

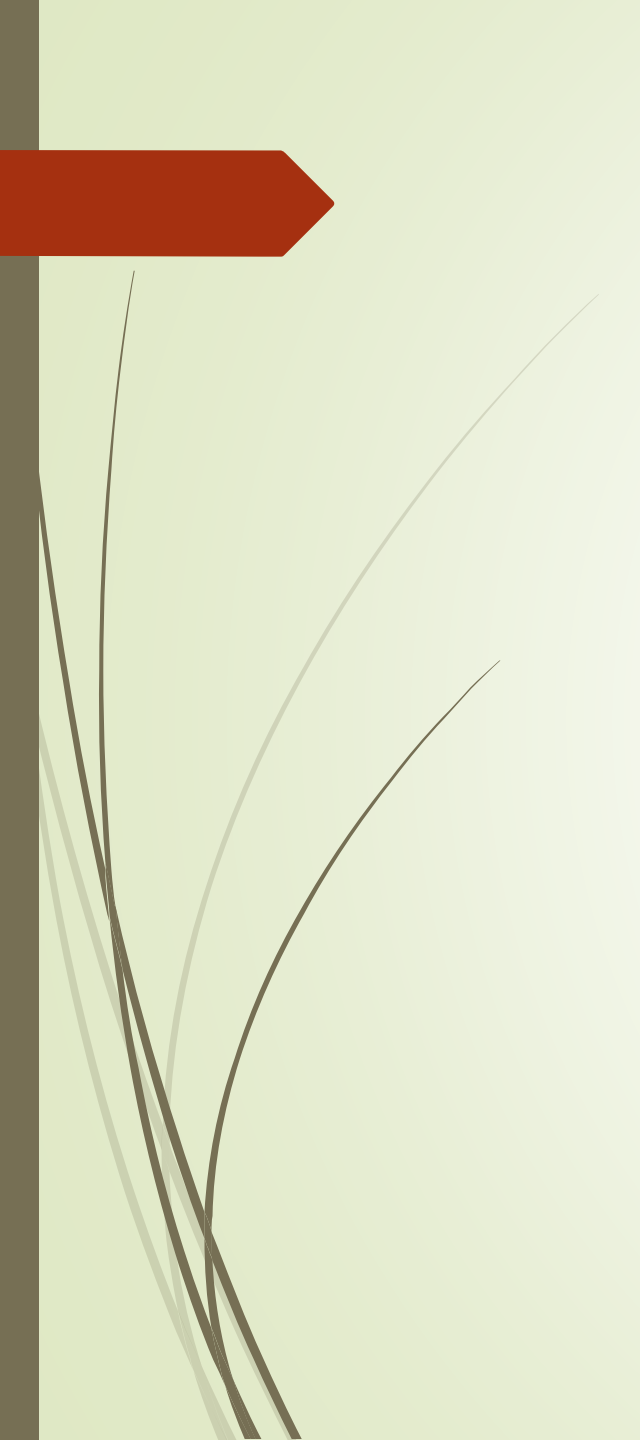
Paper CT12

Creating Superlative Reports Using ODS RTF

By

Neha Sakhawalkar

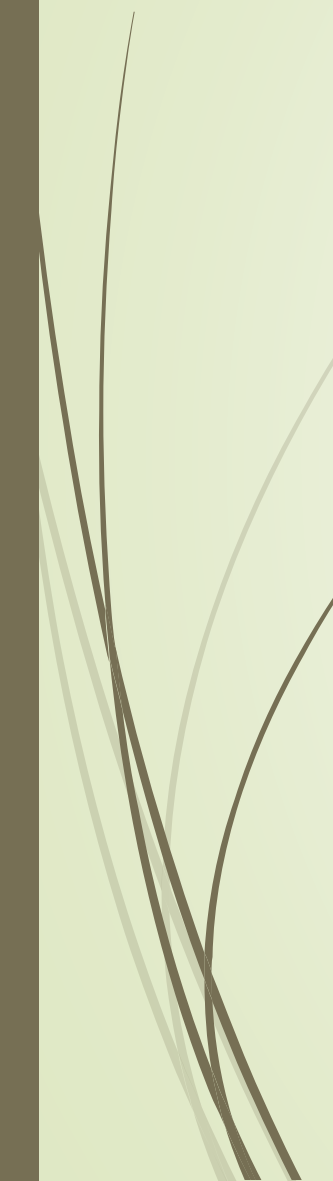
Kamlesh Patel



Introduction

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- PROC REPORT is a commonly used procedure to display tables and listings
 - It is commonly used along with ODS to create reports in RTF and PDF format
 - ODS RTF has been a very popular method due to its flexibility
 - All the common commands in PROC REPORT do not work with ODS RTF

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- Subset of the laboratory analysis dataset (ADLB) is used as an example
 - A summary statistic table based on the ADLB data has been used as an example to demonstrate

USUBJID	TRTA	PARAM	PARAMCD	AVISIT	PARCAT1	AVAL
101	Trt A	Hemoglobin	HEMO	Baseline	HEMATOLOGY	7
101	Trt A	Hemoglobin	HEMO	End of Treatment	HEMATOLOGY	5.8
101	Trt A	Hemoglobin	HEMO	Follow up	HEMATOLOGY	6.6
101	Trt A	Erythrocytes	ERYTHRO	Baseline	HEMATOLOGY	2.83
101	Trt A	Erythrocytes	ERYTHRO	End of Treatment	HEMATOLOGY	2.4
101	Trt A	Erythrocytes	ERYTHRO	Follow up	HEMATOLOGY	2.51
102	Trt A	Hemoglobin	HEMO	Baseline	HEMATOLOGY	10.7
102	Trt A	Hemoglobin	HEMO	End of Treatment	HEMATOLOGY	7.6
102	Trt A	Hemoglobin	HEMO	Follow up	HEMATOLOGY	12.1
102	Trt A	Erythrocytes	ERYTHRO	Baseline	HEMATOLOGY	4.34
102	Trt A	Erythrocytes	ERYTHRO	End of Treatment	HEMATOLOGY	3.05
102	Trt A	Erythrocytes	ERYTHRO	Follow up	HEMATOLOGY	4.15

```

ODS RTF file = C:/home/tab1.rtf";
PROC REPORT DATA = table;
COLUMNS PARCAT1 AVISIT PARAM _NAME_ val;
DEFINE PARCAT1 / group "Parameter
Category";
DEFINE AVISIT / group "Visit";
DEFINE PARAM / group "Parameter";
DEFINE _NAME_ / display "Statistics";
DEFINE VAL/display "Value";
RUN;
ODS RTF CLOSE;

```

Parameter Category	Visit	Parameter	Statistics	
HEMATOLOGY	Baseline	Erythrocytes	n	3
			mean	3.15
			std	1.06
			median	2.83
			n	3
			mean	8.43
			std	1.99
			median	7.6
	End of Treatment	Erythrocytes	n	3
			mean	2.51
			std	0.49
			median	2.4
			n	3
			mean	7.03
			std	1.07
			median	7.6
	Follow up	Erythrocytes	n	3
			mean	3.03
			std	0.97
			median	2.51
			n	3
			mean	8.57
			std	3.07



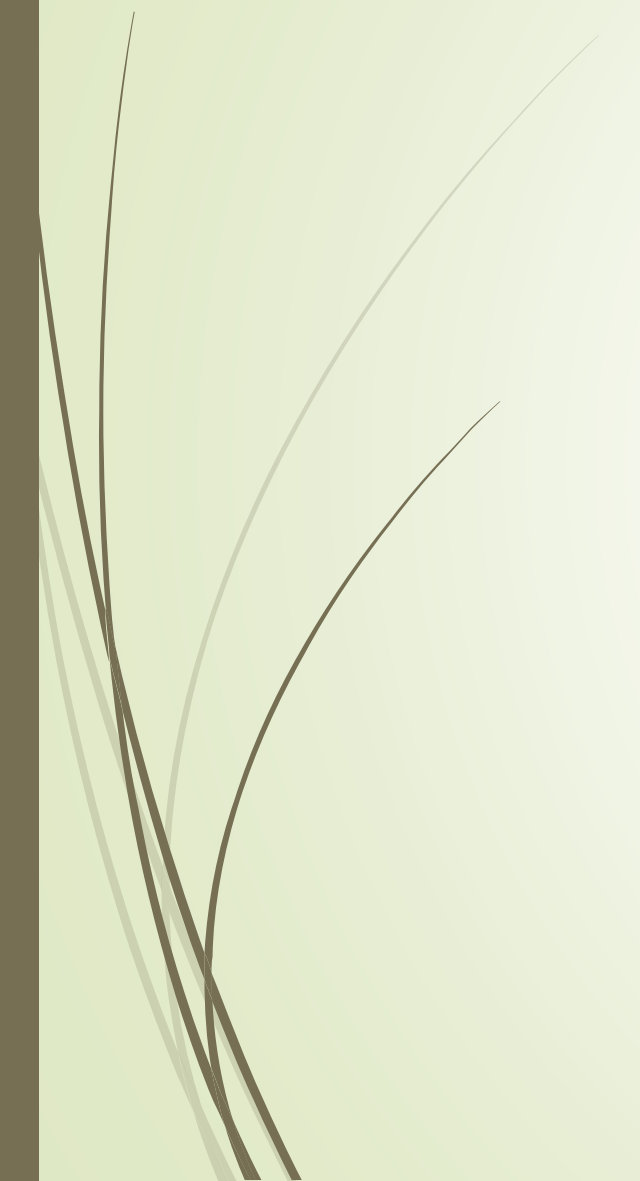
I. Justification and alignment of values with decimal point

Parameter Category	Visit	Parameter	Statistics	
HEMATOLOGY	Baseline	Erythrocytes	n	3
			mean	3.15
			std	1.06
			median	2.83
		Hemoglobin	n	3
			mean	8.43
			std	1.99
			median	7.6
	End of Treatment	Erythrocytes	n	3
			mean	2.51
			std	0.49
			median	2.4
		Hemoglobin	n	3
			mean	7.03
			std	1.07
			median	7.6
	Follow up	Erythrocytes	n	3
			mean	3.03
			std	0.97
			median	2.51
		Hemoglobin	n	3
			mean	8.57
			std	3.07

```
PROC FORMAT;
  PICTURE twodec low-high='009.99';
  PICTURE onedec low-high='009.9  ';
  PICTURE nodec  low-high='009    ';
RUN;
```

```
ODS RTF file = "C:/home/tab1.rtf";
PROC REPORT DATA = table NOWD STYLE (column) = [just = c asis = on protectspecialchars = off];
COLUMNS PARCAT1 AVISIT PARAM _NAME_ val;
DEFINE PARCAT1 / group "Parameter Category";
DEFINE AVISIT / group "Visit";
DEFINE PARAM / group "Parameter";
DEFINE _NAME_ / display "Statistics";
COMPUTE val;
  len = lengthn(scan(put(val.sum,best8.),2,'.'));
  if len = 0 then call define(_col_,'format','nodec. ');
  else if len = 1 then call define(_col_,'format','onedec. ');
  else if len = 2 then call define(_col_,'format','twodec. ');
ENDCOMP;
RUN;
ODS RTF CLOSE;
```

Parameter Category	Visit	Parameter		
HEMATOLOGY	Baseline	Erythrocytes	n	2
			mean	3.59
			std	1.07
			median	3.59
		Hemoglobin	n	2
			mean	8.85
			std	2.62
			median	8.85
	End of Treatment	Erythrocytes	n	2
			mean	2.73
			std	0.46
			median	2.73
		Hemoglobin	n	2
			mean	6.7
			std	1.27
			median	6.7
	Follow up	Erythrocytes	n	2
			mean	3.33
			std	1.16
			median	3.33
		Hemoglobin	n	2
			mean	9.35
			std	3.89
			median	9.35

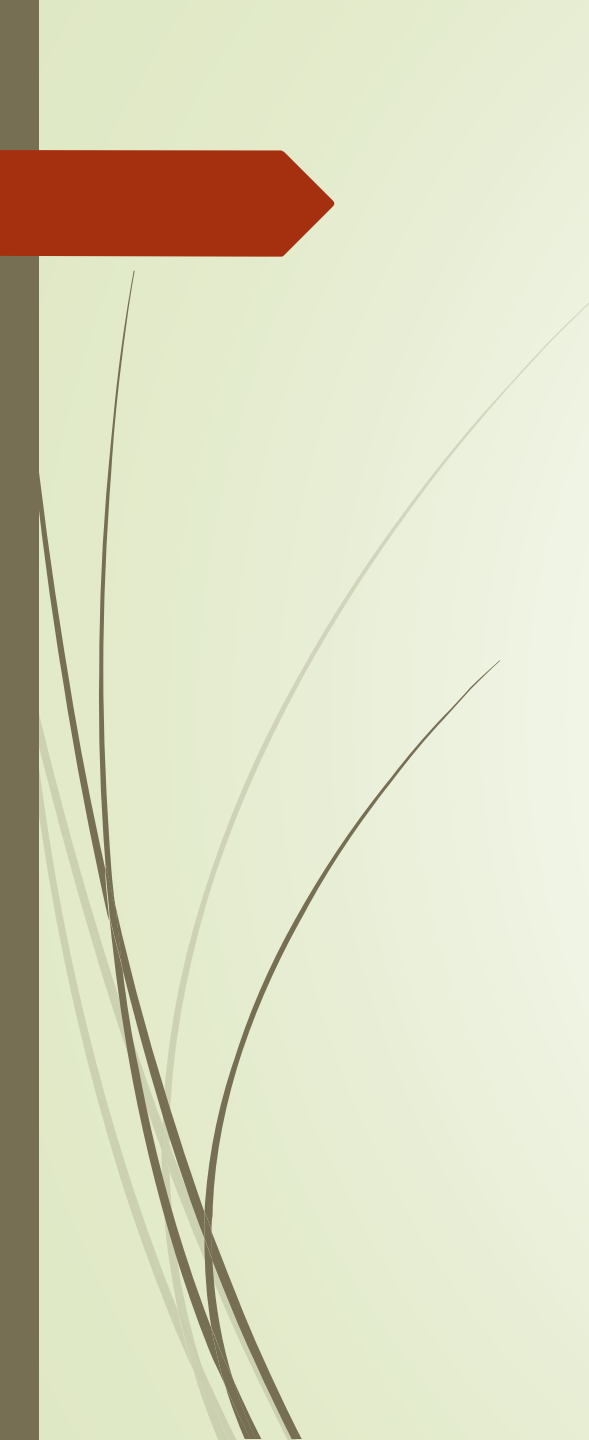


II. Controlling column width

Parameter Category	Visit	Parameter	Statistics	
HEMATOLOGY	Baseline	Erythrocytes	n	3
			mean	3.15
			std	1.06
			median	2.83
		Hemoglobin	n	3
			mean	8.43
			std	1.99
			median	7.6
	End of Treatment	Erythrocytes	n	3
			mean	2.51
			std	0.49
			median	2.4
		Hemoglobin	n	3
			mean	7.03
			std	1.07
			median	7.6
	Follow up	Erythrocytes	n	3
			mean	3.03
			std	0.97
			median	2.51
		Hemoglobin	n	3
			mean	8.57
			std	3.07

```
ODS RTF file = C:/home/tab2.rtf";
PROC REPORT DATA = table;
COLUMNS PARCAT1 AVISIT PARAM _NAME_ val;
DEFINE PARCAT1 / group "Parameter Category" style = [cellwidth = 1.5 in];
DEFINE AVISIT / group "Visit" style = [cellwidth = 1.5 in];
DEFINE PARAM / group "Parameter" style = [cellwidth = 1.5 in];
DEFINE _NAME_ / display "Statistics" style = [cellwidth = 1.5 in];
DEFINE VAL/display style = [cellwidth = 1.5 in];
RUN;
ODS RTF CLOSE;
```

Parameter Category	Visit	Parameter	Statistics	val
HEMATOLOGY	Baseline	Erythrocytes	n	2
			mean	3.59
			std	1.07
			median	3.59
		Hemoglobin	n	2
			mean	8.85
			std	2.62
			median	8.85
	End of Treatment	Erythrocytes	n	2
			mean	2.73
			std	0.46
			median	2.73
		Hemoglobin	n	2
			mean	6.7
			std	1.27
			median	6.7
	Follow up	Erythrocytes	n	2
			mean	3.33
			std	1.16
			median	3.33
		Hemoglobin	n	2
			mean	9.35
			std	3.89
			median	9.35



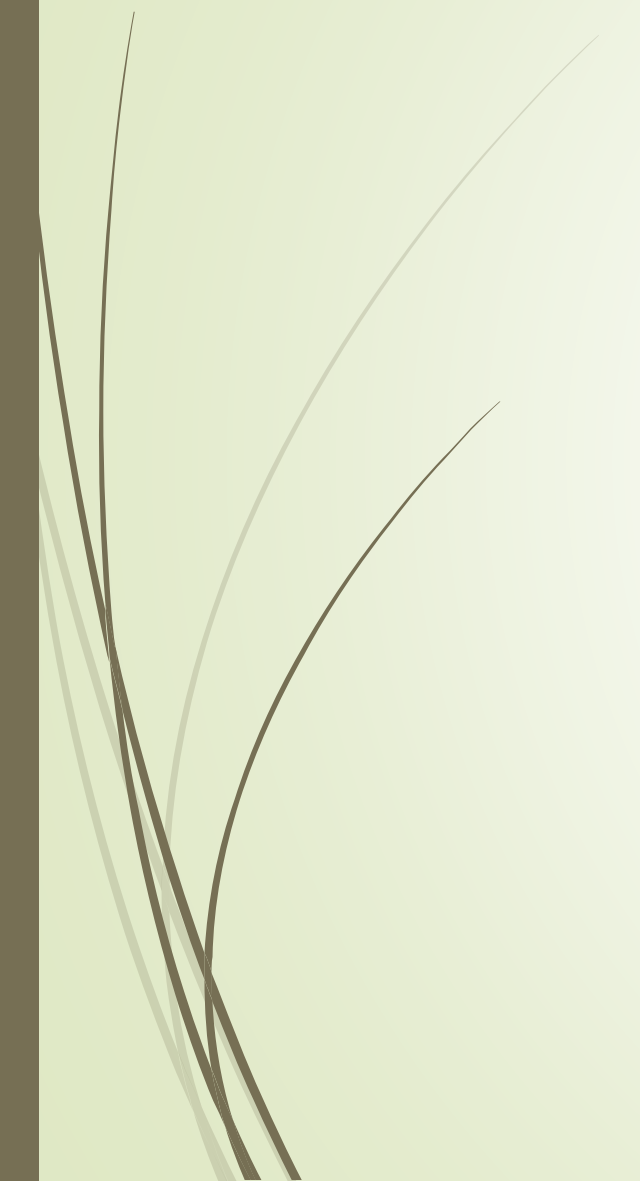
III. Using split character and escape character

Parameter Category	Visit	Parameter	Statistics	
HEMATOLOGY	Baseline	Erythrocytes	n	3
			mean	3.15
			std	1.06
			median	2.83
		Hemoglobin	n	3
			mean	8.43
			std	1.99
			median	7.6
	End of Treatment	Erythrocytes	n	3
			mean	2.51
			std	0.49
			median	2.4
		Hemoglobin	n	3
			mean	7.03
			std	1.07
			median	7.6
	Follow up	Erythrocytes	n	3
			mean	3.03
			std	0.97
			median	2.51
		Hemoglobin	n	3
			mean	8.57
			std	3.07

```
ODS RTF file = "C:/home/tab3.rtf";
ODS ESCAPECHAR = '#';
TITLE 'Protocol No. 100245 #n Descriptive Statistics of Hematology';
PROC REPORT DATA = table nowd split = '*';
COLUMNS PARCAT1 AVISIT PARAM _NAME_ val;
DEFINE PARCAT1 / group "Parameter * Category";
DEFINE AVISIT / group "Visit";
DEFINE PARAM / group "Parameter";
DEFINE _NAME_ / display "Statistics";
DEFINE VAL/display "Value";
RUN;
ODS RTF CLOSE;
```

Protocol No. 100245
Descriptive Statistics of Hematology

Parameter Category	Visit	Parameter	Statistics	Value
HEMATOLOGY	Baseline	Erythrocytes	n	2
			mean	3.59
			std	1.07
			median	3.59
		Hemoglobin	n	2
			mean	8.85
			std	2.62
			median	8.85
	End of Treatment	Erythrocytes	n	2
			mean	2.73
			std	0.46
			median	2.73
		Hemoglobin	n	2
			mean	6.7
			std	1.27
			median	6.7
	Follow up	Erythrocytes	n	2
			mean	3.33
			std	1.16
			median	3.33
		Hemoglobin	n	2
			mean	9.35
			std	3.89
			median	9.35



IV. Display special symbols in the report

```

DATA temp;
INPUT col1 $ col2 $;
DATALINES;
86.76 86.31
;
run;

ODS RTF FILE = " C:/home/tab4.rtf";
ODS ESCAPECHAR = "^";
TITLE1 'Listing of All subjects displaying AUC{sub (0-)}^S={font_face=symbol}^^{sub a}^S={}^^{sub )} and AUC{sub (0-)}^S={font_face=symbol}^^{sub t}^S={}^^{sub )}values';
proc report data = temp split = "*";
COLUMNS COL1 COL2;
DEFINE COL1 / DISPLAY 'AUC{sub (0-)}^S={font_face=symbol}^^{sub a}^S={}^^{sub )}*
  (ng.hr/ml)';
DEFINE COL2 / DISPLAY 'AUC{sub (0-)}^S={font_face=symbol}^^{sub t}^S={}^^{sub )}*
  (ng.hr/ml)';
RUN;
ODS RTF CLOSE;

```

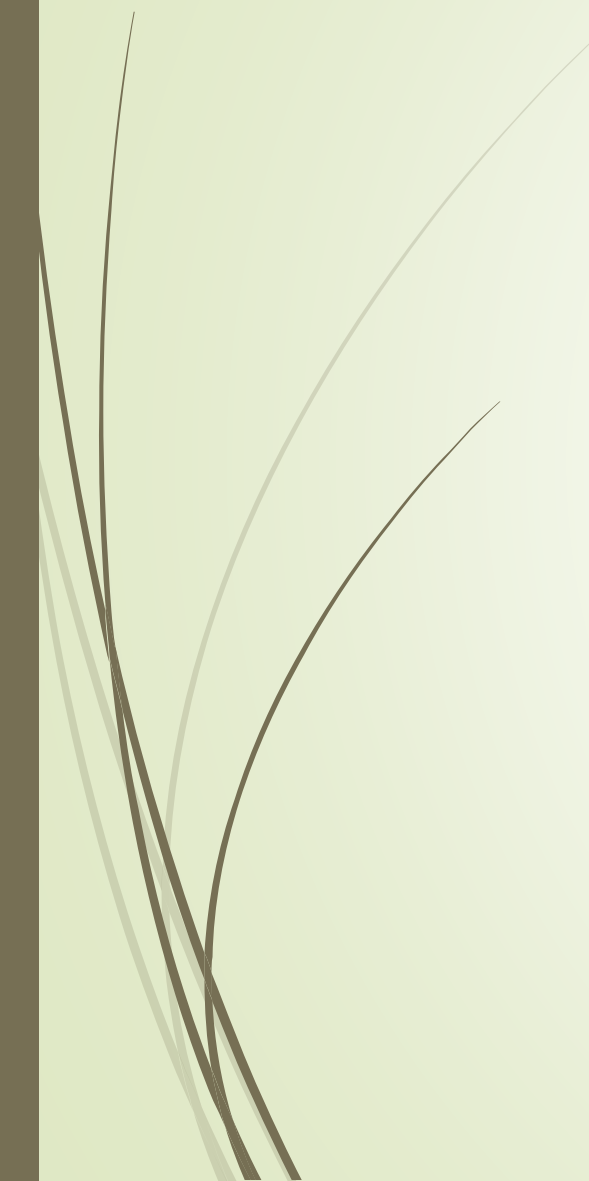
Listing of All subjects displaying AUC_(0-a) and AUC_(0-t) values

AUC _(0-a) (ng.hr/ml)	AUC _(0-t) (ng.hr/ml)
86.76	86.31

* ADLB cannot be used for this point

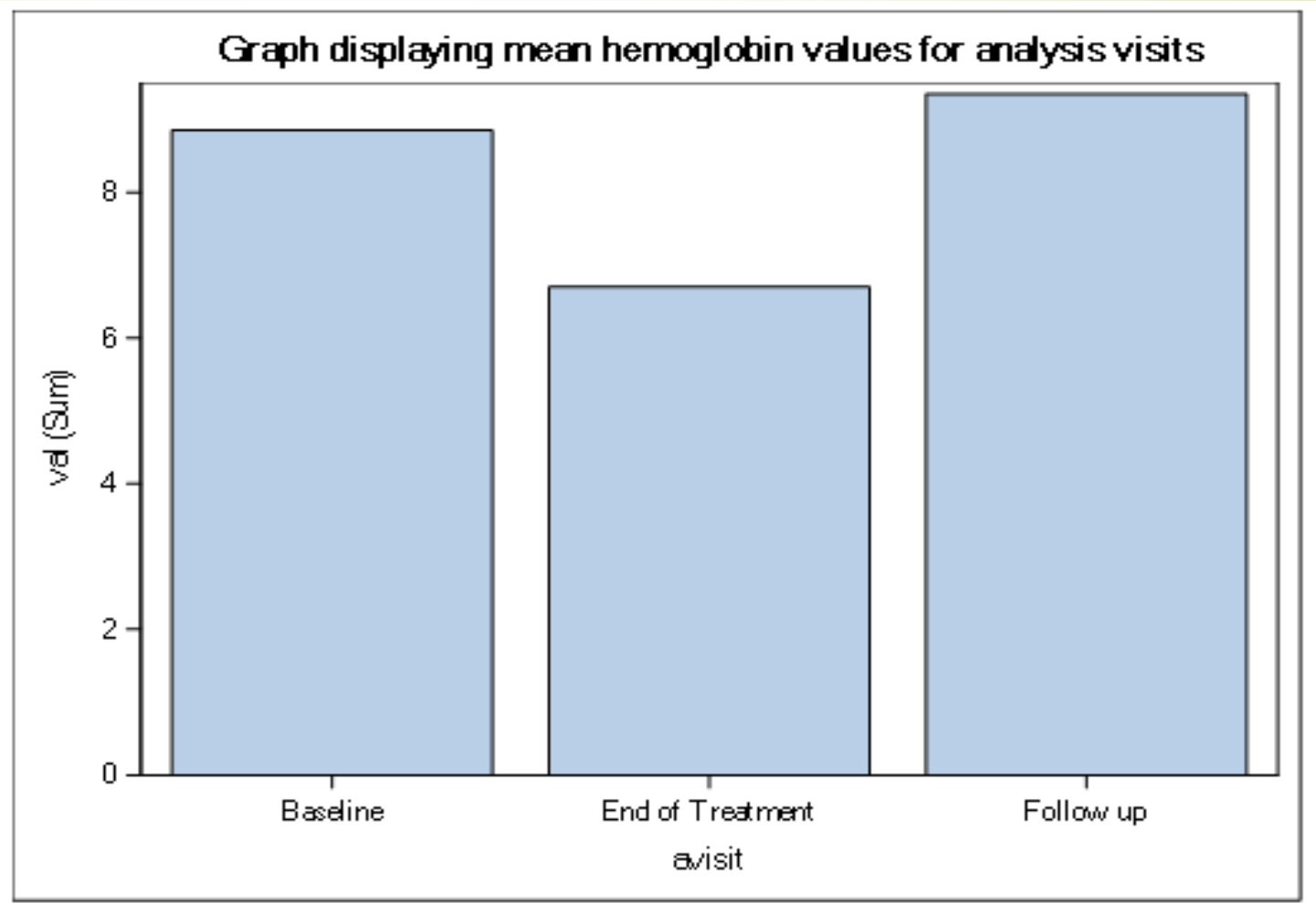


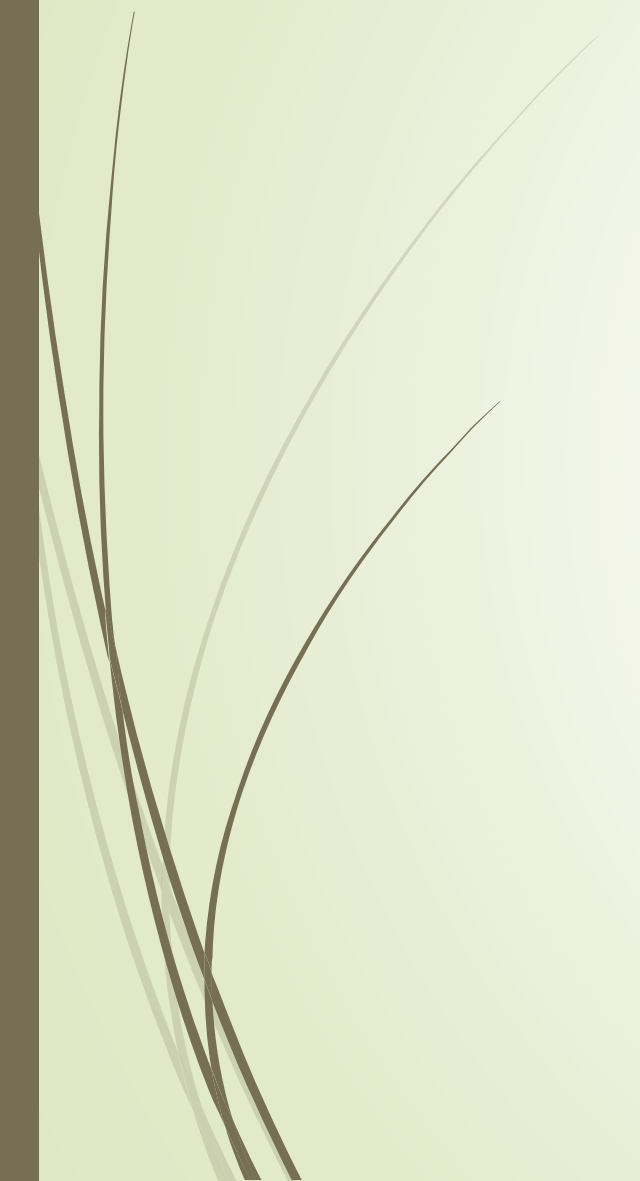
V. Adding titles and footnotes to graphs

Parameter Category	Visit	Parameter	Statistics	
HEMATOLOGY	Baseline	Erythrocytes	n	3
			mean	3.15
			std	1.06
			median	2.83
		Hemoglobin	n	3
			mean	8.43
			std	1.99
			median	7.6
	End of Treatment	Erythrocytes	n	3
			mean	2.51
			std	0.49
			median	2.4
		Hemoglobin	n	3
			mean	7.03
			std	1.07
			median	7.6
	Follow up	Erythrocytes	n	3
			mean	3.03
			std	0.97
			median	2.51
		Hemoglobin	n	3
			mean	8.57
			std	3.07

```
proc sort data = tab; by param val; run;
options orientation=portrait nobyline;
ODS RTF file = 'C:/home/tab4.rtf';
ods graphics / height=4in;
title1 "Graph displaying mean hemoglobin values for analysis visits";
ods startpage = no;
proc sgplot data=tab;
vbar avisit / response = val ;
RUN;
ODS RTF CLOSE;
```





Conclusion

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- PROC REPORT is a commonly used procedure to display tables and listings
 - It is commonly used along with ODS to create reports in RTF and PDF format
 - ODS RTF has been a very popular method due to its flexibility
 - All the common commands in PROC REPORT do not work with ODS RTF

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- ODS RTF is a very powerful and convenient way of displaying reports
 - The tables, listings, and graphs created in RTF can be viewed in majority of word processors and hence can be used for various purposes
 - Simple changes need to be made at the PROC REPORT by adding options, using escape characters, split character, etc. level to get desired changes to the RTF output
 - The above paper demonstrated five very common and frequently required ODS RTF outputs. These can be required and used singly as well as in combination to match your table to the desired mock shell.

CONTACT INFORMATION

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