

Statistical Analysis Reporting Tool (StART)

From Concept
to
Table Production

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Wow, this
presentation is fast...



Whew, I have
got to tell all of
my colleagues
about this...



Agenda

- The concept of a table**
- The components of a table**
- The layout of a table**
- The features of StART**
- The demonstration of StART**
- The conclusion**

The Concept of a Table



The Concept of a Table

	Treatment		
	Treatment 1	Treatment 2	Placebo
Gender n(%)			
Male	102(40.3)	133(53.2)	133(51.0)
Female	151(59.7)	117(46.8)	128(49.0)

The concept of a table

1. It is an organizing of statistical results into an easy to read display.
2. The statistics can be descriptive such as mean, min, and max or more complex using various statistical models such as ANOVA and Geometric Means.
3. The statistics can be on virtually any kind of data (ex. Adverse Events, Demographics).
4. The data can be any kind of structure. It could be legacy or the more current CDISC structure.

The components of a table

Column
Header

		Treatment			
		Treatment 1	Treatment 2	Placebo	
Row Text	Gender n(%)				Main Body
	Male	102(40.3)	133(53.2)	133(51.0)	
	Female	151(59.7)	117(46.8)	128(49.0)	

The components from a programmers point of view

1. Statistic Variable (ex. SEX)
2. Classifying Variable (ex. ARMCD)
3. Statistics (ex. N, PCT)

Treatment			
	Treatment 1	Treatment 2	Placebo
Gender n(%)			
Male	102(40.3)	133(53.2)	133(51.0)
Female	151(59.7)	117(46.8)	128(49.0)

The layout of a table (type 1)

- Classifying Variable in Column
- Statistic Variable and Statistics in Row

	Treatment		
	Treatment 1	Treatment 2	Placebo
Gender n(%)			
Male	102(40.3)	133(53.2)	133(51.0)
Female	151(59.7)	117(46.8)	128(49.0)

The layout of a table (type 2)

- Classifying Variable and Statistics in Column
- Statistic Variable in Row

	Treatment		
	Treatment 1	Treatment 2	Placebo
	n(%)	n(%)	n(%)
Gender			
Male	102(40.3)	133(53.2)	133(51.0)
Female	151(59.7)	117(46.8)	128(49.0)

The layout of a table (type 3)

- Statistic Variable in Column
- Classifying Variable and Statistics in Row

	Gender	
	Male	Female
Treatment, n(%)		
Treatment 1	102(40.3)	151(59.7)
Treatment 2	133(53.2)	117(46.8)
Placebo	133(51.0)	128(49.0)

The layout of a table (type 4)

- Statistic Variable and Statistics in Column
- Classifying Variable Row

	Gender	
	Male	Female
	n(%)	n(%)
Treatment		
Treatment 1	102(40.3)	151(59.7)
Treatment 2	133(53.2)	117(46.8)
Placebo	133(51.0)	128(49.0)

The layout of a table (type 5)

- Statistics in Column
- Classifying Variable and Statistic Variable in Row

	n(pct)
Treatment 1	
Male	102(40.3)
Female	151(59.7)
Treatment 2	
Male	133(53.2)
Female	117(46.8)
Placebo	
Male	133(51.0)
Female	128(49.0)

The layout of a table (type 6)

- Statistics in Row
- Classifying Variable and Statistic Variable in Column

	Treatment 1		Treatment 2		Placebo	
	Male	Female	Male	Female	Male	Female
n(%)	102(40.3)	151(59.7)	133(53.2)	117(46.8)	133(51.0)	128(49.0)

The layout of a table (type 7)

- Classifying Variable and Statistics Variable in Column
- Classifying Variable and Statistics in Row

	Treatment 1		Treatment 2		Placebo	
	Male	Female	Male	Female	Male	Female
Age Category (years), n(%)						
<18	3(50.0)	3(50.0)	7(100.0)	0	4(66.7)	2(33.3)
18-<65	92(39.0)	144(61.0)	123(51.9)	114(48.1)	127(50.8)	123(49.2)
>=65	7(63.6)	4(36.4)	3(50.0)	3(50.0)	2(40.0)	3(60.0)

The layout of a table (type 8)

- Classifying Variable and Statistic Variable in Row
- Classifying Variable and Statistics in Column

	Age Category (years)		
	<18	18-<65	>=65
	n(%)	n(%)	n(%)
Treatment 1			
Male	3(50.0)	92(39.0)	7(63.6)
Female	3(50.0)	144(61.0)	4(36.4)
Treatment 2			
Male	7(100.0)	123(51.9)	3(50.0)
Female	0	114(48.1)	3(50.0)
Placebo			
Male	4(66.7)	127(50.8)	2(40.0)
Female	2(33.3)	123(49.2)	3(60.0)

The features of StART

- StART is a program that is:
 1. written entirely with SAS.
 2. stored as compiled macro code.
 3. data independent.
 4. free form.
 5. scalable.

The internal features of StART

- StART consist of 3 primary modules:

1. PARSER- evaluates input from user and passes that information to the 2 modules down stream.
2. GENSTATS- performs the statistics as requested by the user.
3. GENRPT- produces the display as defined by the user.

The demonstration of StART

- The minimum requirements for a table:

1. must have one statistic variable
2. must have one statistic.

	n
Gender	
Male	368
Female	396

```
%start(data=dem,  
        row =statvar sexn ,  
        col =stats n)
```

The demonstration of StART

The typical table containing one stat variable, one classifying variable and a set of statistics:

	Treatment		
	Treatment 1	Treatment 2	Placebo
Gender, n(%)			
Male	102(40.3)	133(53.2)	133(51.0)
Female	151(59.7)	117(46.8)	128(49.0)

```
%start(data=dem,
        col =classvar armcd,
        row =statvar sexn * stats n(pct) # denom=armcd)
```

The demonstration of StART

A table containing one categorical and one continuous stat variable.

	Treatment		
	Treatment 1	Treatment 2	Placebo
Age (years)			
Nobs	253	250	261
Mean(STD)	39.1(13.4)	39.8(12.8)	39.8(12.5)
Median	39.0	40.0	39.0
Min-Max	16.0-80.0	16.0-73.0	16.0-77.0
Age Category (years), n(%)			
<18	6(2.4)	7(2.8)	6(2.3)
18-<65	236(93.3)	237(94.8)	250(95.8)
>=65	11(4.3)	6(2.4)	5(1.9)

```
%start(data=dem,
        col  =classvar armcd ,
        row  =statvar age      * stats nobs mean(std) median min-max |
        statvar agegr1n * stats n(pct) # denom=armcd)
```

The demonstration of StART

A table showing the flexibility of StART. The COL and ROW definitions are reversed from the previous table.

					Age Category (years)		
Age (years)					<18	18-<65	>=65
	Nobs	Mean(STD)	Median	Min-Max	n(%)	n(%)	n(%)
Treatment							
Treatment 1	253	39.1(13.4)	39.0	16.0-80.0	6(2.4)	236(93.3)	11(4.3)
Treatment 2	250	39.8(12.8)	40.0	16.0-73.0	7(2.8)	237(94.8)	6(2.4)
Placebo	261	39.8(12.5)	39.0	16.0-77.0	6(2.3)	250(95.8)	5(1.9)

```
%start(data=dem,
        row =classvar armcd ,
        col =statvar age      * stats nobs mean(std) median min-max |
        statvar agegr1n * stats n(pct) # denom=armcd)
```

The conclusion

- | The concept of a table is simply the results of statistics performed on data and presented in an easy to read format.
- | The layout of a table is defined by what appears in the columns and rows.
- | StART takes advantage of the concept and components of a table by enabling users to define the columns and rows.
- | By defining the columns and rows via the COL and ROW parameters users can perform a wide variety of statistics and display the results in virtually any layout desired.

Questions?

Thanks!