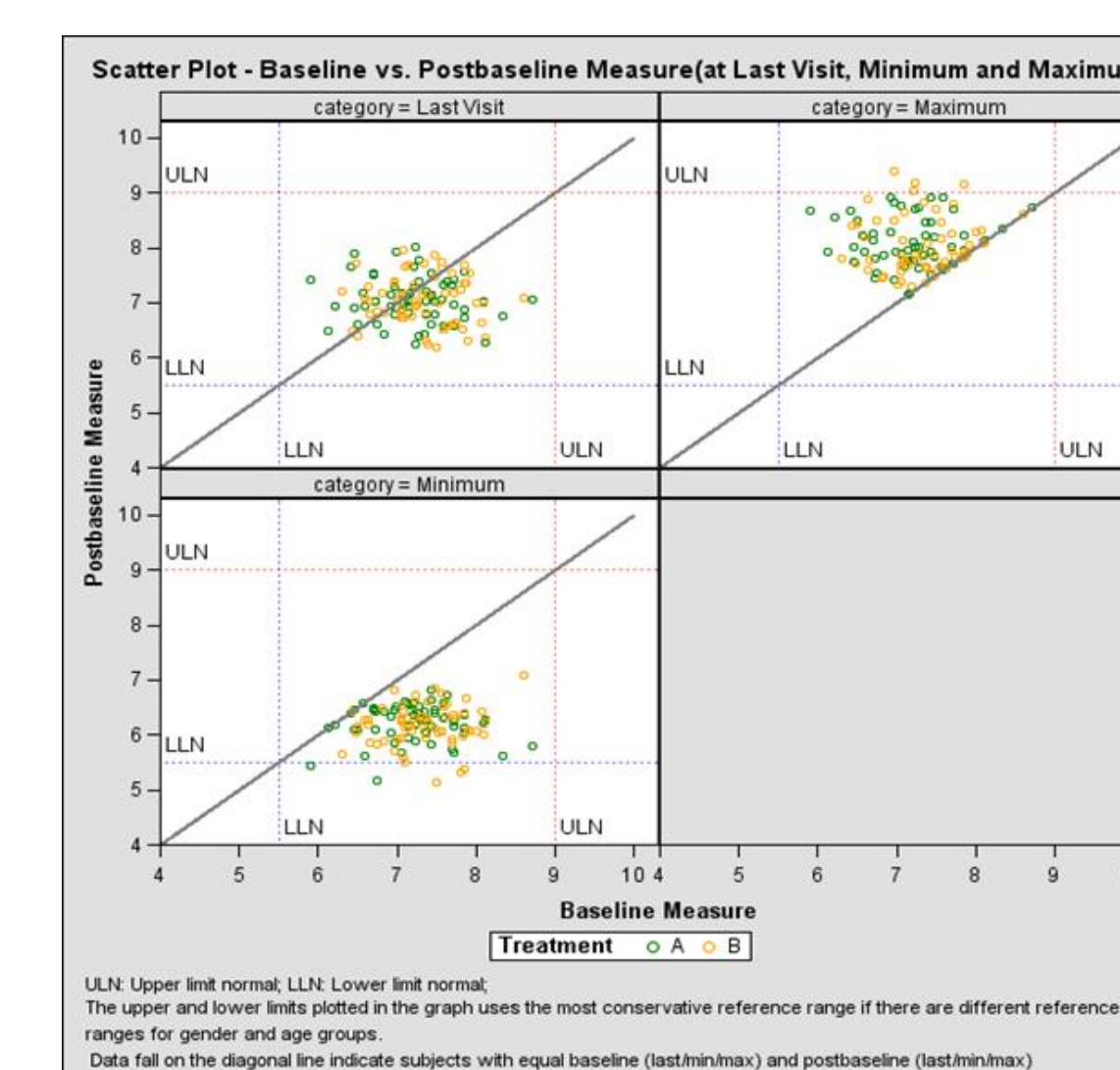
- Allows for visual inspection of changes over time
- Can visually assess the potential impact of outliers on the central tendency summary statistic
 - Out of range values in red
- Easy to see treatment differences
- Summary table compliments box plot so numbers are available for textual summaries



Rejected Tables and Figures



- Only has mean and SD - Lacks additional useful summary statistics
- Outliers not displayed
- Can be misleading when data are non-normal



- Not ideal for central tendency – more suited for outliers and shifts
- Does not have summary statistics
- May be difficult to see treatment differences

Why Central Tendency?

For Labs, ECG and Vital Signs: The central tendency analysis generally compares mean or median changes from baseline across treatment groups, and the review should contain the results of these analyses for all laboratory measurements. Although marked outliers are typically of greatest interest from a safety standpoint, at times a potentially important effect may be revealed only in analyses looking at differences in mean change from baseline.

Reviewer Guidance
Conducting a Clinical Safety Review of a New Product Application and Preparing a Report on the Review

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Drug Evaluation and Research (CDER)

February 2005
Good Review Practices

Our White Paper on Central Tendency

Provides the beginning of table and figure standardization

Provides guidance and foundation for the work in the Script-athon

Crowd-source a library of scripts/code

Feedback is welcome

Can be incorporated into a version 2.0

Appendix: Box Plot Interpretation

