

# Single Day Event

## Visual Analytics for Real-Time Study Monitoring

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# Disclaimer

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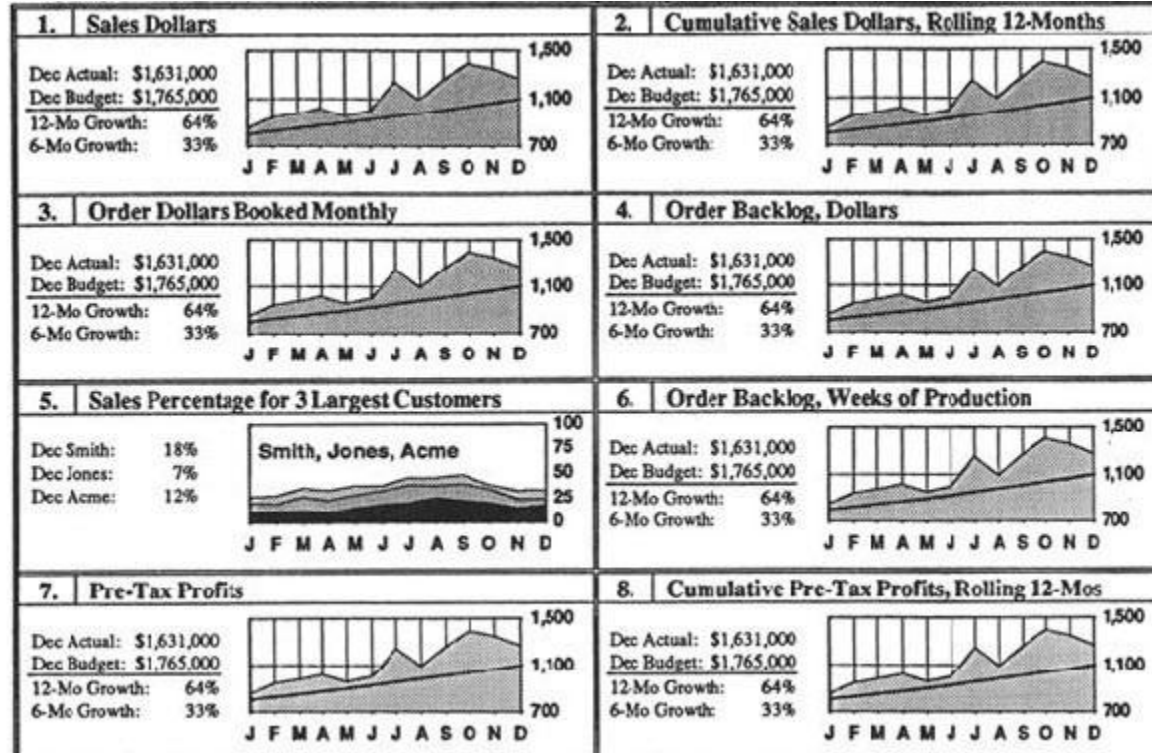
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- The First Digital Data Dashboard
- Importance of Modern Dashboards
- What Happens Without a Modern Dashboard?
- Principles of Effective Dashboard Design
- Real-Time Dashboards
- Subject-Level Tracking
- Integrated Data Sources
- Purpose-Built Statistical Graphics and Plots
- Benefits of Xbiom over traditional BI Tools
- References

# The First Digital Data Dashboard





# Importance of Modern Dashboards



Reduce analysis  
paralysis



Let the eyes do  
the work 🧐



A picture is worth  
a thousand  
words... or a  
thousand Excel  
cells! 😊



Enables better  
storytelling



Faster  
Conclusions,  
Smarter  
Decisions



# Flying Blind: What Happens Without a Modern Dashboard?

## ✗ Challenges Without Modern Dashboards / Generic BI Tools

- No Central Dashboard
- Difficult Data Integration
- Too Many Stakeholders Involved
- Manual Standardization Required
- Delayed Insights
- Version Control Chaos
- Error-Prone Processes

## ✓ Advantages of Modern Dashboards in Study Monitoring

- Real-Time Visibility
- Integrated Data Sources
- Faster Decision-Making
- Reduced Manual Work
- Improved Collaboration
- Early Risk Detection
- Audit Trail & Traceability
- Customizable Views



# Principles of Effective Dashboard Design



## Simplicity and Clarity

Reduce clutter to focus user attention on key insights essential for decisions.



## Visual Hierarchy

Use layout and size to guide users naturally through important data points.



## Color Palette

Leverage color strategically to differentiate, highlight, and convey status or severity.



## Data Density

Balance comprehensive data display with readability to avoid overwhelming users.



## Interactivity

Enable drill-downs and filters for users to explore data nuances effectively.



# PointCross Xbiom™

**Xbiom platform is designed for data integration, standardization & visualization of the Trial data. Xbiom's visualization tool enables rapid development of customizable dashboards to drive real-time study oversight.**

- **Real-Time Dashboards**

Automatically ingest and visualize clinical data as it's updated.

- **Subject-Level Tracking**

Drill-down views for patient-level trends: AEs, visit adherence, dosing, labs, etc.

- **Integrated Data Sources**

Integrated Data Sources.

- **Purpose-Built Statistical Graphics and Plots**

Ready-to-use visuals such as:

Kaplan-Meier plots

Boxplots and histograms for lab trends

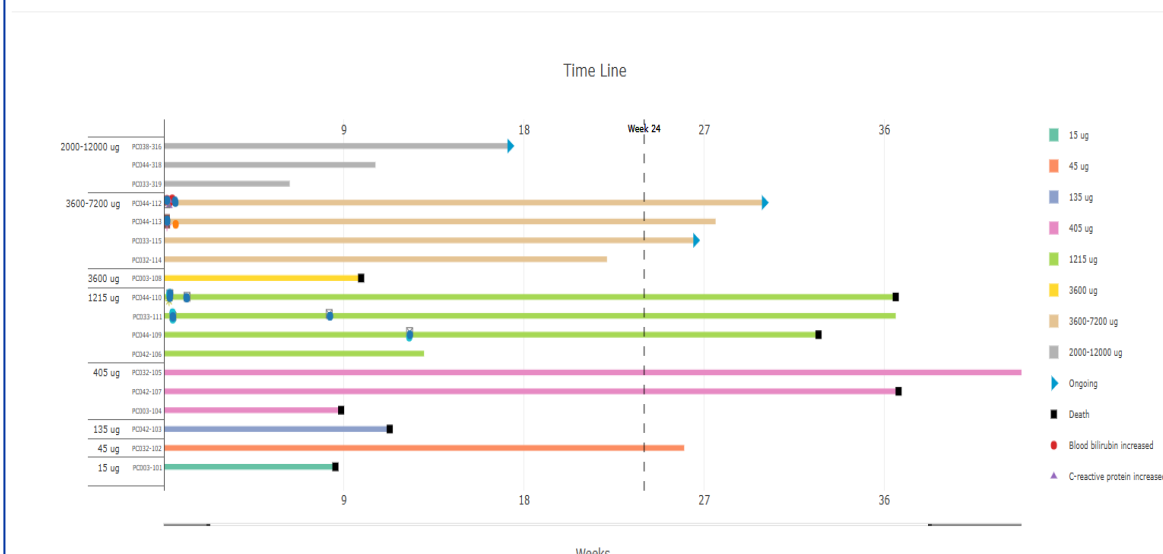
Heatmaps for AE severity across treatment arms



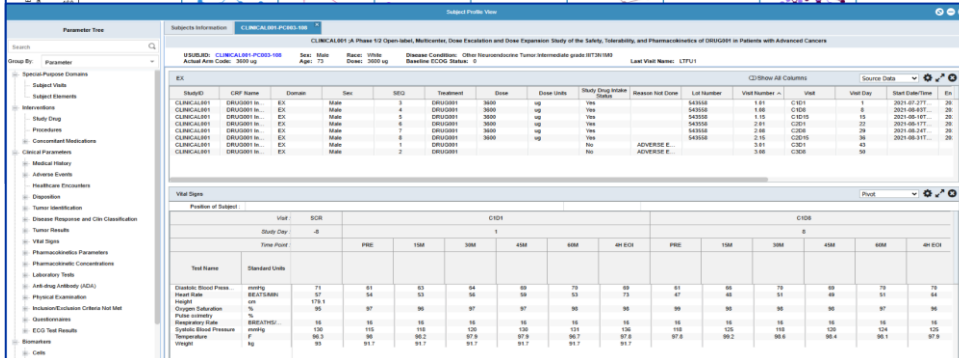


# Real-Time Dashboards

CLINICAL001 : A Phase 1/2 Open-label, Multicenter, Dose Escalation and Dose Expansion Study of the Safety, Tolerability, and Pharmacokinetics of DRUG001 in Patients with Advanced Cancers



Real time overview of the progress of the trial with respect to time, patient enrolled per cohort/site, along with the important endpoints/events displayed on the timeline.





# Integrated Data Sources

Home

Cohort

TFL (ACTARMCD)

Cohort

Add Study

Data

Source Data

Add Columns

Run R-Script

Load Template

Templates

TFL

Save TFL

Open TFL

Export

Parameters

Advanced Data Filter

Options

Visit:

All

Subjects:

CLINICAL001-PC033-111 X

CLINICAL001-PC033-115 X

CLINICAL001-PC032-114 X

CLINICAL001-PC032-105 X

Combine Sex: ☒

Exclude Normal: ☒

Consider Exclusions: ☒ (264)

Table

Figures

R Templates

Code

```
42 '''[r url_data, warning= FALSE,error = FALSE,include=FALSE]
43
44
45 if (any(names(IGOConfig) %in% c('interventionurl'))){
46   if(IGOConfig$interventionurl!=''){
47     ids<-1
48     subj_list <- unique(df$SUBJID)
49     for (sub_id in subj_list){
50       if(ids==1){
51         sub_list<- paste0('%20and%20(USUBJID%20eq%20%27',sub_id,'%27')
52         ids<-ids+1
53       }else{
54         sub_list<- paste0(sub_list,'%20or%20USUBJID%20eq%20%27',sub_id,'%27')
55       }
56     }
57     sub_list<- paste0(sub_list,')')
58     json_file<-paste0(IGOConfig$interventionurl)
59     #print(json_file)
60     json_file <- gsub('%20and%20CAT_ID%20eq%20-1018843','%20',json_file)
61     json_file <- gsub('%20and%20CAT_ID%20eq%20-1018855%20and%20ECOC_ID%20eq%20-1018859','%20',json_file)
62     json_file <- gsub('%20and%20CAT_ID%20eq%20-1018888%20and%20ECOC_ID%20eq%20-1018922','%20',json_file)
63     #print(json_file)
64     #json_file<-paste0(IGOConfig$serverurl)
65     #json_file<- paste0(json_file,"Interventions?select=DOMAIN,STUDYID,USUBJID,SEX,ACTARMCD,INDC,TRT,CAT,DOSE,dosy,dy,STDY,STDTC,
66
67     json_file<-gsub('STUDYID',paste0('COVAL',' ', 'STDTC',' ', 'ENDTC',' ', "DOSU"," ", "DOSEFLG"," ", "REASND,ROUTE,VISIT,S_CLAS"), js
68     #json_file<-paste0(json_file, "%20or%20(CAT%20eq%20%27Others%27)")
69     json_file<-paste0(gsub('filter=',paste0('filter=()', json_file), ")") ,sub_list)
70     url_data<-jsonlite::fromJSON(gsub('ActiveSession','eeyqrK3SA18085C0454D1295ADG1261226ee6b5e4ef08', json_file))[2][1]]
71     ADJ_Ex<-c()
72     for (i in 1:(length(url_data$ADJ))) {
73       if (length(url_data$ADJ[i])<1){url_data$ADJ[i]<-''}
74       ADJ_Ex<-append(ADJ_Ex,url_data$ADJ[i])
75     }
76     url_data$ADJ <-ADJ_Ex
77     url_data <- url_data[which(url_data$VISIT=='')==FALSE | str_detect(url_data$CAT, "Prior")],] %>%
78     filter((CAT!="others") | (CAT=="others" & CLAS %in% c("OTHER ANTI NEOPLASTIC AGENTS", "OTHER IMMUNOSUPPRESSANTS","MONOCLONA
79   })
80 }
81 co_file<-paste0(IGOConfig$serverurl)
82 co_file<- paste0(co_file,"SpecialPurpose?select=STUDYID,DOMAIN,VISIT,VISITNUM,USUBJID,COREF,COVAL&filter=DOMAIN%20eq%20%27C
83 co_file<-paste0(gsub('filter=',paste0('filter=()', co_file), ")") ,sub_list)
84 rco_data<-jsonlite::fromJSON(gsub('ActiveSession','eeyqrK3SA18085C0454D1295ADG1261226ee6b5e4ef08', co_file))[2][1]] %>%

```

Preview

CLINICAL001-PC033-111; Cohort#5 1215 ug DRUG001 1215 ug

CLINICAL001-PC033-111; Cohort#5 Female; Small Cell Lung Cancer:High grade:IVT4NXM1; ; 1215 ug DRUG001 1215 ug

Dose (ug)	Dex (mg)	Infusion EndTime	Visit	Date	Time	GM-CSF pg/mL	IFN-g pg/mL	IL-2 pg/mL	IL-3 ug/L	IL-4 pg/mL	IL-5 pg/mL	IL-6 pg/mL	IL-7 pg/mL	IL-8 pg/mL	IL-10 pg/mL	IL-18 pg/mL	M 1 pg
			SCR	2021-08-08													
			C1D1	2021-08-09	15:28	18	3	32	0	37	4	12	21	91	4	144	2
1215	10+10	08/09 17:44	C1D1_5H	2021-08-09	22:08	18	70	453	0	37	4	113	21	443	652	132	6
			C1D2_USCH:16H	2021-08-10	10:10	18	138	32	0	37	4	361	21	248	1470	152	2
			C1D2_USCH1:16H	2021-08-10	10:10	18	146	157	0	37	4	342	21	265	1650	169	5
			C1D2_24H	2021-08-10	17:55	18	94	32	0	37	4	244	21	255	1280	169	2
			C1D3_48H	2021-08-11	17:44	18	10	32	0	37	4	11	21	86	353	239	2
			C1D4	2021-08-13	09:50	18	3	32	0	37	4	236	21	74	22	379	2
			C1D5_USCH:8H	2021-08-13	09:50	18	3	32	0	37	4	236	21	74	22	379	2
			C1D6	2021-08-16	12:50	18	3	32	0	37	4	252	21	10	4	239	2
1215	10+10	08/16 14:32	C1D8_5H	2021-08-16	19:45	18	3	69	0	37	4	133	21	30	42	239	2
			C1D9_USCH:23H	2021-08-17													
			C1D10_USCH:42H	2021-08-18	09:15	18	3	32	0	37	4	311	21	30	18	187	2
			C1D15	2021-08-24	09:30	18	3	32	0	37	4	128	21	74	4	160	2
1215	5+5	08/24 11:45	C1D15_5H	2021-08-24	16:23	18	3	32	0	37	4	73	21	52	15	222	5

Run R-Script

SCE within the tool allows to pull the data, customize the scripts to generate desired analysis results.



# Integrated Data Sources

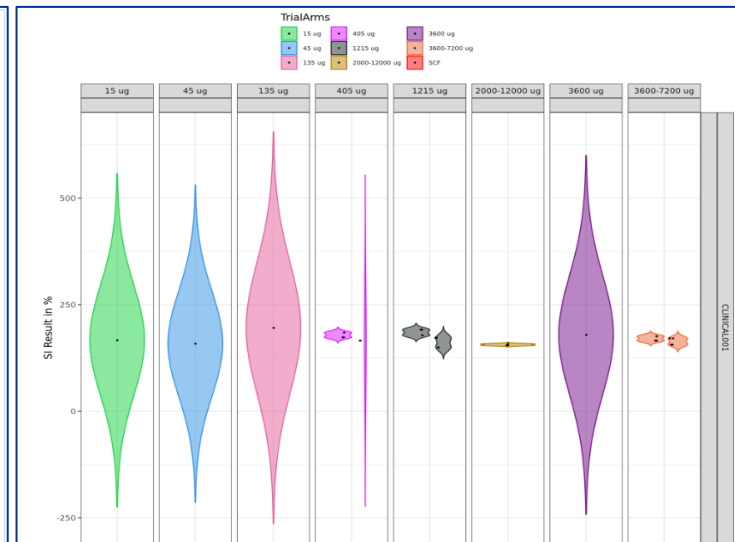
CLINICAL001-PC033-111 (1215 ug)

Dose	VISIT	Date	Time	FCSI_ID	% OF CD3+ T Cells	% OF CD45+ T Cells	cells/uL T Cells	% OF CD3+ T Cells	% OF CD45+ T Cells	cells/uL T Cells	% OF CD3+ T Cells	% OF CD45+ T Cells	cells/uL T Cells	% OF CD3+ T Cells	% OF CD45+ T Cells	cells/uL T Cells	% OF CD3+ T Cells	% OF CD45+ T Cells	PK ng/mL	PK 2H	PK 96H	PK EOI	ADA NA	Doc/Toc(mg) NA	Related/Not Related/ AE
					CD45+CD3+ CD4+	CD45+CD3+ CD8+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	CD45+CD3+ CD8+CD25+	ng/mL						
1215ug	SCR	2021-08-06																							SCR Gr2 Others Hyponatraemia(08/06-08/17)/DLT-No
	C1D1	2021-08-09	15:28:00		89.1	7.5	84.5961	9.8	0	0.2732	0	0.786	7.9035	1	3.4584	33.4093	4.4	40.7	0	605			+		
	C1D1_5H	2021-08-09	22:06:00		80.3	10.3	12.1709	17.1	0.0974	0.1264	0.2	1.461	1.7439	3	3.896	4.6126	8	38	455				+		
	C1D2_24H	2021-08-10	17:55:00		85	8.2	11.5354	13.4	0.1804	0.3948	0.4	3.9237	7.6836	8.7	5.7728	11.2672	12.8	99.2	328						
	C1D3_48H	2021-08-11	17:44:00		89.3	5.5	14.4838	9.5	0.0597	0.1919	0.1	3.1641	8.512	5.3	3.2835	8.8547	5.5	51.5	288		254				
	C1D8	2021-08-16	12:50:00		82.5	12.2	214.0135	16.1	0.0742	1.0062	0.1	1.7808	32.6444	2.4	7.2716	135.4594	9.8	56.5	100						
	C1D8_5H	2021-08-16	19:45:00		74.8	13.3	122.4311	22.8	0	0.1722	0	1.3824	14.9636	2.7	6.4	68.6817	12.5	52.7	962						
	C1D9_24H	2021-08-17	14:45:00		87.4	9.6	135.233	11.5	0	0.4002	0	1.2272	18.5022	1.6	8.8972	136.4419	11.6	96.5							
	C1D15	2021-08-24	09:30:00		82.9	13	80.4795	15.6	0	0.0796	0	2.1658	14.4592	2.6	7.5803	50.1894	9.1	57.8	119				-		
	C1D15_5H	2021-08-24	16:23:00		67.6	18	45.5213	29.9	0.363	1.1474	0.6	2.6015	7.8428	4.3	17.908	53.6846	29.6	99.8	1092				-		
	C2D1	2021-09-07																	67						
	C2D6_5H	2021-09-07																	53						
	C2D15	2021-09-13																	188				+		
	C2D15_5H	2021-09-13																	821				+		
	C3D1	2021-09-20																	221				+		
	C3D1_5H	2021-09-20																	734				+		
																							1328.0/175.7	Overall RECIST response: PR	

**Integrated Data View (Adverse events, disease response, ADA, PK etc.,) and Biomarker data in a tabular view for a patients to aid in further analysis or correlation generation among cohort groups.**



# Purpose-Built Statistical Graphics and Plots



**These plots go beyond generic charting tools — they are tailored to clinical workflows and support key metrics such as enrollment trends, subject disposition, protocol deviations, safety parameters - adverse events, lab abnormalities, and more.**



# Benefits of Xbiom over traditional BI Tools

- **Preconfigured Dashboards**

Tailor your views easily to focus on the most relevant metrics.

- **Interactive Interface**

Give Full flexibility.

- **Customizable**

Create visualizations quickly without coding expertise.

- **Real-Time Updates**

Guarantee timely data delivery for faster, informed decisions.

- **Security and Compliance**

Role-based access and audit trails ensure data protection and regulatory adherence.

If we have study with blinded and unblinded data, those restrictions can be permitted.

- <https://exceluser.com/the-first-excel-dashboard-report/>
- <https://hjalli.medium.com/the-first-digital-data-dashboard-13018ce7cc3a>
- <https://medium.com/%40rosalie24/the-art-of-data-visualization-in-dashboard-design-a9a6b5af0d41>
- <https://www.uxpin.com/studio/blog/dashboard-design-principles/>
- <https://medium.com/%40grow.com/why-most-bi-reporting-tools-fail-at-real-time-analytics-94a648146a59>

# Thank you

**Xbiom<sup>TM</sup> makes data useful**

Quality is never an accident. It's always the result of intelligent effort- John Ruskin



**The Global Healthcare  
Data Science Community**

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