



BeiGene

Spotfire Implementation on Medical Data Review

Nov 01, 2019

Amanda Yi

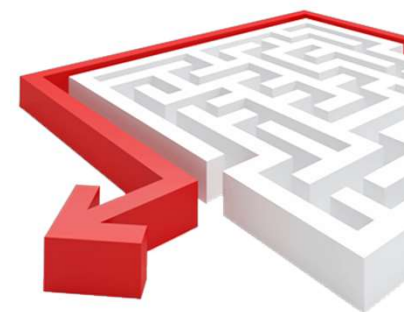
Sr. Manager, Stats Programming

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Agenda

Nov 01, 2019

- ❑ Experience of Medical Data Review in BeiGene
- ❑ Consideration on Data Visualization Design
- ❑ Future Opportunities



Background



- Multiple resources available but still time consuming
- SAS output of standardized listing in PDF format – Patient Profile
- Excel Listings with redundant and irrelevant information
- Looking for aggregate patterns across all patients or subsets (safety, efficacy or biomarkers)
- Trying to understand the story of an individual patient as they go through the study

Inefficiency:

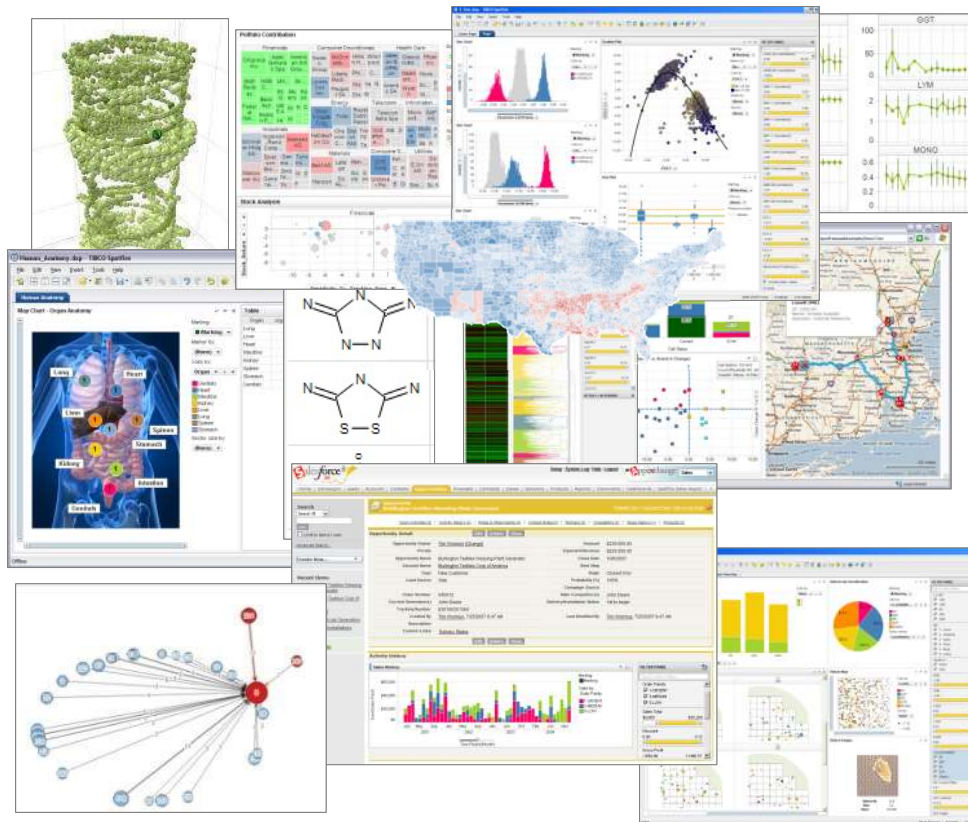
- High demand on time and resources
- Less effective
- Doesn't take advantage of existing technology



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Spotfire Implementation Tibco->PerkinElmer (LifeSciences)

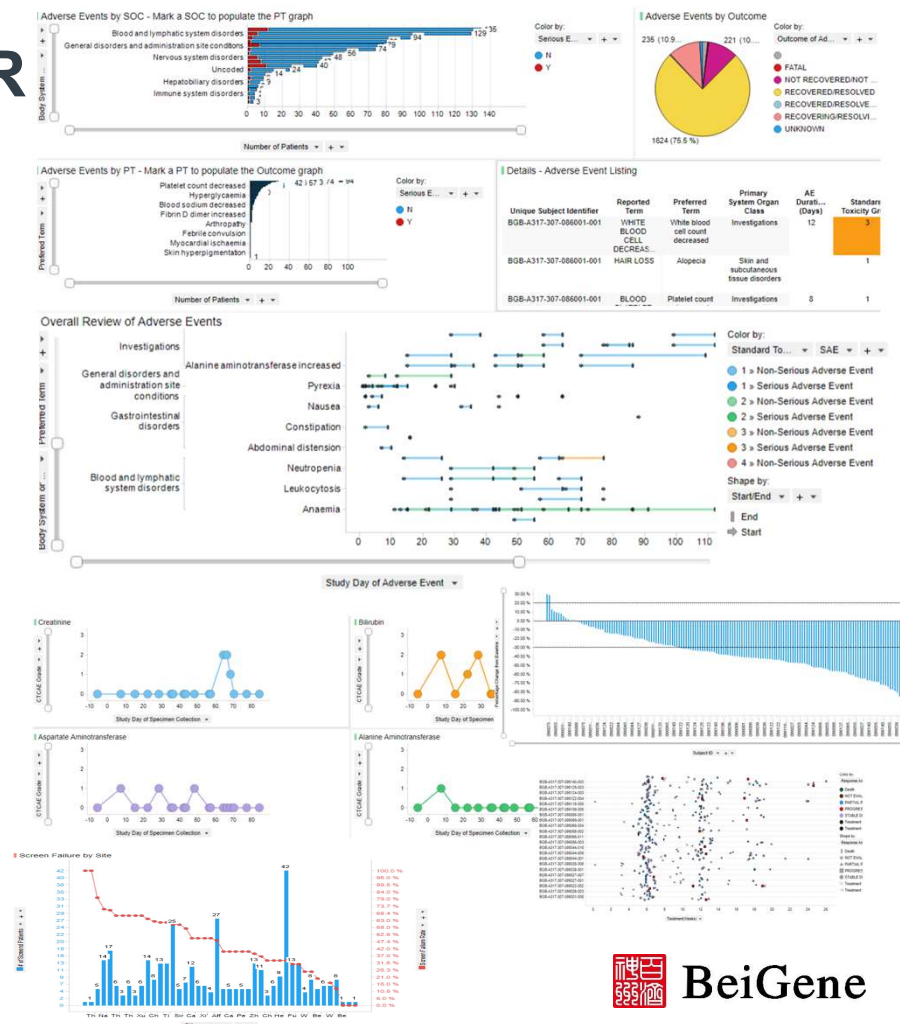
Visualizations, Dashboards, Predictive Applications



- **Pharmaceutical**
 - Target and Biomarker Discovery
 - Lead Discovery and Optimization
 - Clinical Trials Analysis
 - Pharmacovigilance
 - Sales and Marketing
- **Financial Services**
 - Portfolio Management
 - Risk Analytics
 - Regulatory Compliance
- **Energy**
 - Exploration
 - Business Planning
 - Field Development
 - Production
- **Manufacturing**
 - Yield defect analysis
 - Process engineering
 - Supply Chain
 - Quality and warranty
- **HR**
 - Compensation Analysis
 - Headcount/Turnover
 - Insurance Claims
- **Consumer Goods**
 - Market Analysis
 - Sales for Effectiveness
 - Campaign and Promotion Analysis
 - Product Research and Development
- **Intelligence**
 - Email analysis
 - News analysis
 - Network analysis

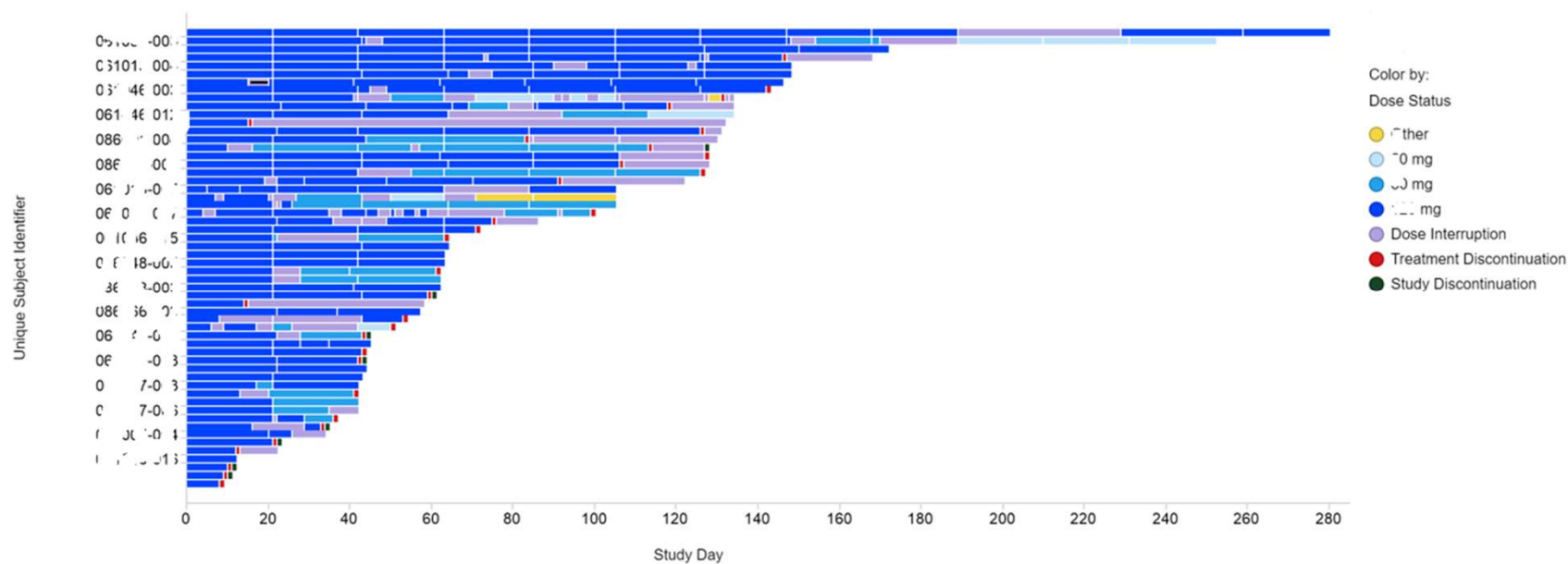
Spotfire Implementation on MDR

- Demographics
- Adverse Events
- Laboratories
- Treatment Status
- Study Disposition
- Death Summary
- Tumor Response (Waterfall & Spider)
- Medical History
- Concomitant Medication
- Prior Anti-Cancer Therapy
- Patient Profile
- Hy's Law
- ...



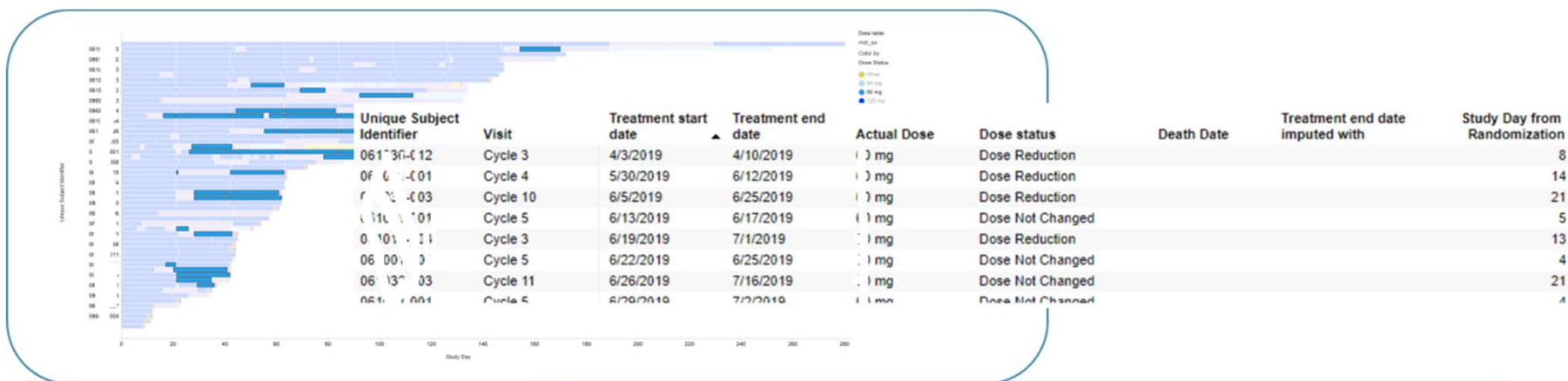
Case 1: Understand Drug Tolerability

Looking for dose interruption and dose reduction



Case 1: Understand Drug Tolerability

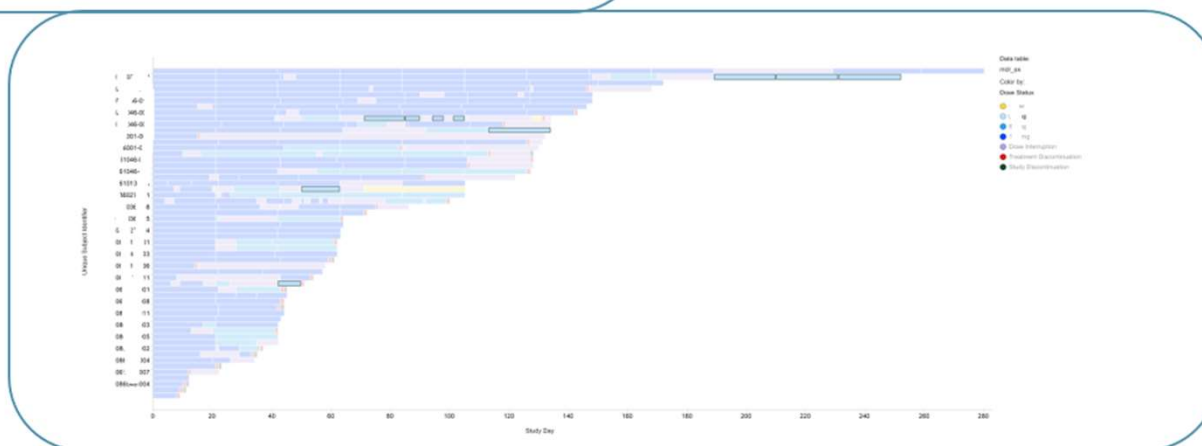
Looking for dose interruption and dose reduction



high dose level



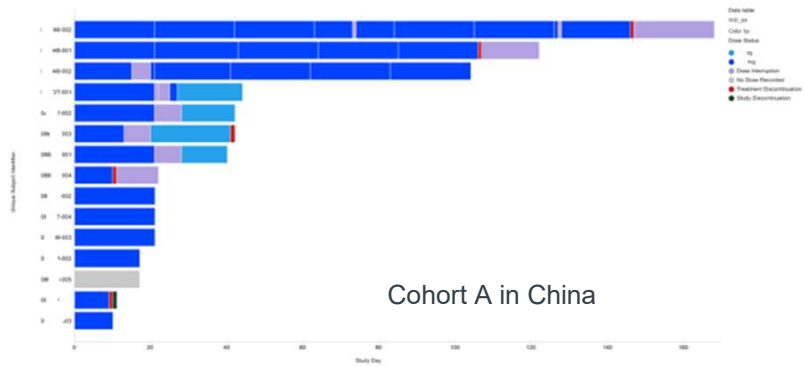
low dose level



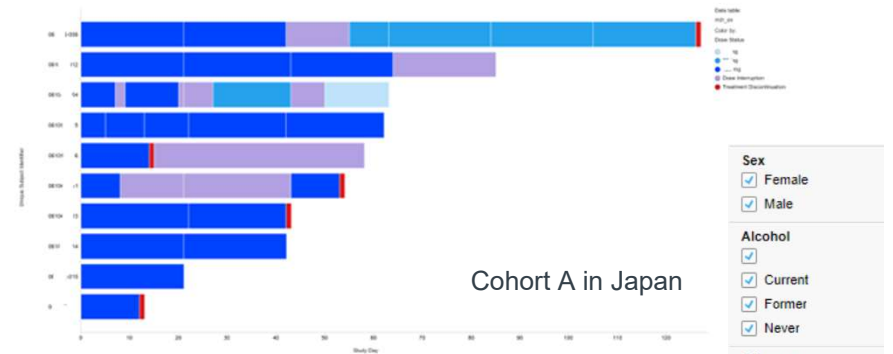
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Case 1: Understand Drug Tolerability

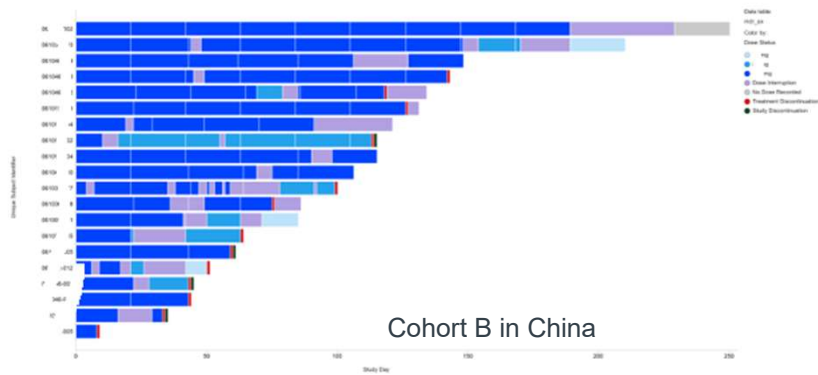
Quickly show the difference among subgroups



Cohort A in China



Cohort A in Japan



Cohort B in China

Feedback from medical user:

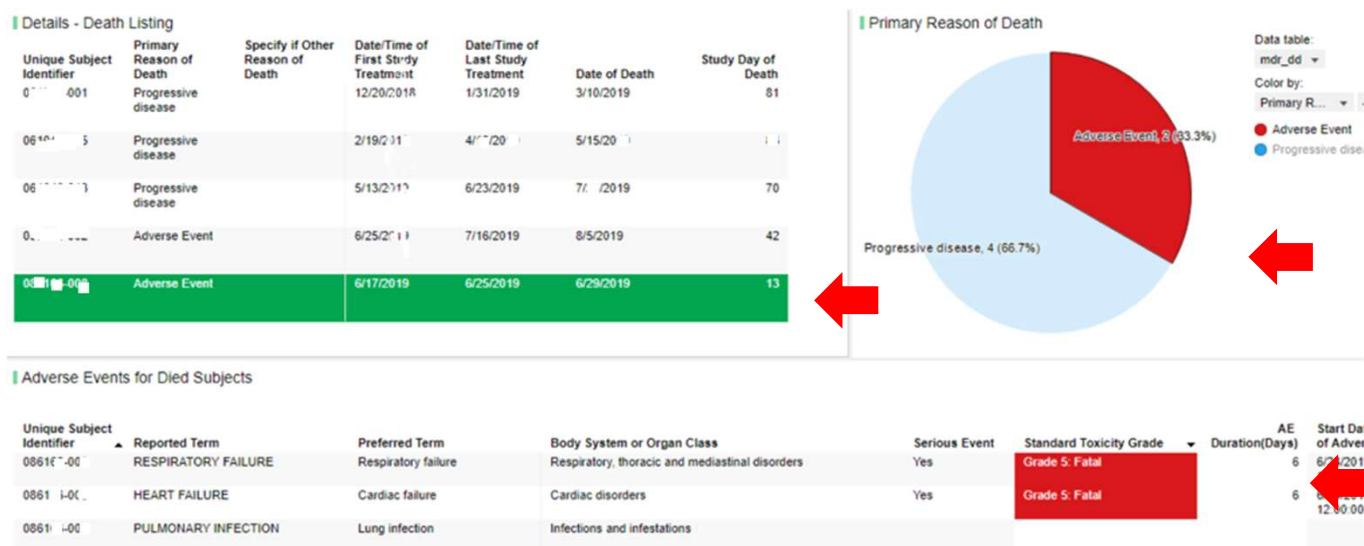
Flexible, simple and convenient to compare different cohorts/countries

Case 2: Understand Fatal AE and Early Death

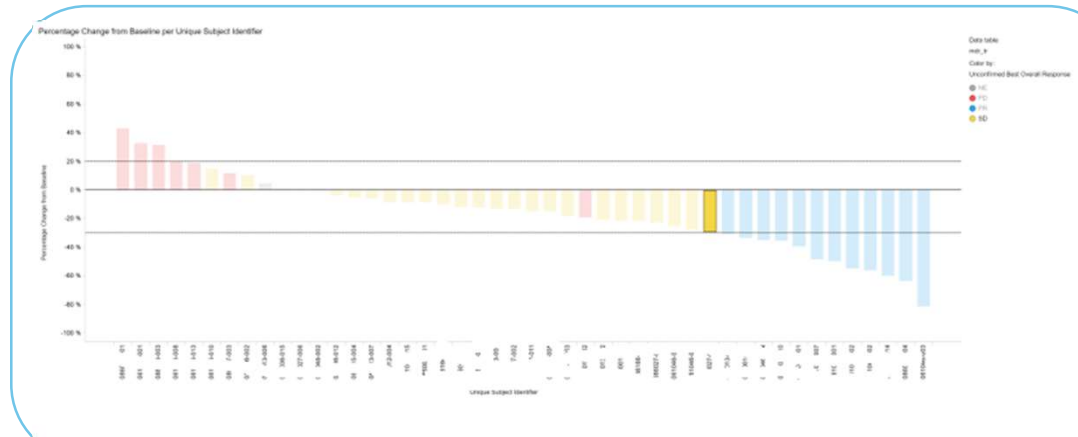
Straightforward key information among mountains of data with simple design

Feedback from Medical Users:

1. Simplified details only keeps the key information
2. Easy to read
3. Making the review stepwise
4. Potentially time saving
5. Once the cases were selected, all related tabs will only show the selected patient data
6. No worry to choose the wrong information
7. If you find something odd, easy to find the data field in EDC

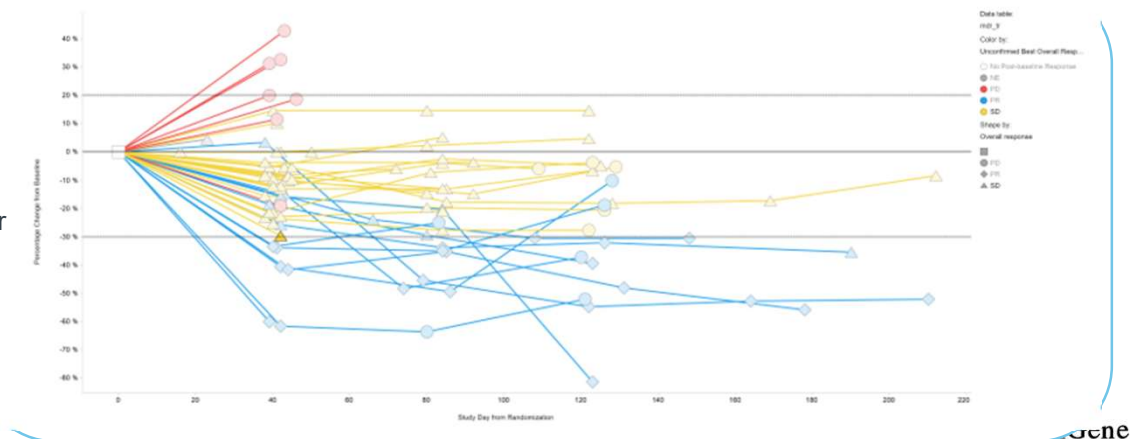


Case 3: Understand Efficacy Data

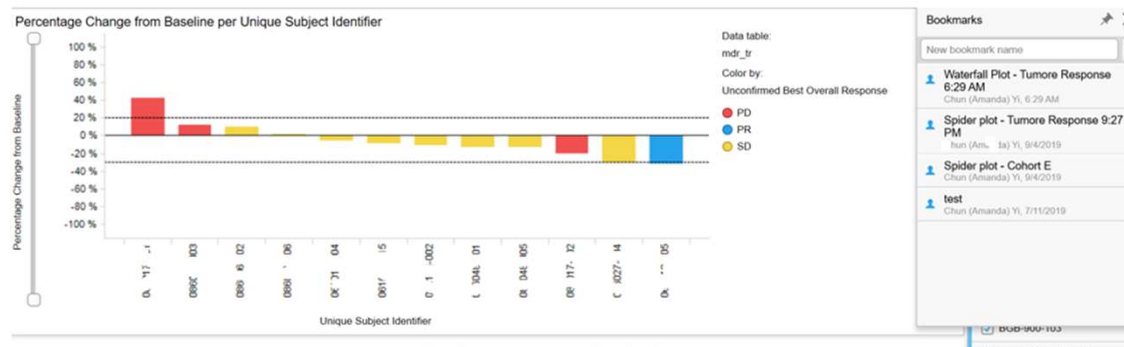


Feedback from medical user:

1. Easy to check against investigator judgement;
2. Convenient and flexible to download subgroup results for presentation.



More Functionality: Bookmark

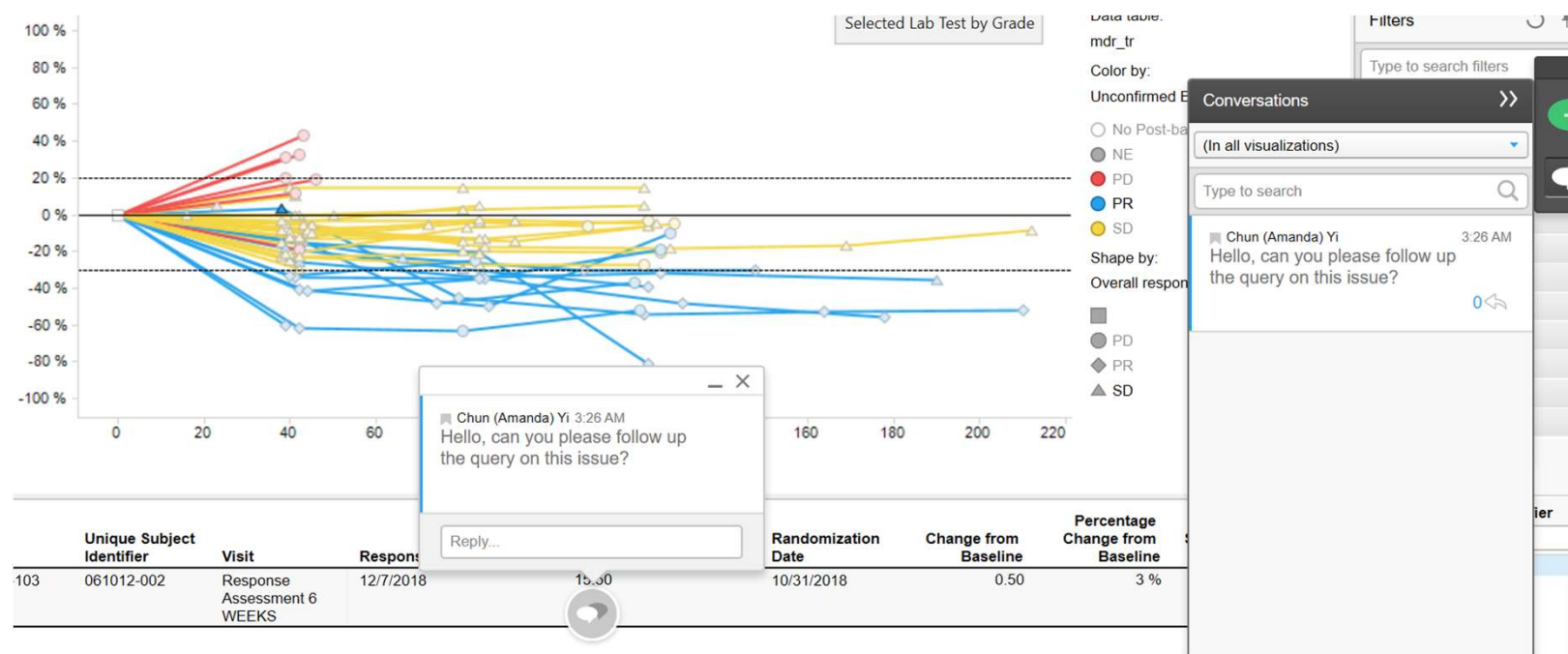


Bookmarks

New bookmark name

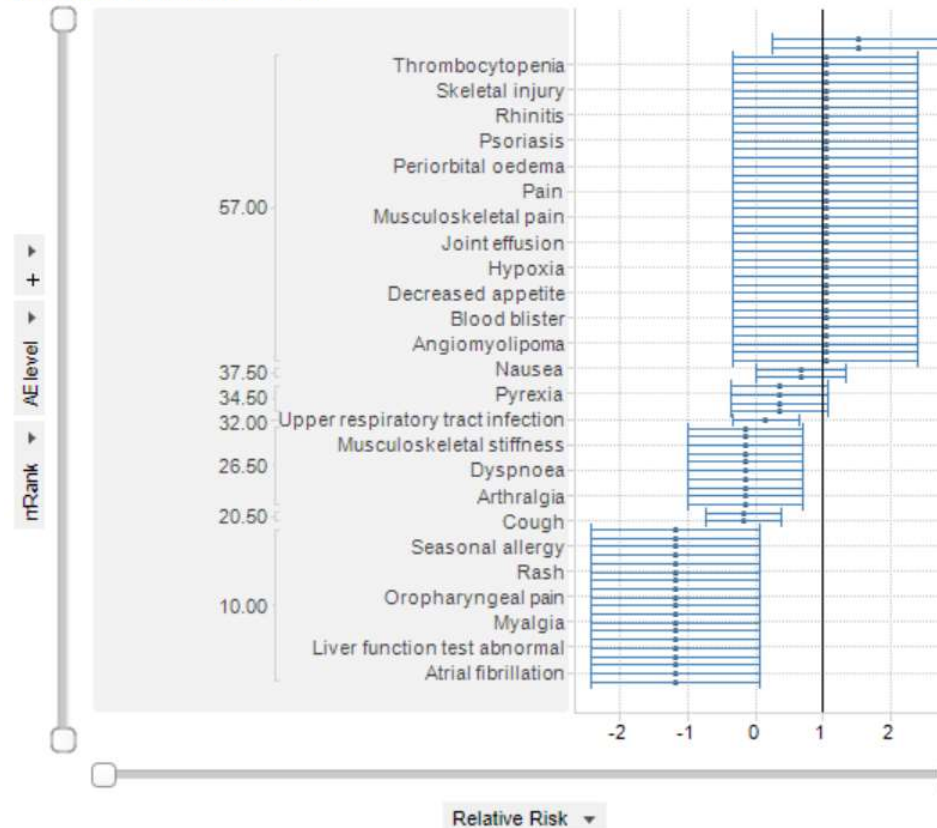
- Waterfall Plot - Tumore Response 6:29 AM
Chun (Amanda) Yi, 6/29/2019
- Spider plot - Tumore Response 9:27 PM
Chun (Amanda) Yi, 9/4/2019
- Spider plot - Cohort E
Chun (Amanda) Yi, 9/4/2019
- test
Chun (Amanda) Yi, 7/11/2019

More Functionality: Collaboration



More Functionality: Leverage other analytic tools

Relative Risk with 95% CI



Edit Script

Name:	[TERR] RR Plot
Type:	R script - TIBCO Enterprise Runtime for R
Packages (separated by semicolons):	
Description:	
☒ Allow caching	
Script	Input Parameters Output Parameters
<pre> 20 # read input columns 21 22 usubjid <-ds\$"Unique Subject Identifier" 23 treatment<-ds\$"Planned Arm Code" 24 25 26 sdaeg004aedotplot<-function(usubjid,aeterm,treatment,control="",compare="",continuitycorrect 27 { 28 29 # start. 30 dummy<-data.frame(AElevel=c("Insufficient Data"),treatment=c("Insufficient Data"),rrRank=c 31 32 33 if (length(usubjid)==0) 34 { 35 return(dummy) 36 } </pre>	

Tips for Design

- ✓ **Understand the business need before start your work**
- ✓ **Keep simple** – only have what is necessary for users
- ✓ Label and format in visualization axis
- ✓ Use colors and shapes consistently
- ✓ Position panels, layout and filters
- ✓ Avoid large amount of text
- ✓ Do not abuse of scrollbars
- ✓ Use Marking and 'empty visualization' correctly
- ✓ Use predefined action controls in text areas



Future Opportunity

	User	Need	Objective
	Study Mgr	<i>Milestones, Enrolment, Budget Resource Forecasting</i>	<i>Trial Management /RBM</i>
	DMPK	<i>Ideal Dosing parameters</i>	<i>Detailed Understanding of response</i>
	CRA	<i>Site Issues Detection, Monitoring Protocol Adherence</i>	<i>Risk Based Monitoring</i>
Find Business Case & Sharpen Your Skill			
			
	Epidemiologist	<i>Visualization of Big Data</i>	<i>Outcomes to treatment</i>
	Medical Monitor/ Safety Officer	<i>Patient Data Visualization Data Cross-Referencing</i>	<i>Signal Detection Risk Minimization</i>
	PI / Clinician	<i>Patient Data Visualization Data Cross-Referencing</i>	<i>Clinical Results Risk Minimization</i>
	Translational Scientist	<i>Multivariate Visualization of Omics data</i>	<i>Patient Stratification based on Genomics</i>



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Thank You

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