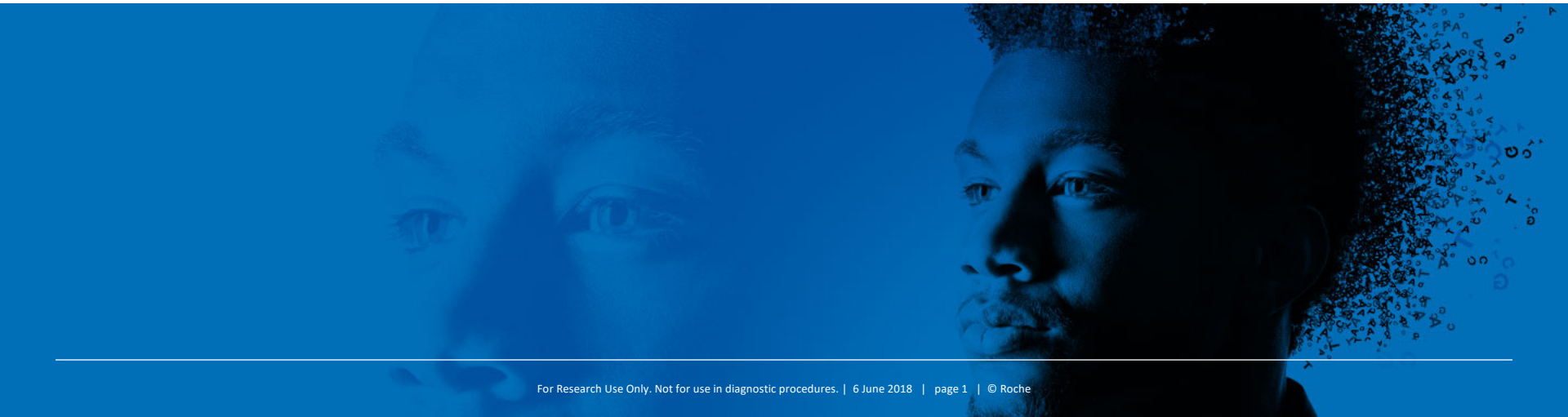


A Picture is Worth a Thousand Words; Analyzing Clinical Data with Sequencing Data

Nalin Tikoo

Roche Sequencing Solutions

June 4, 2018



A vertical timeline on the left side of the slide, consisting of four white circles connected by a vertical dashed line. The top circle is filled, while the others are hollow.

Precision Medicine

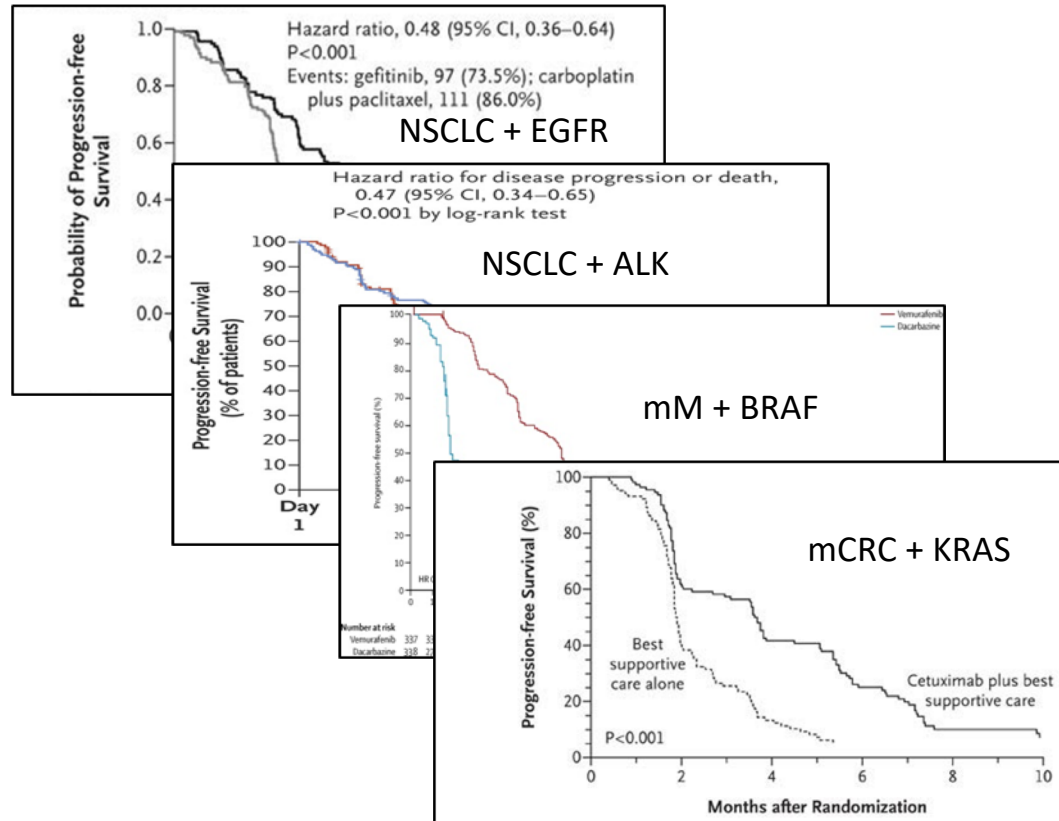
Data Flow

Visualizations

Q&A

What is Precision Medicine?

Patients need the best therapeutic option at the right time



Mok TS et al. *N Engl J Med* 2009;361:947-957.

Peters S et al. *N Engl J Med* 2017;377:829-838.

The Lancet Oncology 2014 15, 323-332 DOI: (10.1016/S1470-2045(14)70012-9)

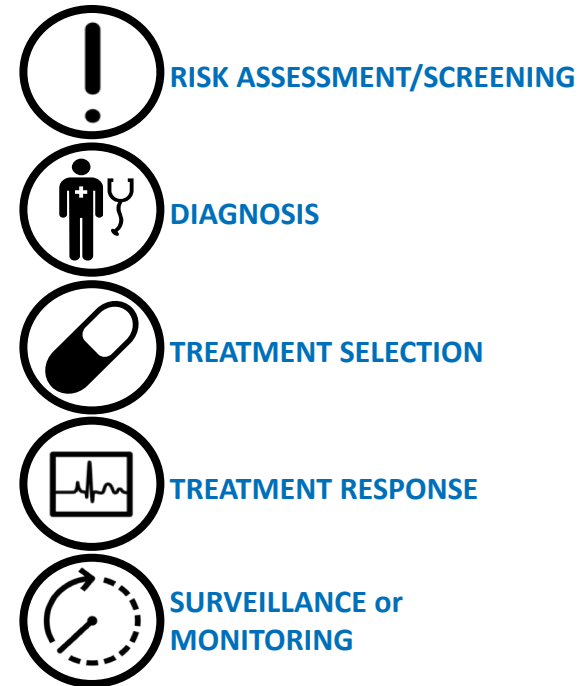
Karapetis CS et al. *N Engl J Med* 2008;359:1757-1765.

What is Precision Medicine?

NGS Clinical Applications



MET PDGFR **InDels** *EGFR*
CNVs *EGFR KRAS*
EGFR ERBB2 **SNVs** *BRAF*
NRAS BRCA1/2
BCR-ABL **Fusions** *ALK*
NTRK2/3 RET ROS NTRK1
MSI TMB



Genetic research and testing is a gateway to realize the promise of precision

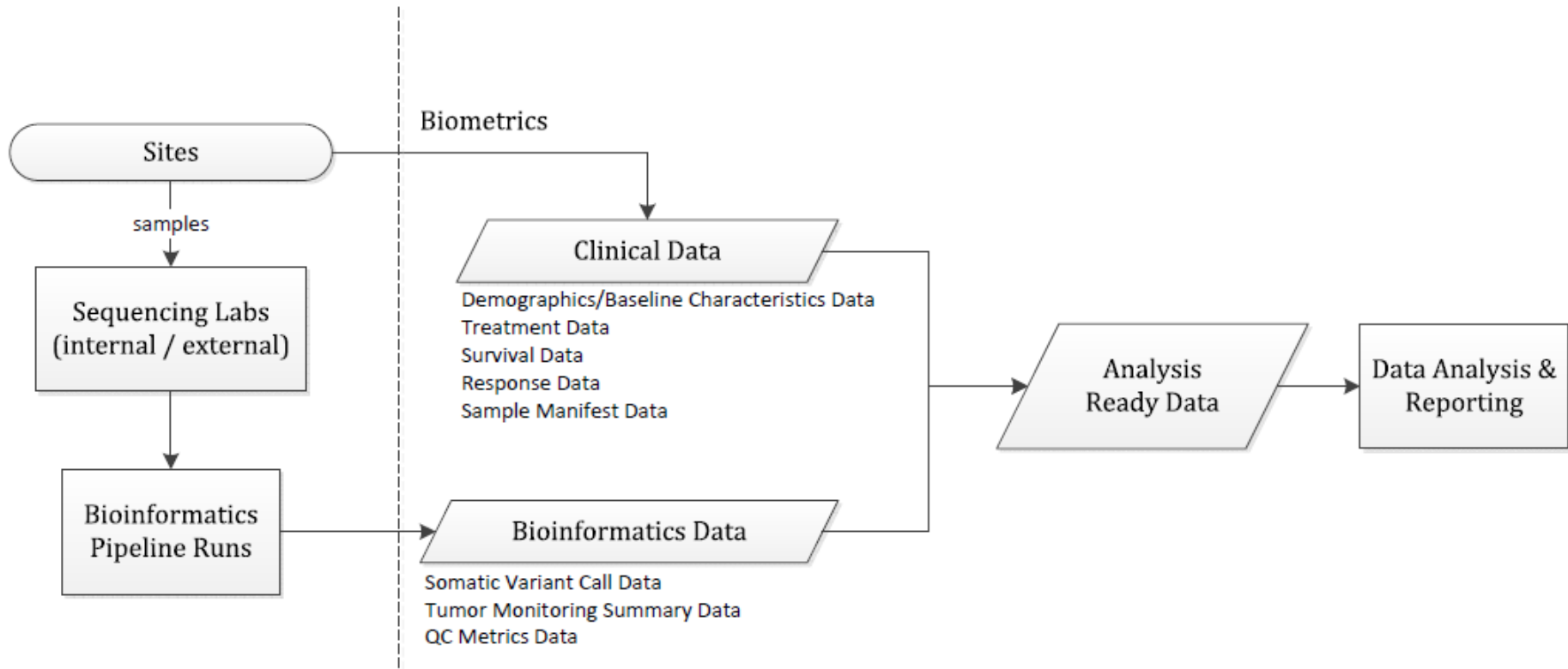
Agenda



- *Precision Medicine*
- ***Data Flow***
- *Visualizations*
- *Q&A*

Data Flow

A Day in the life of a Biometrician...

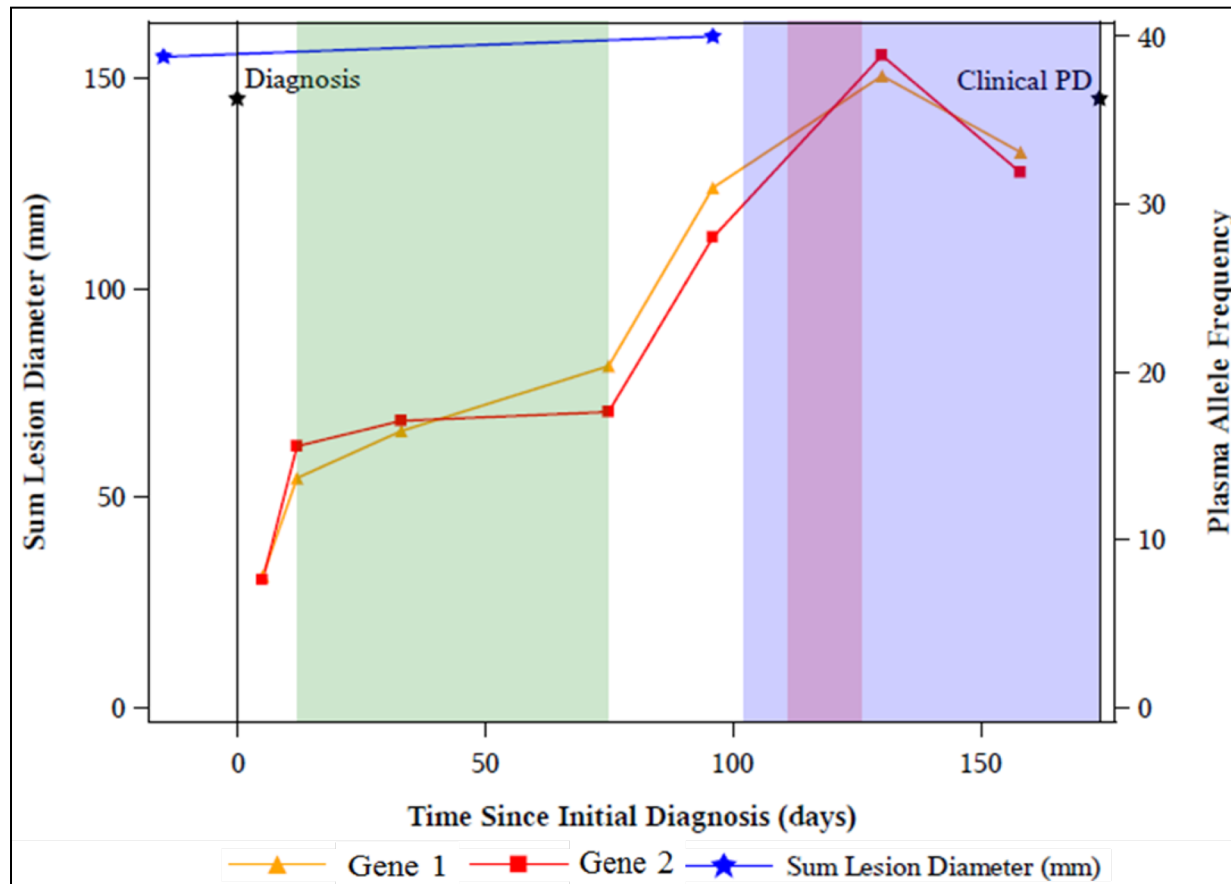


Agenda



- *Precision Medicine*
- *Data Flow*
- ***Visualizations***
- *Q&A*

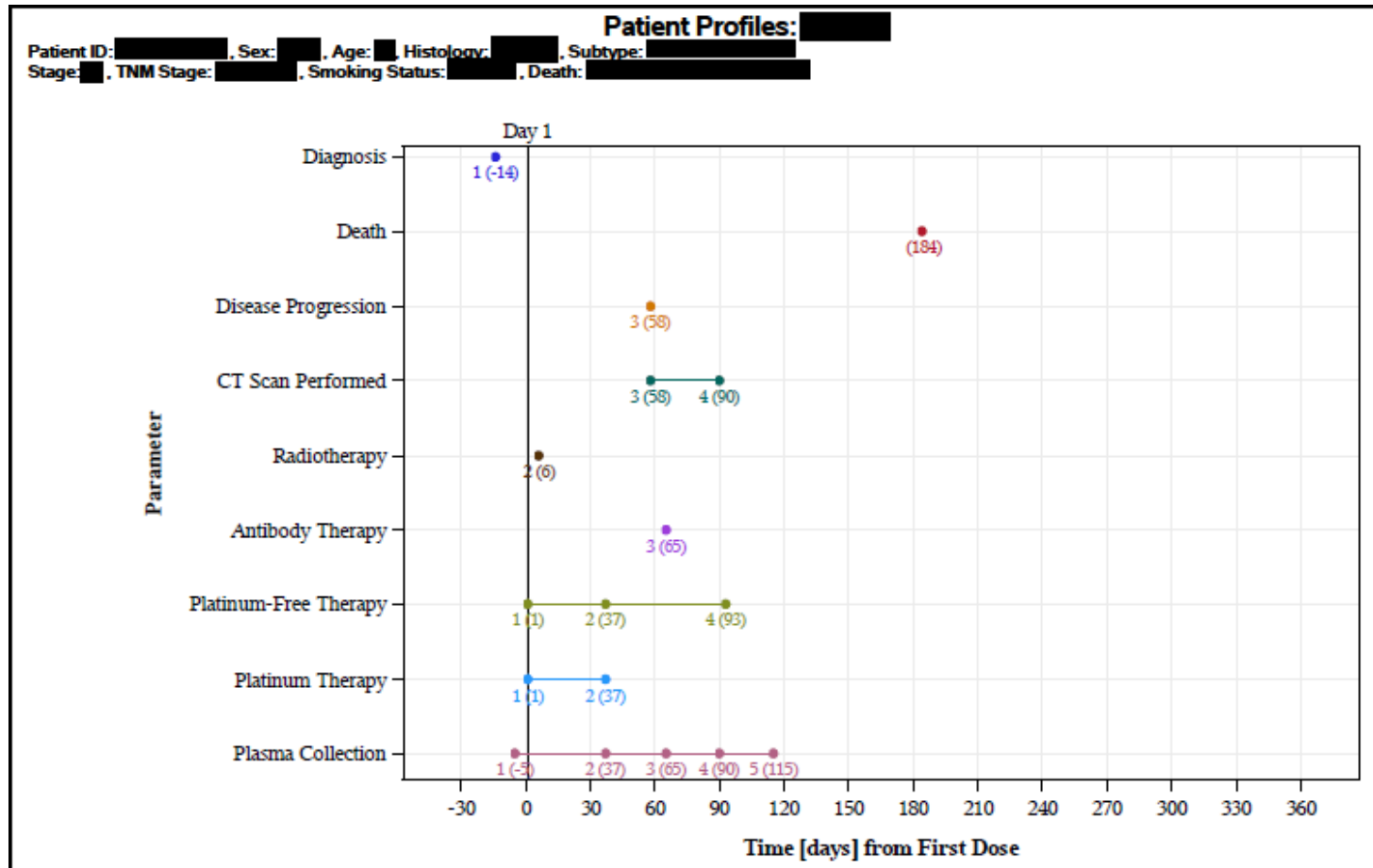
Patient Profiles: Disease Monitoring



Code Highlights:

- Vertical Reference Lines – *scatter* & *refline* statements
- Treatment Bands – *band* statement

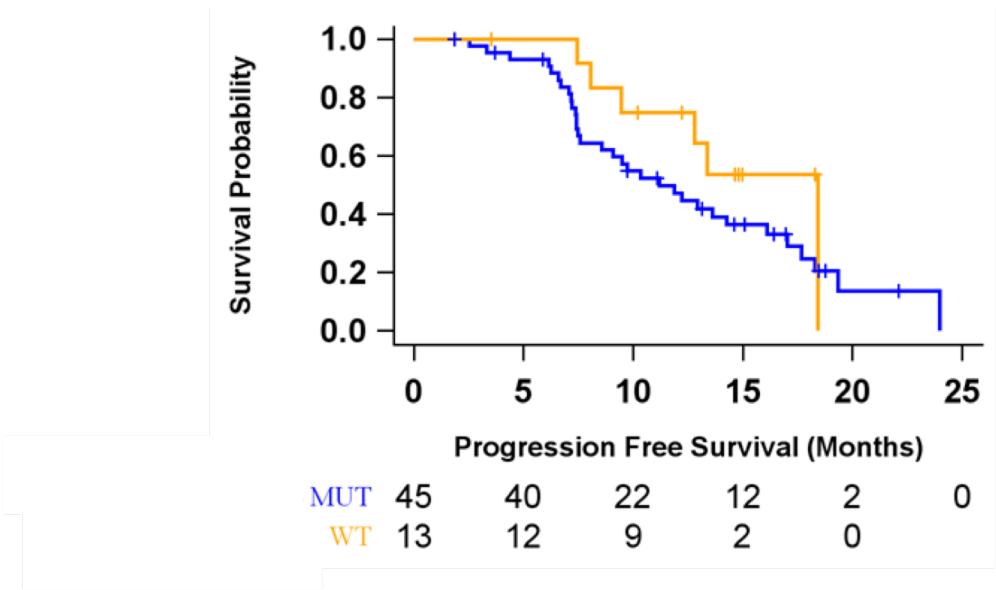
Patient Profiles: Data Review



Code Highlights:

- Data point annotations – *datalabel* and *datalabelpos* options in *scatter* statement

Survival Analysis on a Slide



	Gene 1 MUT vs WT	
Description	Gene 1 - MUT	Gene 1 - WT
Number of Patients	xx	xx
Hazard Ratio & 95% CI (Relative to Strata B)	x.xxx (x.xxx, x.xxx)	
Log-Rank p-Value (Across Strata)		x.xxxx

Code Highlights:

- Customizing the curves
 - SAS® macros

```
*** Custom Line Pattern & Colors ***;
%let GraphOpts = attrpriority=none DataContrastColors=(blue orange grey green)
                  DataLinePatterns=(solid)
                  DataColors=(blue orange grey green);

*** Custom Fonts ***;
%let yOptions = label="Survival Probability" shortlabel="Survival" labelattrs=(size=
                  tickvalueattrs=(size=12pt weight=bold f
                  linearopts=(viewmin=0 viewmax=1);
%let xOptions = shortlabel=XNAME offsetmin=.05 linearopts=(viewmax=MAXTIME tickvalue
                  labelattrs=(size=10pt weight=bold fam
                  tickvalueattrs=(size=12pt weight=bold

*** At Risk Table Numbers Color Size & Font Family ***;
%let AtRiskOpts = valueattrs=(size=12pt color=black family='Arial');

*** p-value table location ***;
%let InsetOpts = ;

*** Group Legend location ***;
%let LegendOpts = ;

*** Step Curve Thickness ***;
%let StepOpts = lineattrs=(thickness=2);
```

Code Highlights:

- Putting it all together

```
options nodate nonumber orientation=landscape;
ods powerpoint file="xx\xx\xx\xx.pptx" nogtitle
                                nogfootnote
                                style=rsspptstyle
                                dpi=300;
ods graphics on / noborder width=3.5in height=2.5in;

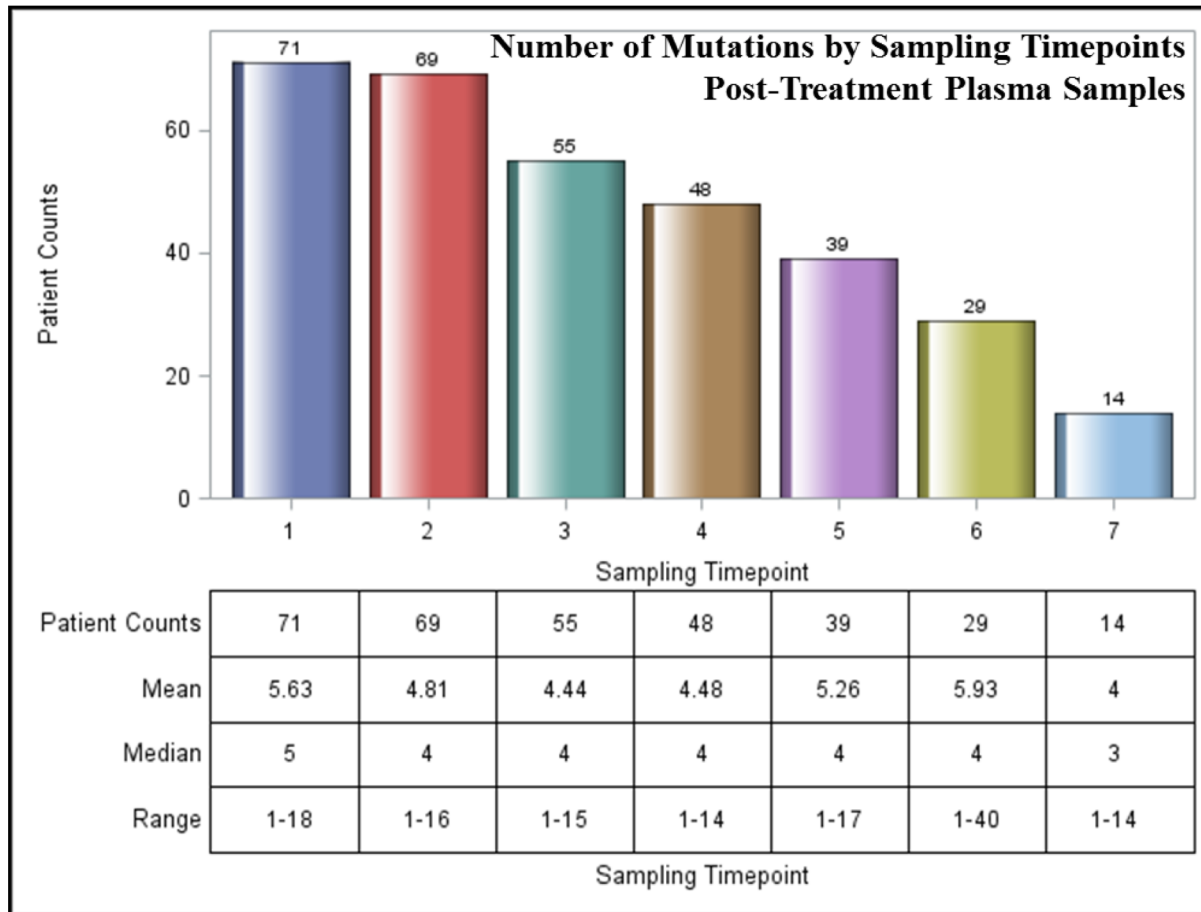
ods layout gridded rows=2 row_gutter=5pct; 1a
ods region;                                1b
*** K-M Curve Code ***;
ods region;                                1c
*** Survival Statistics Table Code ***;
ods layout end;                             1d

data _null_;
  dcl odsout obj(); 2
run;

ods layout gridded rows=2 row_gutter=5pct;
ods region;
*** K-M Curve Code ***;
ods region;
*** Survival Statistics Table Code ***;
ods layout end; 3

ods powerpoint close;
```

Bar Charts with Summary Table



Code Highlights:

- Organizing the graph & the table - lattice layout
- Bar-chart at the top – *barchart* statement
- Table at the bottom – *blockplot* statement

Study Visualization

About

Tab 1

Tab 2

Tab 3

Tab 4

Tab 5

Tab 6

Tab 7

Tab 8

Show 10 entries

Search:

Tab Number

Labels

Tab1

Subject Disposition

Tab2

Subject Data List

Tab3

Tissue and Pre-Plasma Concordant Variants Tracked Over Time in Post-Plasma Samples (By-Patient Plots)

Tab4

Pre-Plasma Variants NOT reported in Tissue Samples Tracked Over Time in Post-Plasma Samples (By-Patient Plots)

Tab5

Plasma Variants Tracked Over Time Showing Presence/Absence in Pre-Tissue Samples (By-Patient Plots)

Tab6

Plasma AF Over Time with Corresponding Pre-Treatment Tissue Data Tabulation (By-Patient Plots)

Tab7

Patient Counts (By-Gene Plots & By-Variant Tabulations)

Tab8

Subject Plots (Based on Gene and Variant Selection)

Showing 1 to 8 of 8 entries

Previous

1

Next

Agenda



- 
- A vertical line with four circles. The top three circles are white with blue outlines, and the bottom circle is solid blue.
- Precision Medicine*
 - Data Flow*
 - Visualizations*
 - Q&A**

Acknowledgements



Saarthak Misri

John J. Lee

John Jiang

Patrik Vitazka

Max Ma

Stephanie Yaung

Alex Lovejoy

Dan Klass

John F. Palma



Doing now what patients need next