

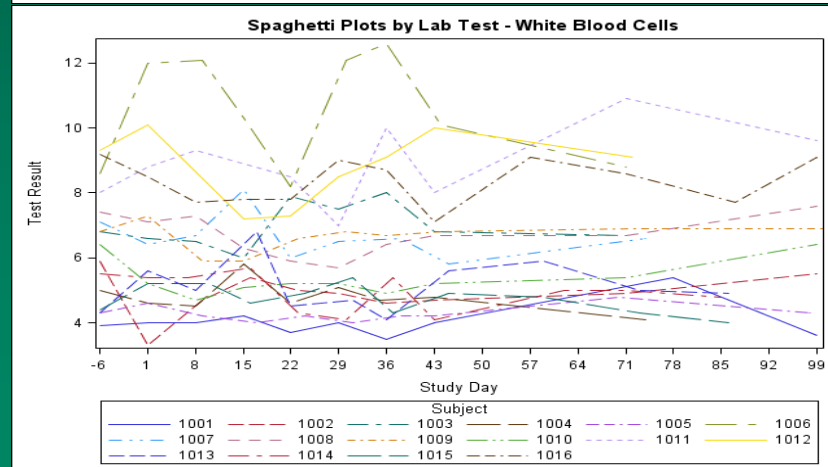
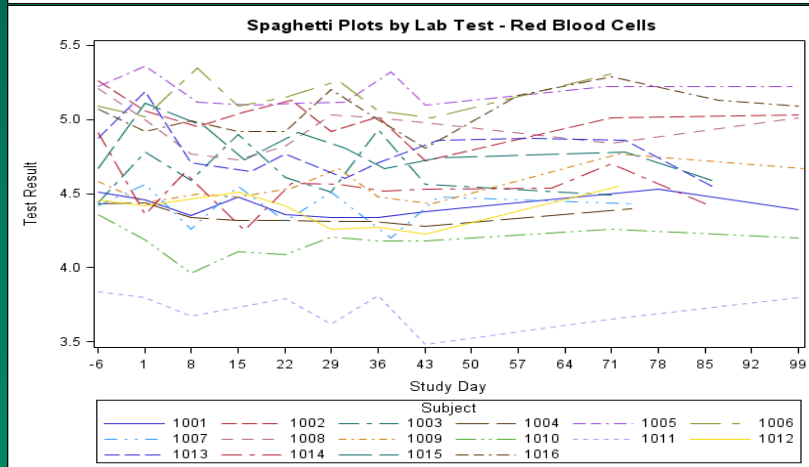
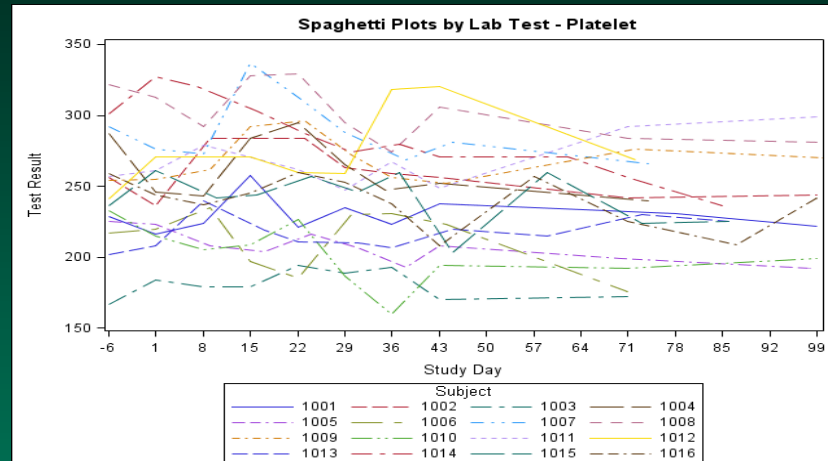
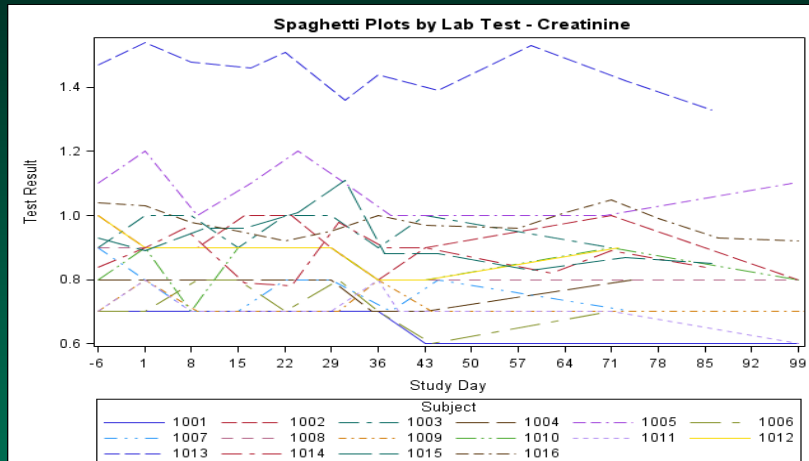
Visualizing Laboratory Data Using SAS® SG Procedures

Wei Cheng, Isis Pharmaceuticals, Inc.

Statistical Graphics Procedures

- PROC SGPLOT
- PROC SGPANEL
- PROC SGSCATTER

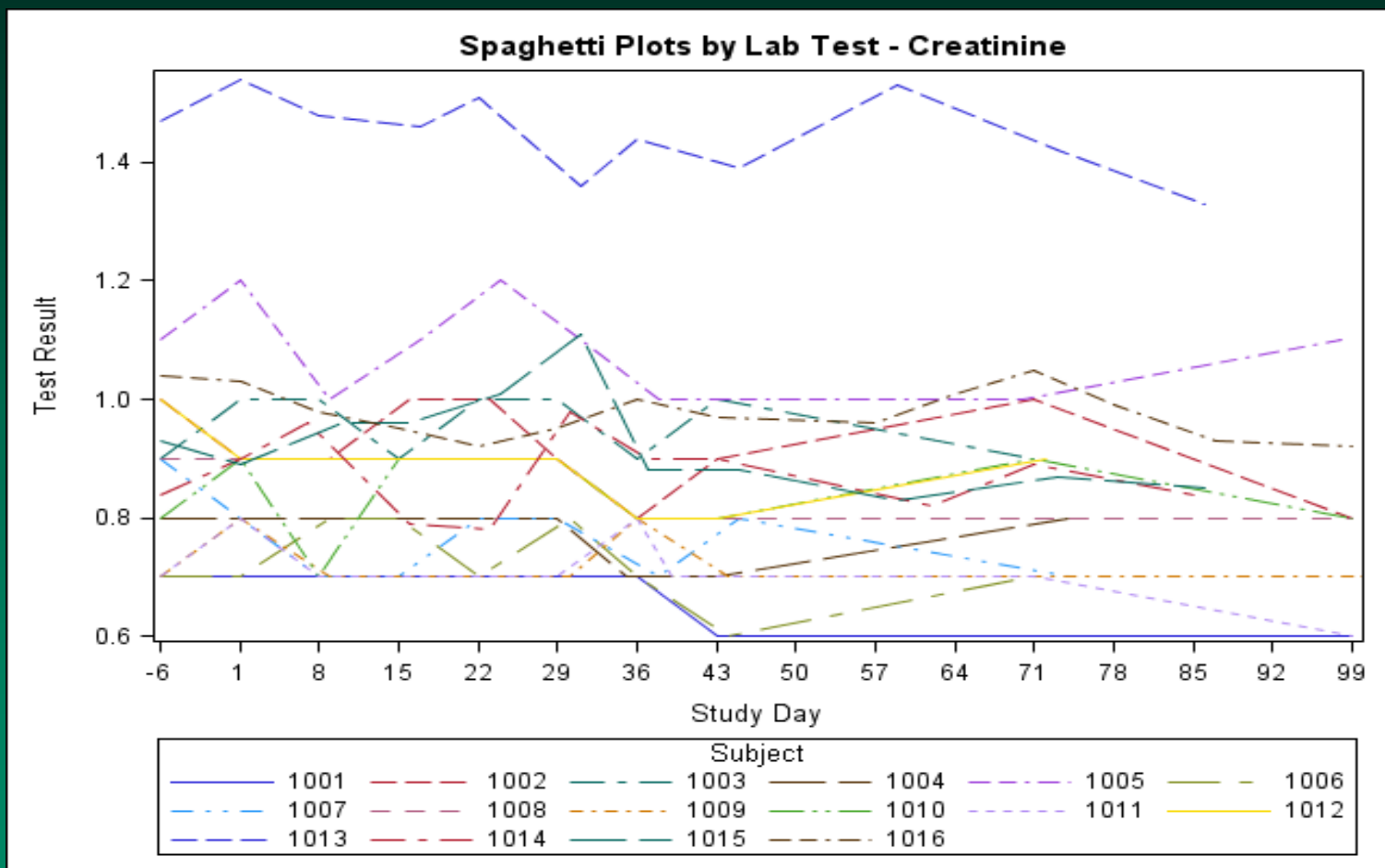
Spaghetti plots



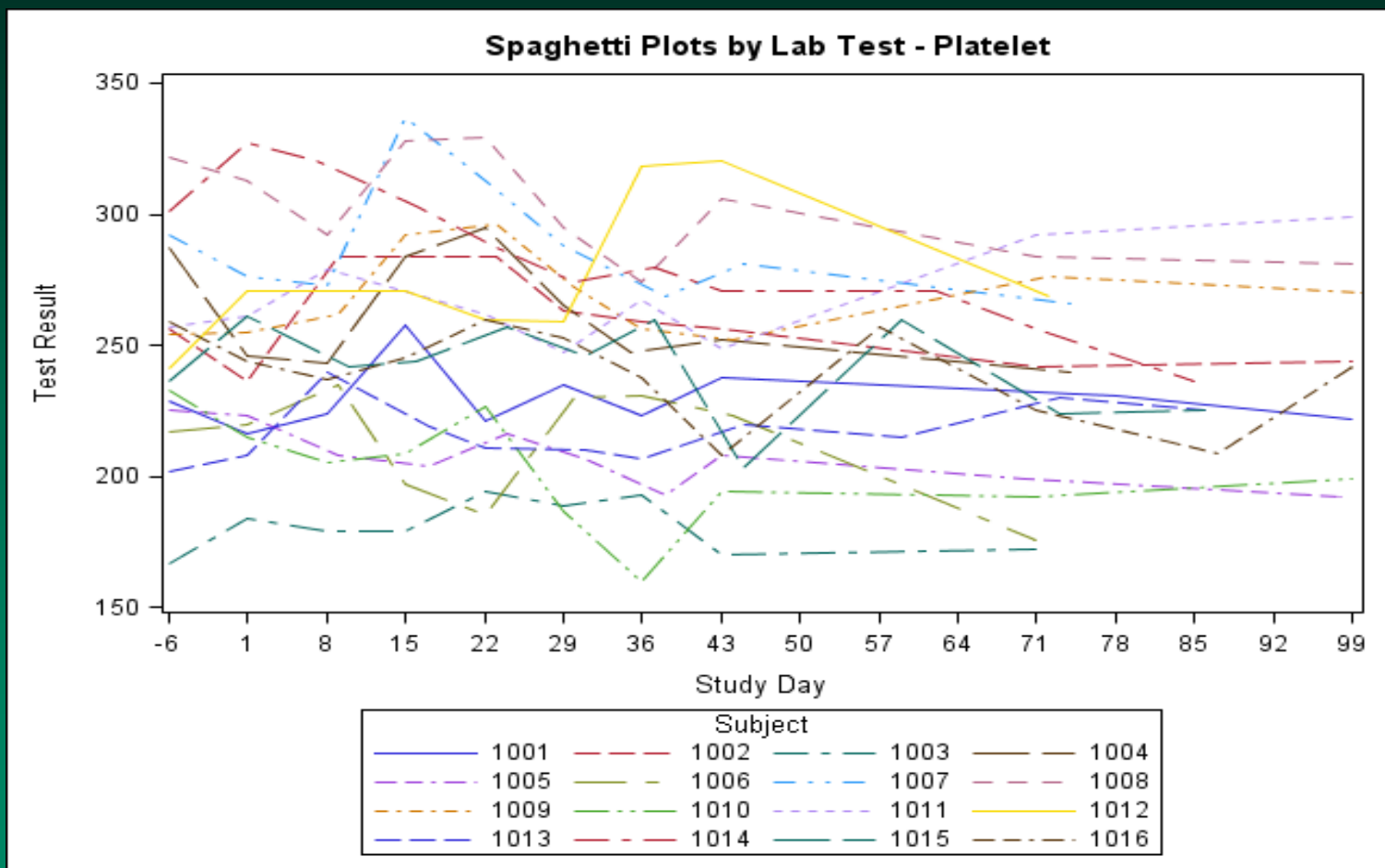
Spaghetti plots

```
options nobyline;  
  
title "Spaghetti Plots by #byvar1 - #byval1";  
  
proc sgplot data = labdata;  
    by labtest;  
    series x = visit y = result / group = subjid;  
    xaxis values = (-6 to 105 by 7);  
  
run;
```

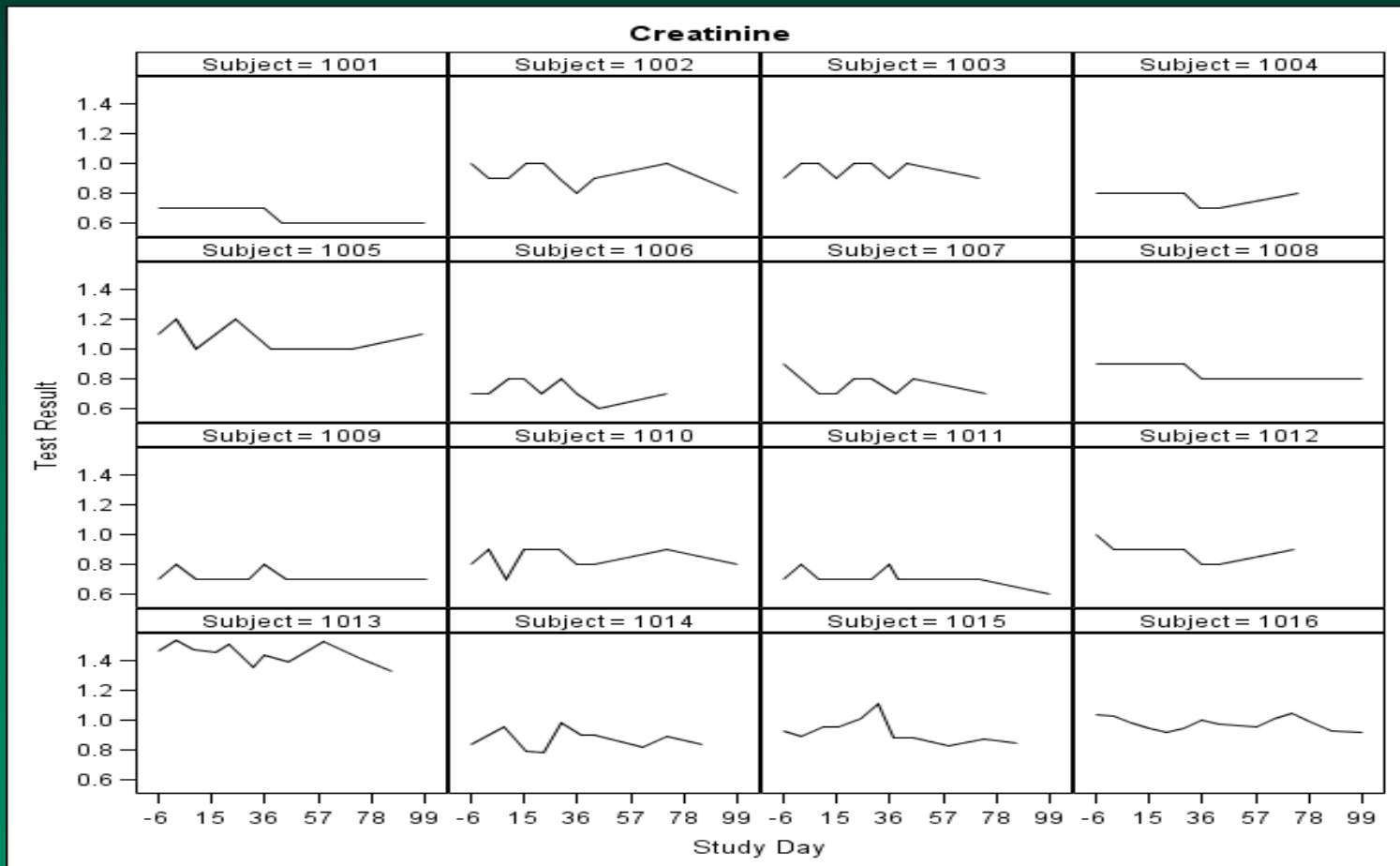
Spaghetti plots



Spaghetti plots



A panel of line plots for one laboratory test



A panel of line plots for one laboratory test

```
title "Creatinine";
```

```
proc sgpanel data = labdata (where = (labtest = "Creatinine"));
```

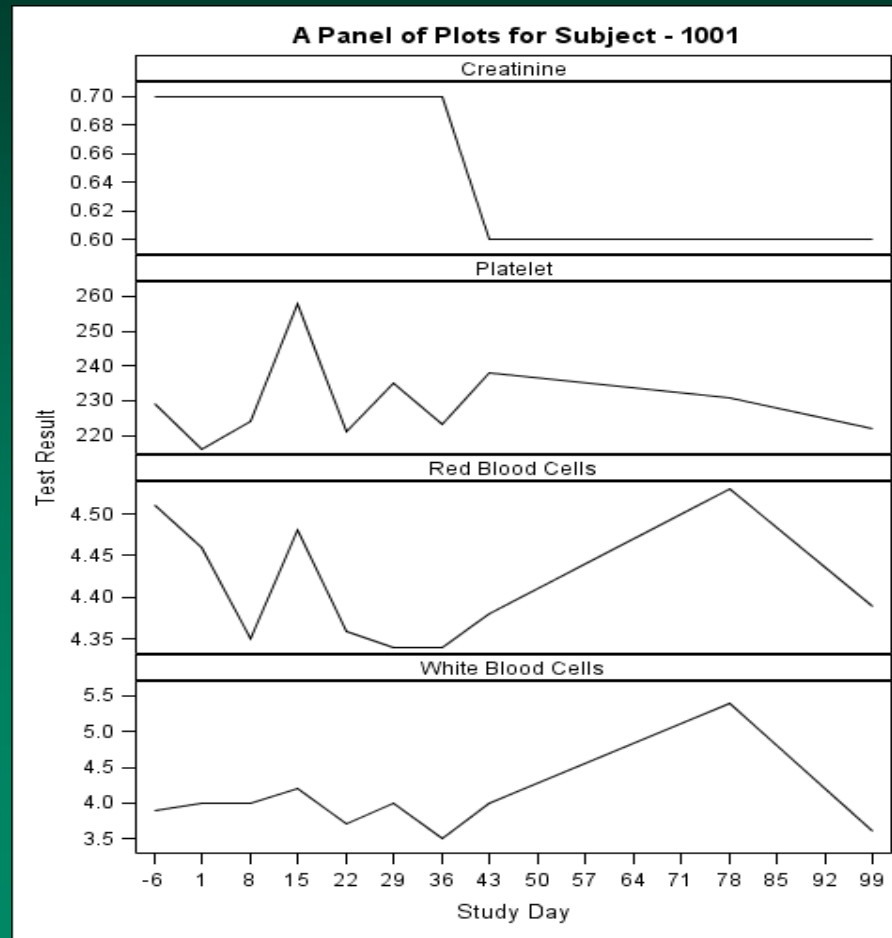
```
    panelby subjid / rows=4 columns=4;
```

```
    series x = visit y = result;
```

```
    colaxis values = (-6 to 105 by 7);
```

```
run;
```

A panel of line plots for one subject



A panel of line plots for one subject

```
options nobyline;
```

```
title "A Panel of Plots for #byvar1 - #byval1";
```

```
proc sgpanel data = labdata;
```

```
    panelby labtest / columns = 1 rows = 4
```

```
                        uniscale = column novarname;
```

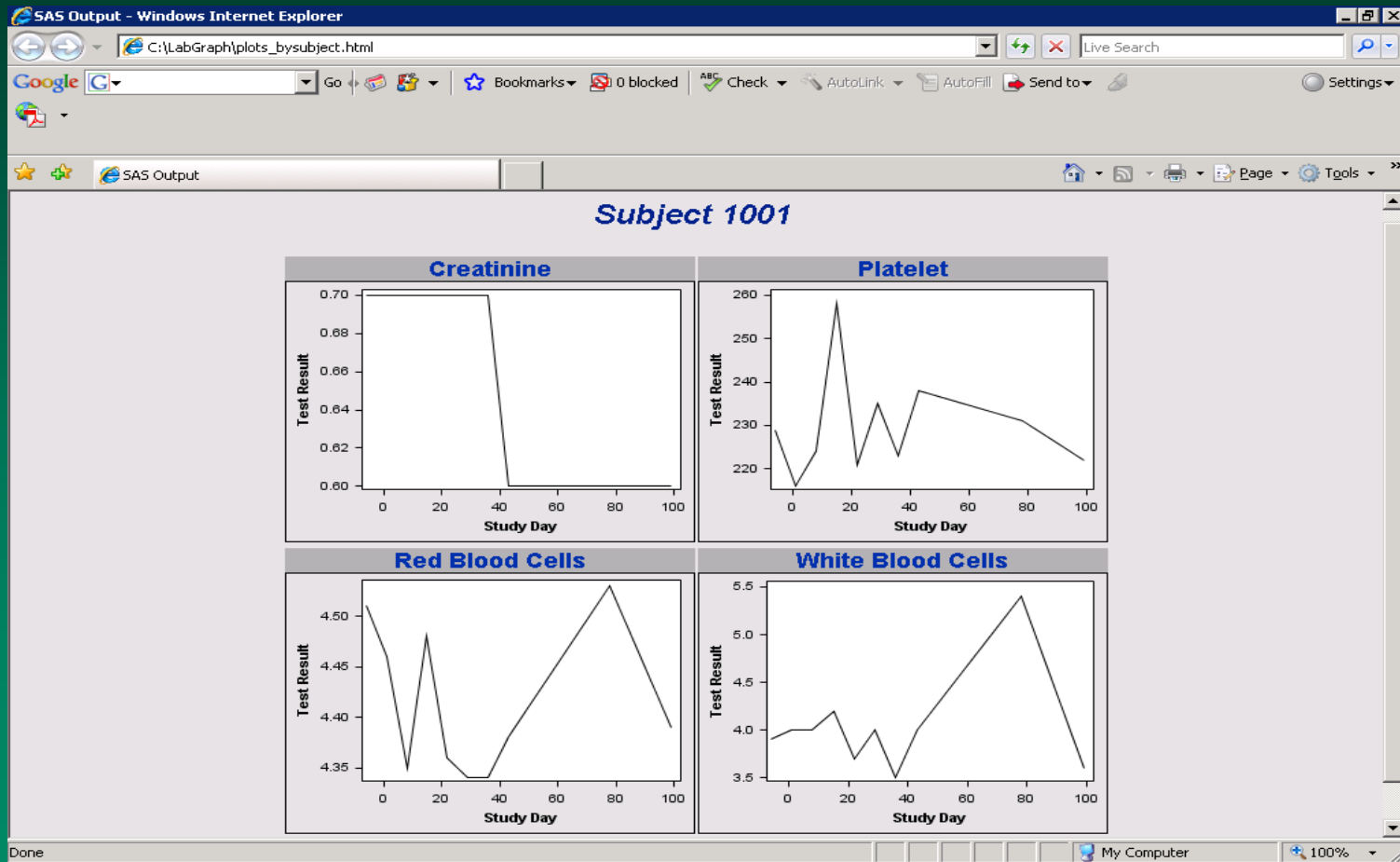
```
    series x = visit y = result;
```

```
    by subjid;
```

```
    colaxis values = (-6 to 105 by 7);
```

```
run;
```

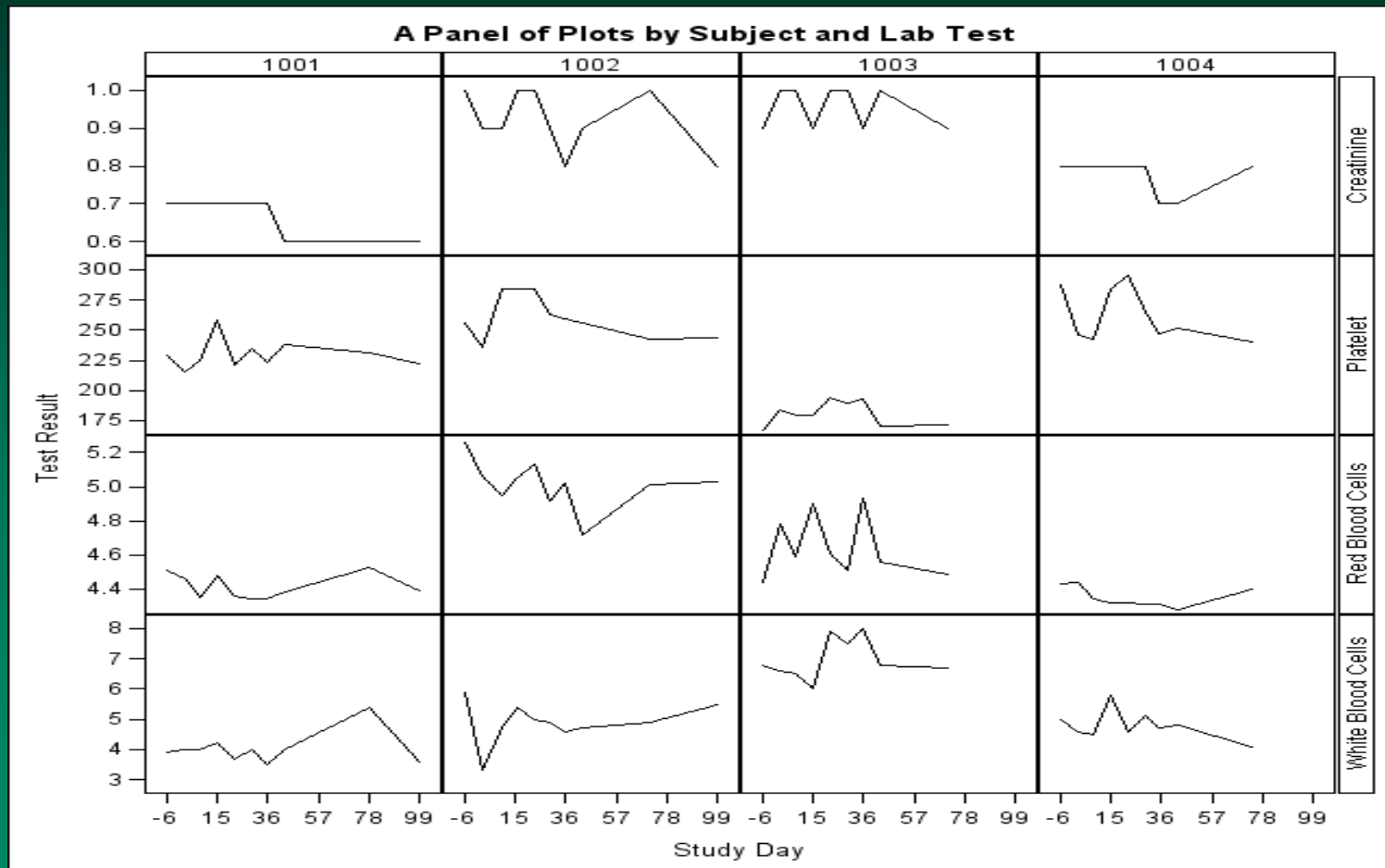
A 2x2 panel of line plots for one subject



A 2x2 panel of line plots for one subject

```
title "Subject 1001";  
ods tagsets.htmlpanel nogtitle file = "plots_bysubject.html";  
ods tagsets.htmlpanel event = panel(start)  
options(panelcolumns = "2" bylabels = "no");  
proc sgplot data = labdata (where = (subjid = "1001"));  
    by labtest;  
    series x = visit y = result;  
run;  
ods tagsets.htmlpanel event = panel(finish);  
ods tagsets.htmlpanel close;
```

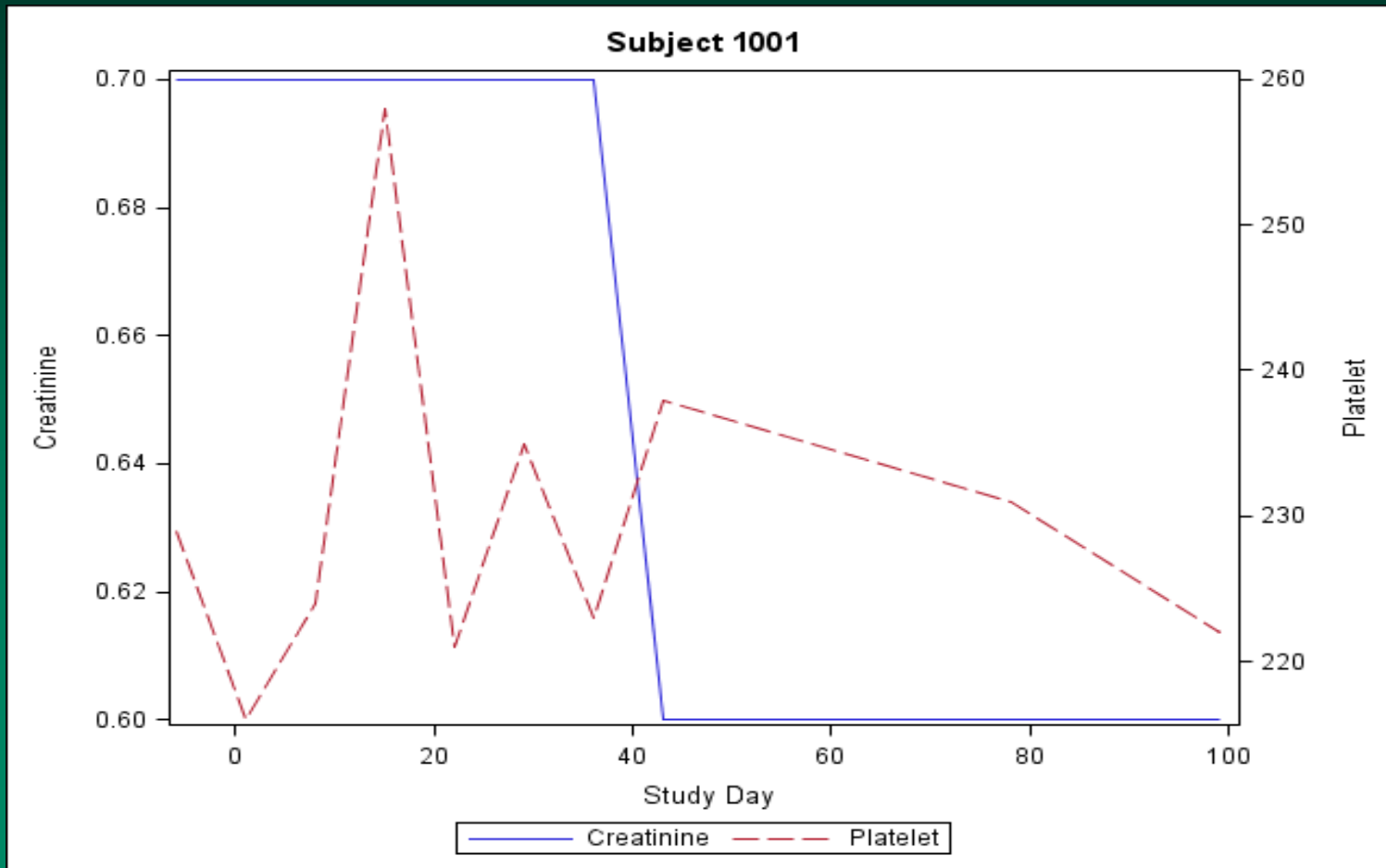
A panel of line plots by subject and laboratory test



A panel of line plots by subject and laboratory test

```
title "A Panel of Plots by Subject and Lab Test";  
proc sgpanel data = labdata;  
    panelby subjid labtest / layout = lattice  
        uniscale = column  
        columns = 4 rows = 4  
        novarname;  
    series x = visit y = result;  
    colaxis values = (-6 to 105 by 7);  
run;
```

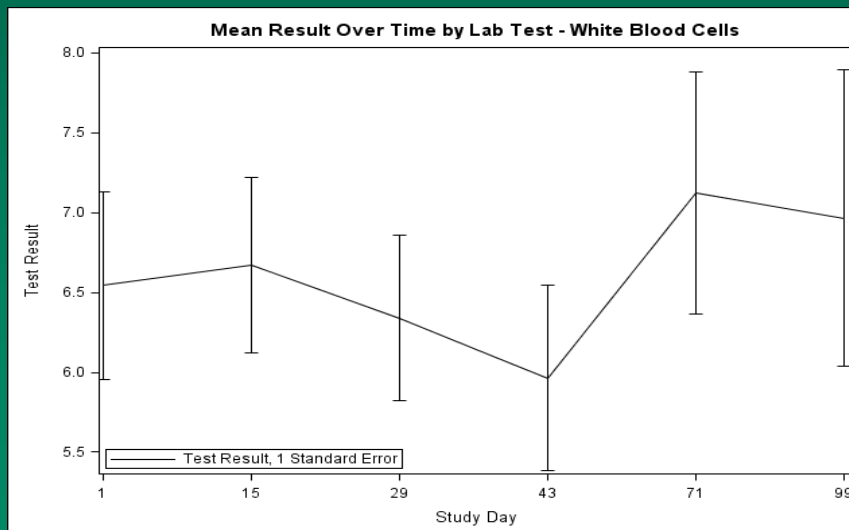
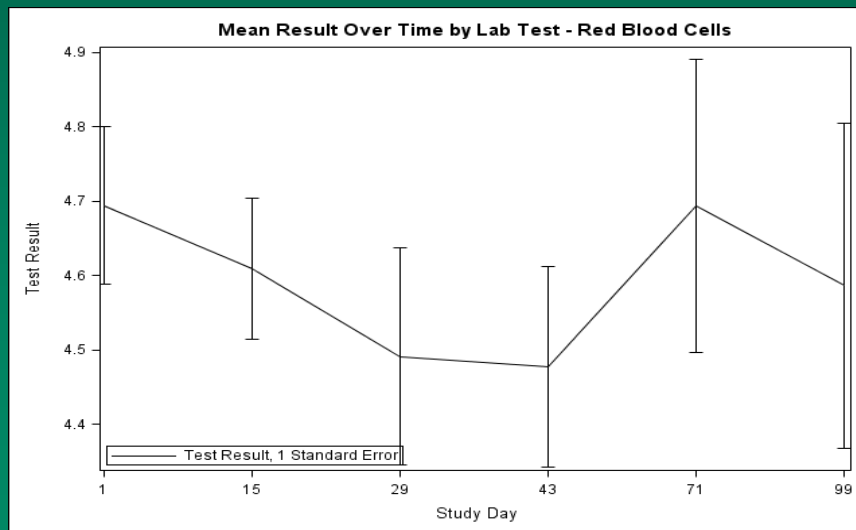
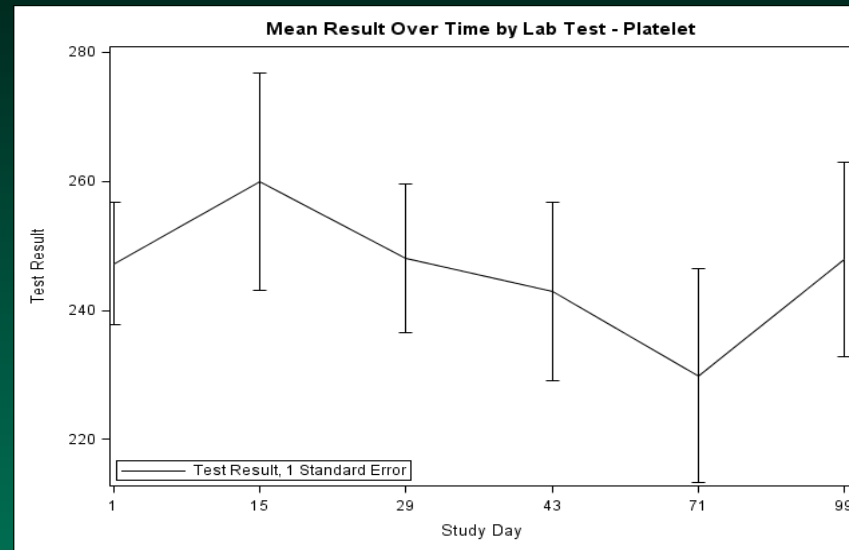
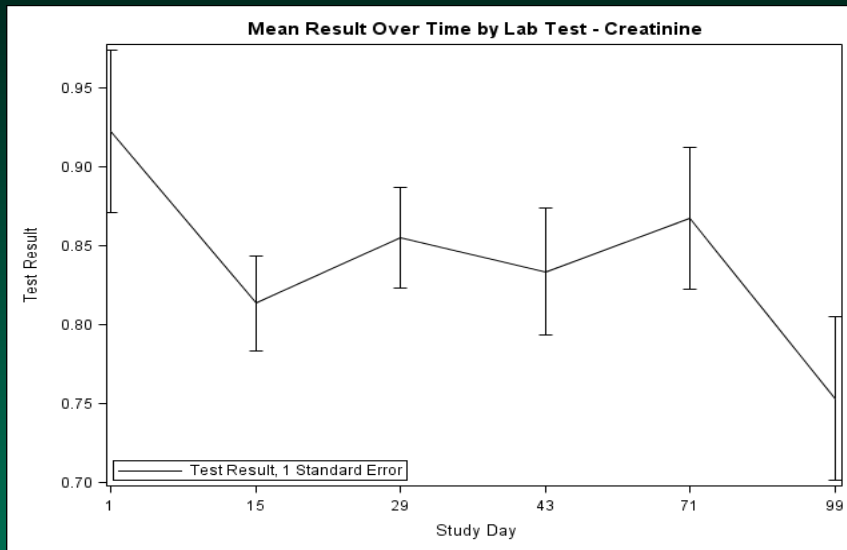
Two plots overlaid in a single graph



Two plots overlaid in a single graph

```
proc sort data = labdata (keep = subjid labtest visit result);  
    by visit;  
    where subjid = "1001" and labtest in ("Creatinine" "Platelet");  
run;  
proc transpose data = labdata out = lab4plot;  
    by visit;      var result;    id labtest;  
run;  
title "Subject 1001";  
proc sgplot data = lab4plot;  
    series x = visit y = creatinine;  
    series x = visit y = platelet / y2axis;  
run;
```

Group mean over time



Group mean over time

```
proc sort data = labdata; by labtest visit; run;
  options nobyline;
  title "Mean Result Over Time by #byvar1 - #byval1";

proc sgplot data = labdata;

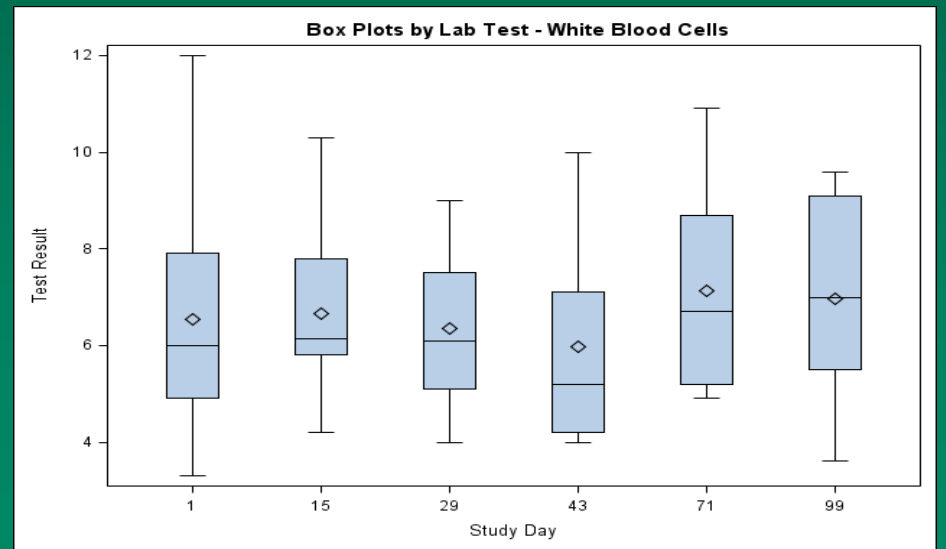
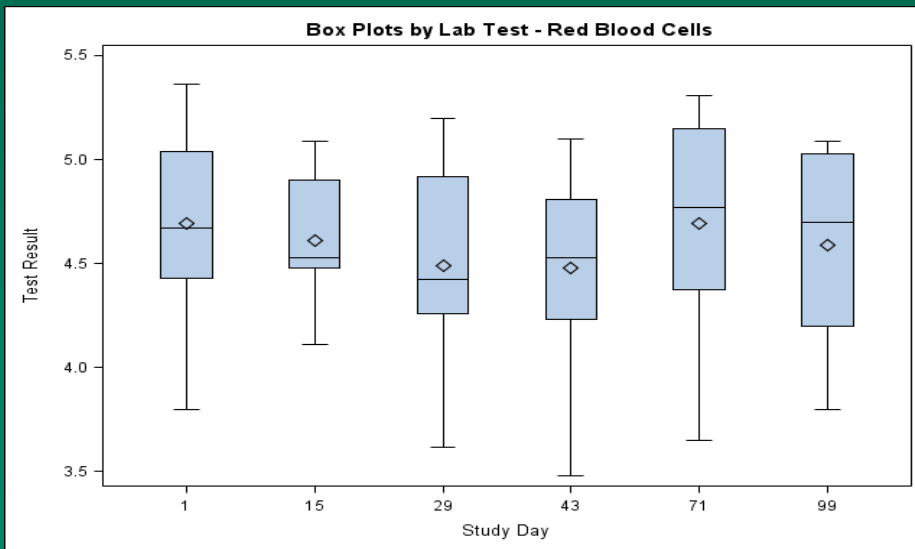
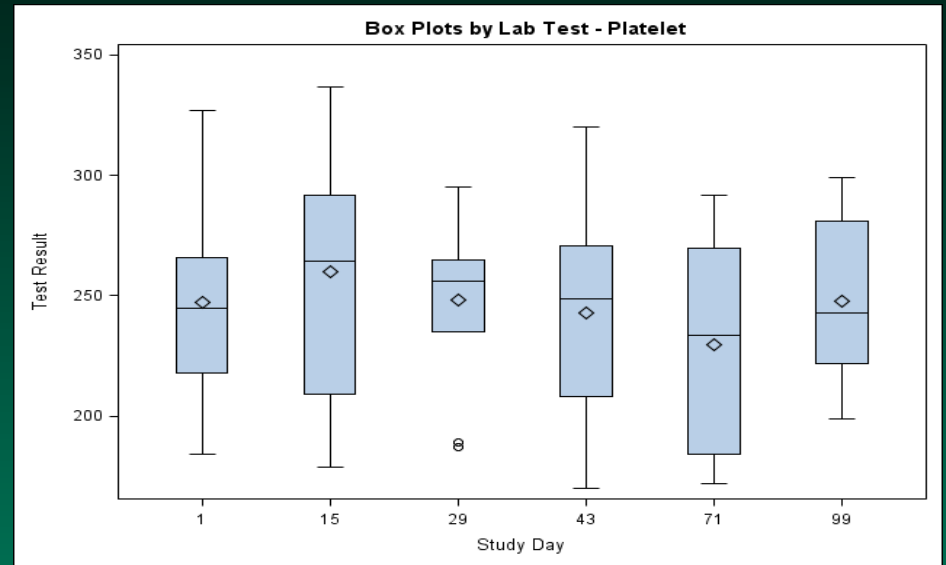
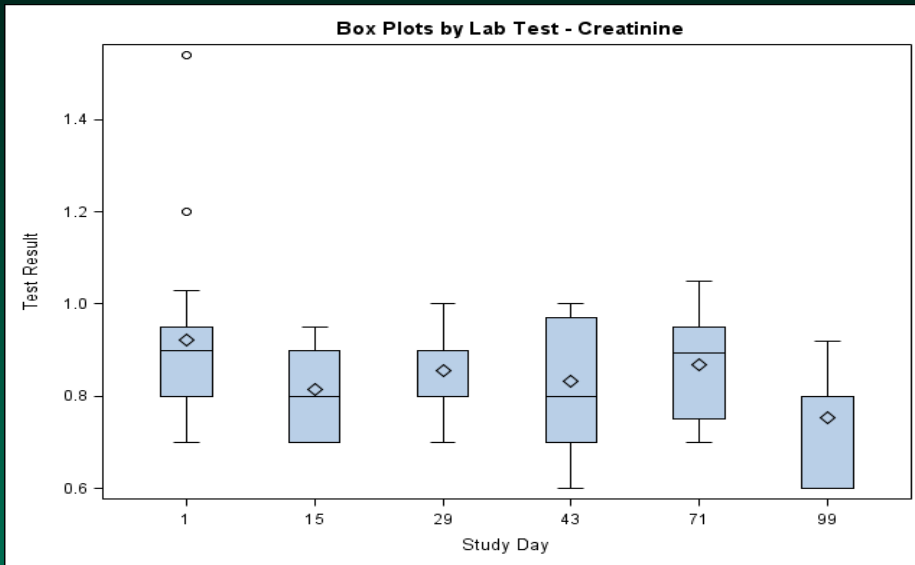
  vline visit / response = result stat = mean limitstat = stderr;

  keylegend / location = inside position = bottomleft;

  by labtest; where visit in (1 15 29 43 71 99);

run;
```

Box plots



Box plots

```
options nobyline;
```

```
title "Box Plots by #byvar1 - #byval1";
```

```
proc sgplot data = labdata;
```

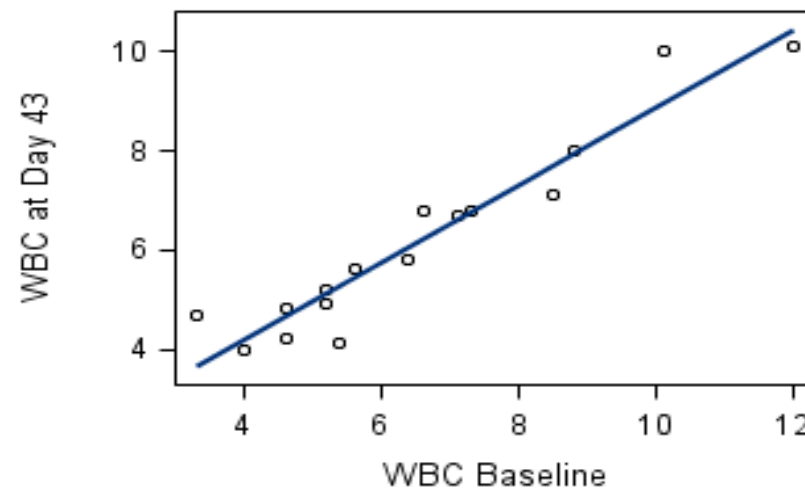
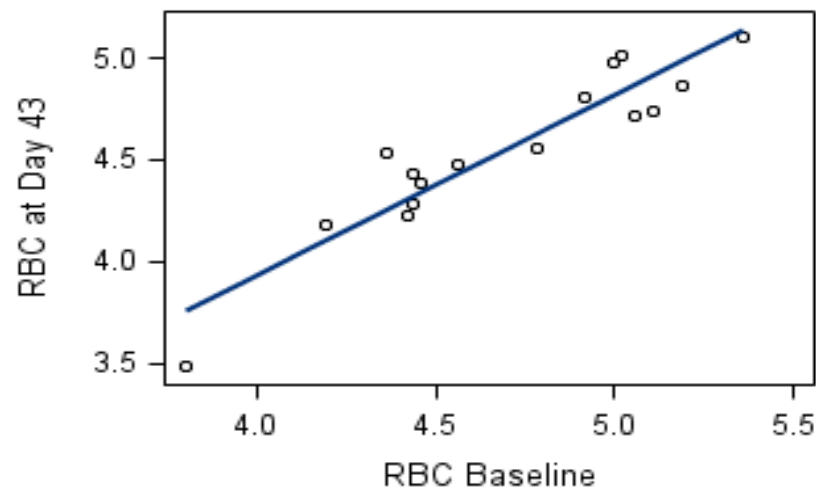
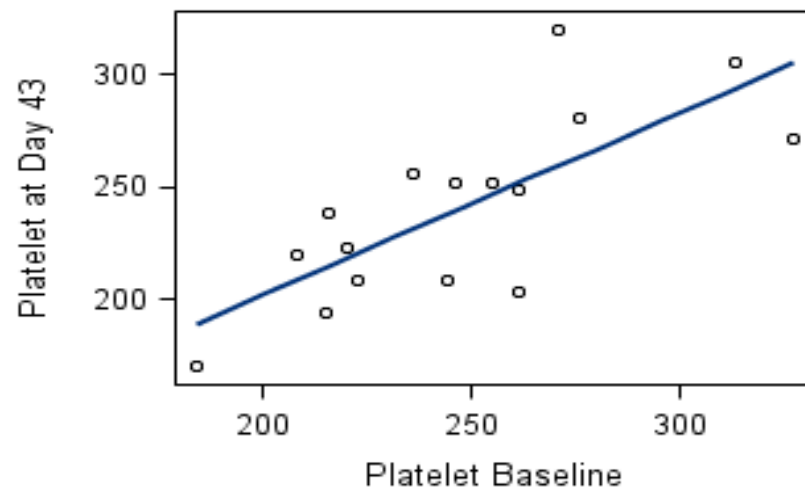
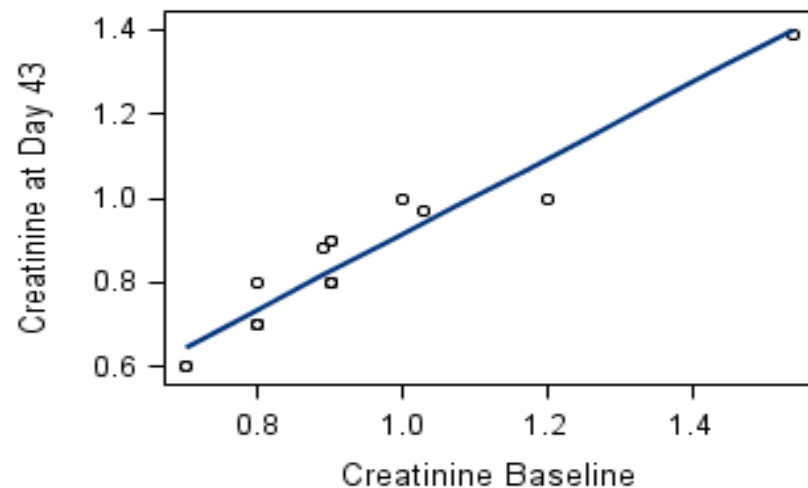
```
    by labtest;
```

```
    vbox result / category = visit;
```

```
run;
```

Scatter plots

Relationship Between Baseline and Day 43



Scatter plots

```
title "Relationship Between Baseline and Day 43";  
  
proc sgscatter data = lab4plot;  
    plot creatinine43*creatinine1  
        platelet43*platelet1  
        red_blood_cells43*red_blood_cells1  
        white_blood_cells43*white_blood_cells1/reg;  
run;
```

Conclusion

With SAS SG procedures, simpler and minimal coding is required to generate high quality statistical graphs. By spending less time in coding to improve the visual appearance of graphs for laboratory data, we can focus more on the statistical analysis.



About the Speaker

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