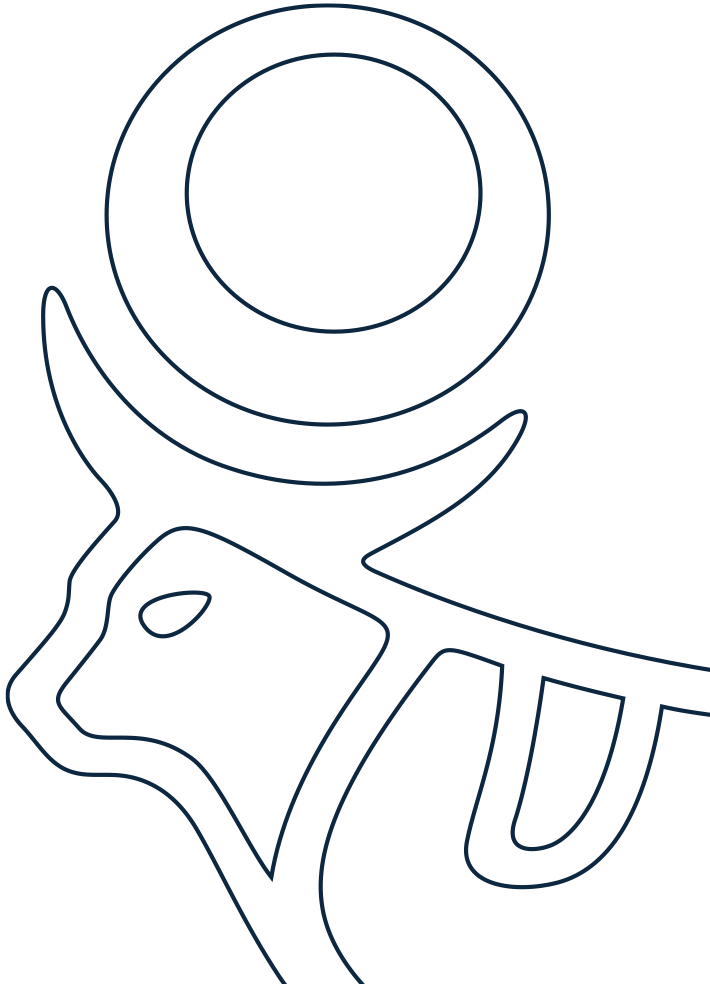
Optimizing Workflow in Pharma: Innovative Dashboard Creation



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Disclaimer

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This presentation is intended to share on "Optimizing Workflow in Pharma: Innovative Dashboard Creation".

No data or confidential information belonging to Novo Nordisk has been used in this presentation.

Dashboards in Pharmaceutical Research

Dashboards provide a visual representation of data, making it easier to understand complex data.

- Enrolment & Recruitment Monitoring
- Performance Monitoring (KPIs)
- Patient Safety & Outcomes
- Data Analysis & Decision Support

Popular Platforms

- R: Shiny, shinydashboard, flexdashboard
- Python: Dash, Streamlit, Bokeh
- Microsoft Power BI

Rationale – The Need for Speed

Time is Everything: In Pharma, every day saved in trial conduct means getting life-saving treatments to patients faster and staying ahead of the competition.

The Problem: Traditional programming is iterative. Programmers spend significant time writing, reviewing, and re-running code for every small change requested by stakeholders.

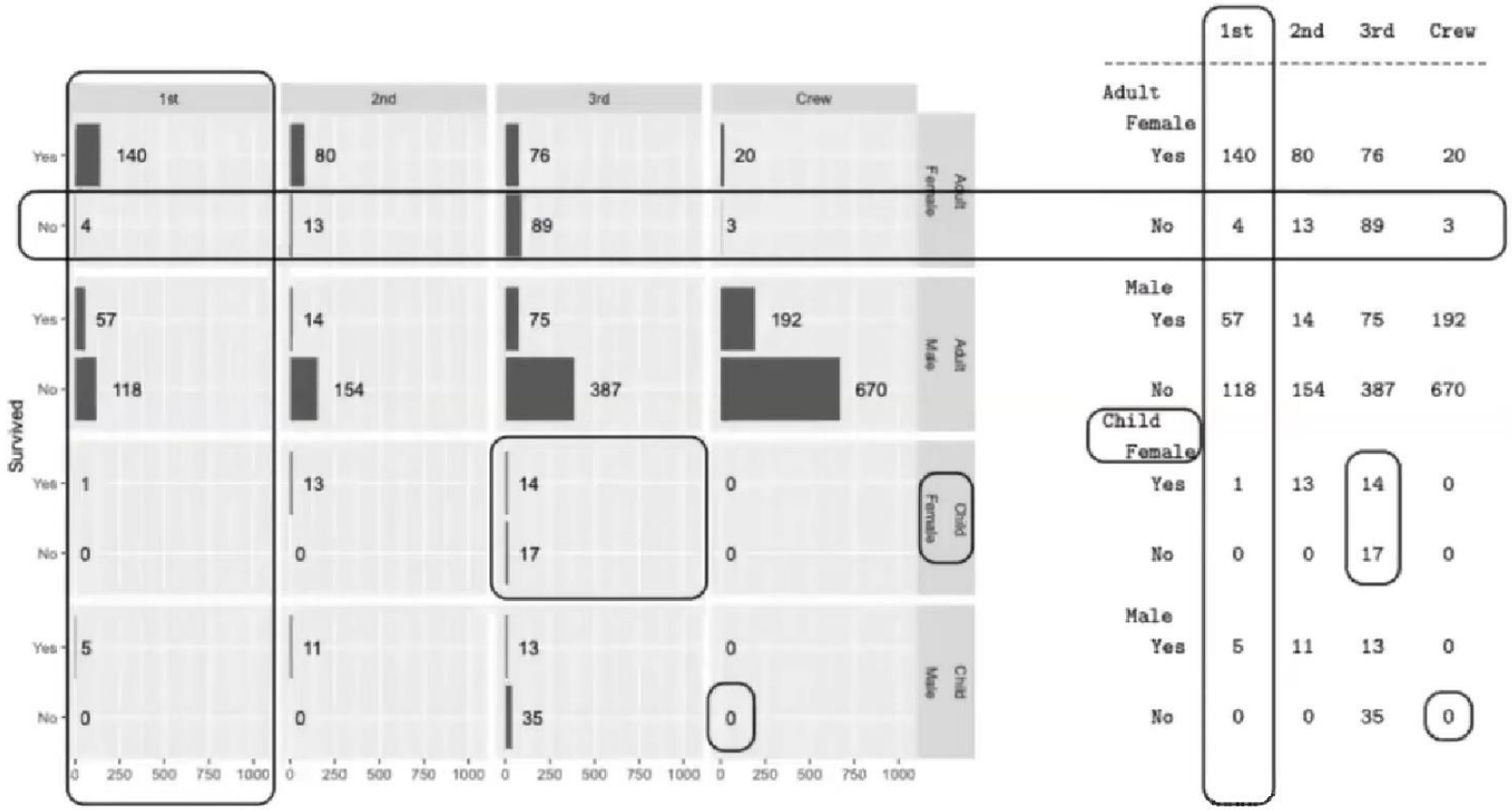
The Shift: We cannot compromise on trial duration due to patient safety. Therefore, we must reduce time in the reporting phase by replacing manual coding with a better alternative.

Applications

- **Clinical Trial Reporting**: Automating the creation of standard Tables, Listings, and Figures (TLFs) required for Clinical Study Reports (CSR).
- **Exploratory Data Analysis**: Enabling clinical leads and medical monitors to investigate data trends in real-time without needing to wait for custom programming cycles.
- **Publication & Manuscript Support**: Rapidly generating high-quality, publication-ready visualizations and data summaries for journal submissions and conference posters.
- **Ad-hoc Subgroup Analysis**: Instantly subsetting data by factors such as age, sex, or treatment arm to understand how different patient segments respond to treatments.

rtables

The rtables package is designed to create and display complex tables.



		1st	2nd	3rd	Crew
Adult Female	Yes	140	80	76	20
	No	4	13	89	3
Male	Yes	57	14	75	192
	No	118	154	387	670
Child Female	Yes	1	13	14	0
	No	0	0	17	0
Male	Yes	5	11	13	0
	No	0	0	35	0

- basic_table()
- split_rows_by()
- split_cols_by()
- analyze()
- build_table()

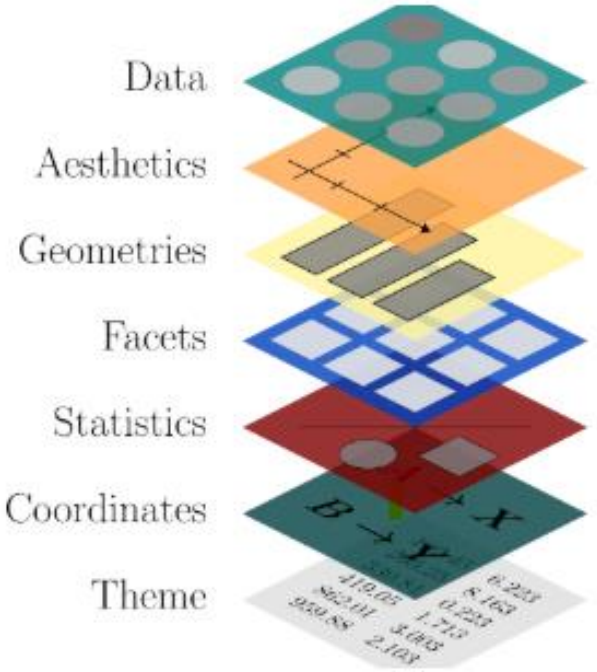
rlistings

The rlistings package is designed to create and display listings

- `as_listing()`
- `key_cols()`
- `disp_cols()`

ggplot2

ggplot2 is a system for declaratively creating graphics, based on The Grammar of Graphics



Architecture

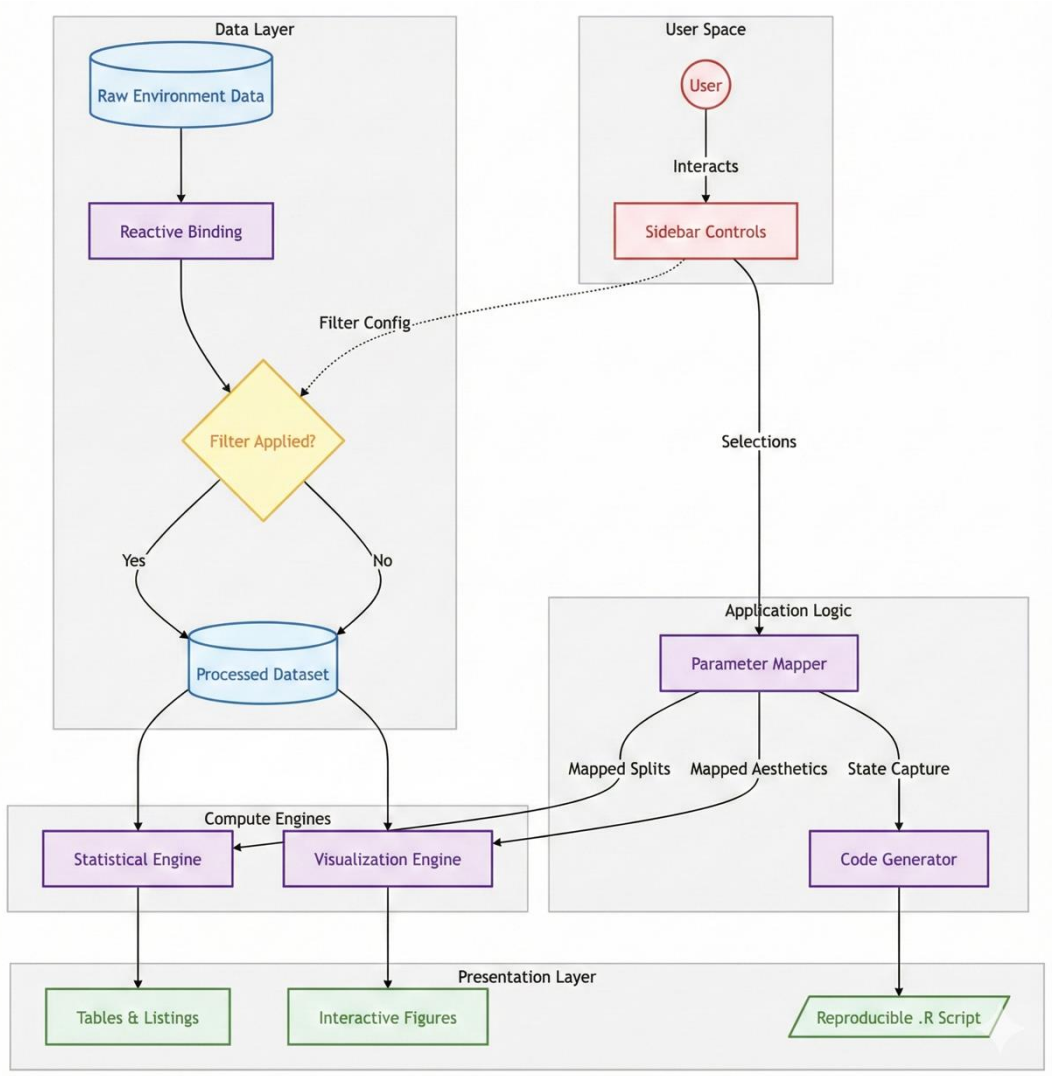
The dashboard is designed as a **Universal Reactive Engine** that transforms user inputs into clinical reports.

Instead of hardcoded outputs, it uses a flexible “grammar” mapping UI states to dynamic R function.

•**Reactive Binding**: The app scans the environment and adapts its UI to the data structure dynamically.

•**Parameter Mapping**: Acts as the "Brain," translating human-friendly UI selections (like "Treatment Arm") into internal R symbols (like sym("ARM")).

•**Compute Engines**: Instead of hardcoded logic, it uses generalized constructors. Whether it's a table or a plot, the engine applies user choices to a generic pipeline.



Key Features & Capabilities

- **Real-Time Data Selection**: Dynamically access and map live environment datasets (like ADSL or ADAE) for immediate output creation.
- **Precision Data Filtration**: Interactively subset patient data to focus on specific subgroups without needing to write manual code.
- **Click-Based Output Creation**: Instantly generate clinical-grade Tables, Listings, and Figures (TLFs) using pre-validated reporting engines.
- **Automated Code Generation**: Capture every user interaction as a standalone, reproducible R script for full documentation and transparency.
- **Simplified Output Download**: Export high-quality results and necessary metadata in multiple formats for immediate stakeholder review.

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 100 | Columns: 18

Data Filter

Filter Variable:

FASFL

ARM
COUNTRY
ETHNIC
FASFL
ITTFL
RACE
SAFFL
SEX

Row Variable(s):

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Please select at least one Column or Row variable to generate a table.

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

Tables - Demo

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 93 / 100 (filtered) | Columns: 18

Data Filter

Filter Variable:

FASFL

Select Values:

Y

N

Table Options

Column Variable(s):

Row Variable(s):

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Please select at least one Column or Row variable to generate a table.

Export Options

Filename:

table_output

Download TXT

Generate R Code

Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 93 / 100 (filtered) | Columns: 18

Data Filter

Filter Variable:

FASFL

Select Values:

Y

Table Options

Column Variable(s):

ARM

Row Variable(s):

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

	Placebo	Drug Low	Drug High
	(N=40)	(N=28)	(N=25)
n (%)	40 (100.0%)	28 (100.0%)	25 (100.0%)

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 93 / 100 (filtered) | Columns: 18

Data Filter

Filter Variable:

FASFL

Select Values:

Y

Table Options

Column Variable(s):

ARM

Row Variable(s):

SEX

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

	Placebo (N=40)	Drug Low (N=28)	Drug High (N=25)
Male			
n (%)	23 (57.5%)	14 (50.0%)	14 (56.0%)
Female			
n (%)	17 (42.5%)	14 (50.0%)	11 (44.0%)

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 93 / 100 (filtered) | Columns: 18

Data Filter

Filter Variable:

FASFL

Select Values:

Y

Table Options

Column Variable(s):

ARM

Row Variable(s):

SEX AGEGR1

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

	Placebo (N=40)	Drug Low (N=28)	Drug High (N=25)
Male			
<40 years			
n (%)	3 (7.5%)	3 (10.7%)	1 (4.0%)
40-65 years			
n (%)	17 (42.5%)	9 (32.1%)	10 (40.0%)
>65 years			
n (%)	3 (7.5%)	2 (7.1%)	3 (12.0%)
Female			
<40 years			
n (%)	4 (10.0%)	1 (3.6%)	1 (4.0%)
40-65 years			
n (%)	11 (27.5%)	10 (35.7%)	10 (40.0%)
>65 years			
n (%)	2 (5.0%)	3 (10.7%)	0 (0.0%)

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

adsl

Rows: 93 / 100 (filtered) | *Columns: 18*

Data Filter

Filter Variable:

FASFL

Select Values:

Y

Table Options

Column Variable(s):

ARM

Row Variable(s):

SEX AGEGR1

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Summary table - Full Analysis Set

Footnote:

n - number of patients

	(N=40)	(N=28)	(N=25)
Male			
<40 years			
n (%)	3 (7.5%)	3 (10.7%)	1 (4.0%)
40-65 years			
n (%)	17 (42.5%)	9 (32.1%)	10 (40.0%)
>65 years			
n (%)	3 (7.5%)	2 (7.1%)	3 (12.0%)
Female			
<40 years			
n (%)	4 (10.0%)	1 (3.6%)	1 (4.0%)
40-65 years			
n (%)	11 (27.5%)	10 (35.7%)	10 (40.0%)
>65 years			
n (%)	2 (5.0%)	3 (10.7%)	0 (0.0%)

n - number of patients

Export Options

Filename:

table_output

Download TXT

Generate R Code

Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 93 / 100 (filtered) | Columns: 18

Data Filter

Filter Variable:

FASFL

Select Values:

Y

Table Options

Column Variable(s):

ARM

Row Variable(s):

SEX AGEGR1

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Summary table - Full Analysis Set

	Placebo (N=40)	Drug Low (N=28)	Drug High (N=25)
Male			
<40 years			
n (%)	3 (7.5%)	3 (10.7%)	1 (4.0%)
40-65 years			
n (%)	17 (42.5%)	9 (32.1%)	10 (40.0%)
>65 years			
n (%)	3 (7.5%)	2 (7.1%)	3 (12.0%)
Female			
<40 years			
n (%)	4 (10.0%)	1 (3.6%)	1 (4.0%)
40-65 years			
n (%)	11 (27.5%)	10 (35.7%)	10 (40.0%)
>65 years			
n (%)	2 (5.0%)	3 (10.7%)	0 (0.0%)

n - number of patients

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adsl

Rows: 93 / 100 (filtered) | Columns: 18

Data Filter

Filter Variable:

FASFL

Select Values:

Y

Table Options

Column Variable(s):

ARM

Row Variable(s):

SEX AGEGR1

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Summary table - Full Analysis Set

Placebo (N=40)

3 (10.7%) 1 (4.0%)

9 (32.1%) 10 (40.0%)

2 (7.1%) 3 (12.0%)

1 (3.6%) 1 (4.0%)

10 (35.7%) 10 (40.0%)

3 (10.7%) 0 (0.0%)

ode

Download .R File

Downloads

table_output.txt

Open file

See more

table_output.txt

File Edit View H1

Summary table - Full Analysis Set

	Placebo (N=40)	Drug Low (N=28)	Drug High (N=25)
Male			
<40 years			
n (%)	3 (7.5%)	3 (10.7%)	1 (4.0%)
40-65 years			
n (%)	17 (42.5%)	9 (32.1%)	10 (40.0%)
>65 years			
n (%)	3 (7.5%)	2 (7.1%)	3 (12.0%)
Female			
<40 years			
n (%)	4 (10.0%)	1 (3.6%)	1 (4.0%)
40-65 years			
n (%)	11 (27.5%)	10 (35.7%)	10 (40.0%)
>65 years			
n (%)	2 (5.0%)	3 (10.7%)	0 (0.0%)

n - number of patients

Ln 14, Col 53 | 1,067 character | Plain text | 100% | Unix (LF) | UTF-8

ARM

Row Variable(s):

SEX AGEGR1

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Summary table - Full Analysis Set

Footnote:

n - number of patients

>65 years			
n (%)	2 (5.0%)	3 (10.7%)	0 (0.0%)

n - number of patients

Export Options

Filename:

table_output

Download TXT

Generate R Code

Download .R File

Generated R Code

```
# ================================================================================
# rtables Code - Generated by TLF Generator Dashboard
# Generated on: 2026-01-28 16:38:47.394428
# ================================================================================

library(rtables)
library(dplyr)

# Analysis function
my_afun <- function(x, .N_col) {
  n <- length(x)
  pct <- if (.N_col > 0) round(n / .N_col, 3) else 0
  in_rows("n (%)" = rcell(c(n, pct), format = "xx (xx.x%)"))
}

# Build table layout
lyt <- basic_table() %>% add_colcounts()
lyt <- lyt %>% split_cols_by("ARM")
lyt <- lyt %>% split_rows_by("SEX", child_labels = "visible")
lyt <- lyt %>% split_rows_by("AGEGR1", child_labels = "visible")
lyt <- lyt %>% analyze("ARM", afun = my_afun)

# Build the table
tbl <- build_table(lyt, adsl)

# Set titles and footnotes
main_title(tbl) <- "Summary table - Full Analysis Set"
prov_footer(tbl) <- "n - number of patients"

# Display the table
tbl
```

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

advs

Rows: 4200 | Columns: 25

Data Filter

Filter Variable:

None

Table Options

Column Variable(s):

ARM

Row Variable(s):

PARAM

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Footnote:

	Placebo (N=1764)	Drug Low (N=1344)	Drug High (N=1092)
Systolic Blood Pressure (mmHg)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)
Diastolic Blood Pressure (mmHg)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)
Pulse Rate (beats/min)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)
Temperature (C)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)
Respiratory Rate (breaths/min)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)
Weight (kg)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)
Height (cm)			
n (%)	252 (14.3%)	192 (14.3%)	156 (14.3%)

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

advs

Rows: 4200 | Columns: 25

Data Filter

Filter Variable:

None

Table Options

Column Variable(s):

ARM

Row Variable(s):

PARAM

Analysis Variable:

AVAL

Statistics:

Titles & Notes

Table Title:

Footnote:

	Placebo	Drug Low	Drug High
	(N=1764)	(N=1344)	(N=1092)
Systolic Blood Pressure (mmHg)			
	No stats selected	No stats selected	No stats selected
Diastolic Blood Pressure (mmHg)			
	No stats selected	No stats selected	No stats selected
Pulse Rate (beats/min)			
	No stats selected	No stats selected	No stats selected
Temperature (C)			
	No stats selected	No stats selected	No stats selected
Respiratory Rate (breaths/min)			
	No stats selected	No stats selected	No stats selected
Weight (kg)			
	No stats selected	No stats selected	No stats selected
Height (cm)			
	No stats selected	No stats selected	No stats selected

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

advs

Rows: 4200 | Columns: 25

Data Filter

Filter Variable:

None

Table Options

Column Variable(s):

ARM

Row Variable(s):

PARAM

Analysis Variable:

AVAL

Statistics:

Mean SD

Titles & Notes

Table Title:

Footnote:

	Placebo (N=1764)	Drug Low (N=1344)	Drug High (N=1092)
Systolic Blood Pressure (mmHg)			
Mean	128.27	126.97	126.99
SD	11.95	12.52	11.80
Diastolic Blood Pressure (mmHg)			
Mean	77.33	77.86	78.37
SD	7.79	7.33	7.62
Pulse Rate (beats/min)			
Mean	72.13	71.90	71.02
SD	8.04	8.24	8.76
Temperature (C)			
Mean	36.62	36.62	36.62
SD	0.27	0.32	0.33
Respiratory Rate (breaths/min)			
Mean	15.95	16.10	15.92
SD	1.94	1.82	1.98
Weight (kg)			
Mean	73.41	75.66	74.65
SD	12.68	11.05	10.77
Height (cm)			
Mean	169.83	170.27	169.57
SD	7.66	8.05	7.58

Export Options

Filename:

table_output

Download TXT | Generate R Code | Download .R File

Dataset Selection

Select Dataset:

advs

Rows: 4200 | Columns: 25

Data Filter

Filter Variable:

None

Table Options

Column Variable(s):

ARM

Row Variable(s):

PARAM

Analysis Variable:

AVAL

Statistics:

Mean SD Median Range

Titles & Notes

Table Title:

Footnote:

	Placebo (N=1764)	Drug Low (N=1344)	Drug High (N=1092)
Systolic Blood Pressure (mmHg)			
Mean	128.27	126.97	126.99
Median	128.80	127.65	127.95
SD	11.95	12.52	11.80
Range	100.00 - 156.40	87.70 - 156.10	90.30 - 157.10
Diastolic Blood Pressure (mmHg)			
Mean	77.33	77.86	78.37
Median	77.40	77.40	77.65
SD	7.79	7.33	7.62
Range	55.50 - 98.80	52.40 - 93.70	58.70 - 99.60
Pulse Rate (beats/min)			
Mean	72.13	71.90	71.02
Median	71.90	71.30	71.05
SD	8.04	8.24	8.76
Range	51.30 - 97.60	49.80 - 95.80	48.00 - 91.70
Temperature (C)			
Mean	36.62	36.62	36.62
Median	36.60	36.60	36.60
SD	0.27	0.32	0.33
Range	35.70 - 37.30	35.90 - 37.40	35.60 - 37.50
Respiratory Rate (breaths/min)			
Mean	15.95	16.10	15.92
Median	15.90	16.10	15.90
SD	1.94	1.82	1.98
Range	10.10 - 20.00	11.60 - 21.00	10.90 - 21.30
Weight (kg)			

SD	7.66	8.05	7.58
Range	147.80 - 196.30	138.90 - 191.60	146.20 - 189.40

Export Options

Filename:

table_output

Download TXT

Generate R Code

Download .R File

Generated R Code

```
# ================================================================================
# rtables Code - Generated by TLF Generator Dashboard
# Generated on: 2026-01-28 16:44:36.775361
# ================================================================================

library(rtables)
library(dplyr)

# Analysis function
my_afun <- function(x, .N_col) {
  in_rows(
    "Mean" = rcell(mean(x, na.rm = TRUE), format = "xx.xx"),
    "Median" = rcell(median(x, na.rm = TRUE), format = "xx.xx"),
    "SD" = rcell(sd(x, na.rm = TRUE), format = "xx.xx"),
    "Range" = rcell(range(x, na.rm = TRUE), format = "xx.xx - xx.xx")
  )
}

# Build table layout
lyt <- basic_table() %>% add_colcounts()
lyt <- lyt %>% split_cols_by("ARM")
lyt <- lyt %>% split_rows_by("PARAM", child_labels = "visible")
lyt <- lyt %>% analyze("AVAL", afun = my_afun)

# Build the table
tbl <- build_table(lyt, advs)

# Set titles and footnotes
main_title(tbl) <- ""
prov_footer(tbl) <- ""

# Display the table
tbl
```

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Data Filter

Filter Variable:

None

Table Options

Column Variable(s):

ARM SEX

Row Variable(s):

AEBODSYS AETERM

Analysis Variable:

Counts Only

Statistics:

Titles & Notes

Table Title:

Footnote:

	Placebo		Drug Low		Drug High	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
	(N=58)	**(N=47)**	**(N=32)**	**(N=37)**	**(N=39)**	**(N=38)**
Gastrointestinal disorders						
Nausea						
n (%)	3 (5.2%)	3 (6.4%)	4 (12.5%)	2 (5.4%)	3 (7.7%)	3 (7.9%)
Vomiting						
n (%)	4 (6.9%)	5 (10.6%)	2 (6.2%)	4 (10.8%)	3 (7.7%)	6 (15.8%)
Constipation						
n (%)	5 (8.6%)	6 (12.8%)	0 (0.0%)	6 (16.2%)	0 (0.0%)	3 (7.9%)
Diarrhea						
n (%)	5 (8.6%)	3 (6.4%)	2 (6.2%)	4 (10.8%)	2 (5.1%)	2 (5.3%)
Infections						
Nasopharyngitis						
n (%)	5 (8.6%)	5 (10.6%)	0 (0.0%)	1 (2.7%)	1 (2.6%)	2 (5.3%)
Nervous system disorders						
Dizziness						
n (%)	5 (8.6%)	3 (6.4%)	2 (6.2%)	4 (10.8%)	3 (7.7%)	3 (7.9%)
Headache						
n (%)	5 (8.6%)	6 (12.8%)	2 (6.2%)	1 (2.7%)	1 (2.6%)	0 (0.0%)
Skin disorders						
Rash						
n (%)	3 (5.2%)	2 (4.3%)	3 (9.4%)	3 (8.1%)	4 (10.3%)	0 (0.0%)
Musculoskeletal disorders						
Arthralgia						
n (%)	6 (10.3%)	2 (4.3%)	1 (3.1%)	2 (5.4%)	3 (7.7%)	5 (13.2%)
Back Pain						
n (%)	0 (0.0%)	1 (2.1%)	4 (12.5%)	1 (2.7%)	2 (5.1%)	3 (7.9%)

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Listing Options

Key Column(s):

Display Column(s):

Titles & Notes

Listing Title:

Footnote:

Please select Key and Display columns to generate a listing.

Export Options

Filename:

listing_output

Download TXT | Generate R Code | Download .R File

Listings - Demo

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Listing Options

Key Column(s):

USUBJID SEX AGE

Display Column(s):

Titles & Notes

Listing Title:

Footnote:

Unique Subject Identifier	Sex	Age (years)	Sequence Number	Study Identifier	Subject Identifier for the Study	Study Site Identifier	Planned Arm
DEMO-001-001	Male	41	1	DEMO-001	001	SITE-03	Placebo
			2	DEMO-001	001	SITE-03	Placebo
			3	DEMO-001	001	SITE-03	Placebo
DEMO-001-002	Female	33	1	DEMO-001	002	SITE-10	Drug Low
			2	DEMO-001	002	SITE-10	Drug Low
			3	DEMO-001	002	SITE-10	Drug Low
			4	DEMO-001	002	SITE-10	Drug Low
			5	DEMO-001	002	SITE-10	Drug Low
DEMO-001-003	Female	69	1	DEMO-001	003	SITE-08	Placebo
DEMO-001-005	Female	41	1	DEMO-001	005	SITE-08	Drug High
DEMO-001-006	Male	75	1	DEMO-001	006	SITE-02	Placebo
			2	DEMO-001	006	SITE-02	Placebo
DEMO-001-007	Male	66	1	DEMO-001	007	SITE-06	Placebo
DEMO-001-009	Male	41	1	DEMO-001	009	SITE-07	Placebo
			2	DEMO-001	009	SITE-07	Placebo
			3	DEMO-001	009	SITE-07	Placebo
			4	DEMO-001	009	SITE-07	Placebo
DEMO-001-011	Male	42	1	DEMO-001	011	SITE-01	Placebo
			2	DEMO-001	011	SITE-01	Placebo
DEMO-001-013	Female	63	1	DEMO-001	013	SITE-07	Placebo
			2	DEMO-001	013	SITE-07	Placebo
			3	DEMO-001	013	SITE-07	Placebo
			4	DEMO-001	013	SITE-07	Placebo
			5	DEMO-001	013	SITE-07	Placebo
			6	DEMO-001	013	SITE-07	Placebo
DEMO-001-014	Male	57	1	DEMO-001	014	SITE-06	Placebo
			2	DEMO-001	014	SITE-06	Placebo
			3	DEMO-001	014	SITE-06	Placebo
DEMO-001-015	Male	50	1	DEMO-001	015	SITE-01	Drug Low
			2	DEMO-001	015	SITE-01	Drug Low
			3	DEMO-001	015	SITE-01	Drug Low
DEMO-001-018	Female	48	1	DEMO-001	018	SITE-10	Drug High
			2	DEMO-001	018	SITE-10	Drug High
			3	DEMO-001	018	SITE-10	Drug High
			4	DEMO-001	018	SITE-10	Drug High
DEMO-001-019	Male	37	1	DEMO-001	019	SITE-03	Placebo
			2	DEMO-001	019	SITE-03	Placebo
			3	DEMO-001	019	SITE-03	Placebo
			4	DEMO-001	019	SITE-03	Placebo
DEMO-001-020	Female	55	1	DEMO-001	020	SITE-09	Drug Low
			2	DEMO-001	020	SITE-09	Drug Low
			3	DEMO-001	020	SITE-09	Drug Low
DEMO-001-021	Female	61	1	DEMO-001	021	SITE-04	Placebo
			2	DEMO-001	021	SITE-04	Placebo
			3	DEMO-001	021	SITE-04	Placebo

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Listing Options

Key Column(s):

USUBJID SEX AGE

Display Column(s):

AEBODSYS AETERM

Titles & Notes

Listing Title:

Footnote:

Unique Subject Identifier	Sex	Age (years)	Body System or Organ Class	Reported Term for the Adverse Event
DEMO-001-001	Male	41	Gastrointestinal disorders	Nausea
			Infections	Nasopharyngitis
			Infections	Nasopharyngitis
DEMO-001-002	Female	33	Nervous system disorders	Dizziness
			Gastrointestinal disorders	Vomiting
			Skin disorders	Rash
			Musculoskeletal disorders	Arthralgia
			Gastrointestinal disorders	Constipation
DEMO-001-003	Female	69	Gastrointestinal disorders	Constipation
DEMO-001-005	Female	41	Respiratory disorders	Cough
DEMO-001-006	Male	75	Nervous system disorders	Headache
			Nervous system disorders	Dizziness
DEMO-001-007	Male	66	Gastrointestinal disorders	Vomiting
DEMO-001-009	Male	41	Musculoskeletal disorders	Arthralgia
			Skin disorders	Rash
			Musculoskeletal disorders	Arthralgia
			General disorders	Fatigue
DEMO-001-011	Male	42	General disorders	Pyrexia
			Respiratory disorders	Cough
DEMO-001-013	Female	63	Gastrointestinal disorders	Constipation
			Infections	Nasopharyngitis
			Gastrointestinal disorders	Constipation
			Skin disorders	Rash
			Nervous system disorders	Headache
			Gastrointestinal disorders	Nausea
DEMO-001-014	Male	57	Gastrointestinal disorders	Constipation
			Gastrointestinal disorders	Constipation
			Nervous system disorders	Dizziness
DEMO-001-015	Male	50	Gastrointestinal disorders	Diarrhea
			Nervous system disorders	Headache
			Nervous system disorders	Headache
DEMO-001-018	Female	48	Musculoskeletal disorders	Arthralgia
			Musculoskeletal disorders	Arthralgia
			Gastrointestinal disorders	Constipation
			Gastrointestinal disorders	Constipation
DEMO-001-019	Male	37	Nervous system disorders	Dizziness
			Psychiatric disorders	Insomnia
			Gastrointestinal disorders	Constipation
			Nervous system disorders	Dizziness
DEMO-001-020	Female	55	Gastrointestinal disorders	Vomiting
			Gastrointestinal disorders	Nausea
			Respiratory disorders	Cough
DEMO-001-021	Female	61	Infections	Nasopharyngitis
			Vascular disorders	Hypertension
			Nervous system disorders	Dizziness

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Listing Options

Key Column(s):

USUBJID SEX AGE

Display Column(s):

AEBODSYS AETERM ASTDT AENDT

Titles & Notes

Listing Title:

Adverse Events Listings

Footnote:

MedDRA version: 25.1

Adverse Events Listings

Unique Subject Identifier	Sex	Age (years)	Body System or Organ Class	Reported Term for the Adverse Event	Analysis Start Date	Analysis End Date
DEMO-001-001	Male	41	Gastrointestinal disorders	Nausea	2024-03-19	2024-03-26
			Infections	Nasopharyngitis	2024-02-21	2024-03-12
			Infections	Nasopharyngitis	2024-01-11	2024-02-02
DEMO-001-002	Female	33	Nervous system disorders	Dizziness	2024-02-25	2024-03-02
			Gastrointestinal disorders	Vomiting	2024-01-20	2024-02-01
			Skin disorders	Rash	2024-02-17	2024-03-02
			Musculoskeletal disorders	Arthralgia	2024-02-18	2024-02-27
			Gastrointestinal disorders	Constipation	2024-03-22	2024-03-27
DEMO-001-003	Female	69	Gastrointestinal disorders	Constipation	2024-01-24	2024-02-02
DEMO-001-005	Female	41	Respiratory disorders	Cough	2024-03-17	2024-03-24
DEMO-001-006	Male	75	Nervous system disorders	Headache	2024-03-16	2024-03-27
			Nervous system disorders	Dizziness	2024-01-08	2024-01-11
DEMO-001-007	Male	66	Gastrointestinal disorders	Vomiting	2024-02-13	2024-02-23
DEMO-001-009	Male	41	Musculoskeletal disorders	Arthralgia	2024-03-01	2024-03-04
			Skin disorders	Rash	2024-02-24	2024-03-06
			Musculoskeletal disorders	Arthralgia	2024-03-18	2024-04-03
			General disorders	Fatigue	2024-02-08	2024-02-28
DEMO-001-011	Male	42	General disorders	Pyrexia	2024-02-20	2024-03-19
			Respiratory disorders	Cough	2024-01-21	2024-01-29
DEMO-001-013	Female	63	Gastrointestinal disorders	Constipation	2024-02-14	2024-03-13
			Infections	Nasopharyngitis	2024-02-12	2024-02-22
			Gastrointestinal disorders	Constipation	2024-03-01	2024-03-15
			Skin disorders	Rash	2024-01-19	2024-02-06
			Nervous system disorders	Headache	2024-03-20	2024-03-28
			Gastrointestinal disorders	Nausea	2024-02-24	2024-03-07
DEMO-001-014	Male	57	Gastrointestinal disorders	Constipation	2024-03-01	2024-03-25
			Gastrointestinal disorders	Constipation	2024-02-17	2024-03-15
			Nervous system disorders	Dizziness	2024-01-10	2024-02-05
DEMO-001-015	Male	50	Gastrointestinal disorders	Diarrhea	2024-01-17	2024-01-18
			Nervous system disorders	Headache	2024-03-02	2024-03-31
			Nervous system disorders	Headache	2024-03-09	2024-04-03
DEMO-001-018	Female	48	Musculoskeletal disorders	Arthralgia	2024-02-22	2024-03-23
			Musculoskeletal disorders	Arthralgia	2024-02-15	2024-02-20
			Gastrointestinal disorders	Constipation	2024-03-01	2024-03-02
			Gastrointestinal disorders	Constipation	2024-02-24	2024-03-23
DEMO-001-019	Male	37	Nervous system disorders	Dizziness	2024-02-11	2024-03-09
			Psychiatric disorders	Insomnia	2024-02-16	2024-02-27
			Gastrointestinal disorders	Constipation	2024-02-12	2024-02-25
			Nervous system disorders	Dizziness	2024-03-12	2024-03-14
DEMO-001-020	Female	55	Gastrointestinal disorders	Vomiting	2024-02-25	2024-03-25
			Gastrointestinal disorders	Nausea	2024-03-07	2024-04-01
			Respiratory disorders	Cough	2024-02-05	2024-03-06

DEMO-001-085	Male	54	Gastrointestinal disorders	Vomiting	2024-03-21	2024-04-07
DEMO-001-086	Male	67	Psychiatric disorders	Insomnia	2024-03-12	2024-03-23
			Respiratory disorders	Cough	2024-03-16	2024-04-02
			Gastrointestinal disorders	Nausea	2024-01-07	2024-02-05
DEMO-001-087	Female	45	Gastrointestinal disorders	Vomiting	2024-02-06	2024-02-08
			Respiratory disorders	Cough	2024-01-26	2024-02-17
			Vascular disorders	Hypertension	2024-02-25	2024-03-11
			Gastrointestinal disorders	Diarrhea	2024-02-24	2024-03-23
			Vascular disorders	Hypertension	2024-02-01	2024-02-23
			Gastrointestinal disorders	Nausea	2024-02-25	2024-03-23
			Gastrointestinal disorders	Vomiting	2024-03-06	2024-03-19
DEMO-001-088	Male	52	Respiratory disorders	Cough	2024-02-07	2024-03-04
DEMO-001-090	Female	48	General disorders	Fatigue	2024-02-16	2024-03-14
			General disorders	Pyrexia	2024-02-13	2024-03-11
			Nervous system disorders	Dizziness	2024-01-25	2024-02-18
			Gastrointestinal disorders	Constipation	2024-02-07	2024-03-08
DEMO-001-091	Female	59	Nervous system disorders	Headache	2024-02-17	2024-02-20
			Nervous system disorders	Dizziness	2024-01-14	2024-01-29
			Gastrointestinal disorders	Constipation	2024-02-26	2024-03-13
DEMO-001-092	Female	63	Nervous system disorders	Headache	2024-03-02	2024-03-26
DEMO-001-093	Female	34	Psychiatric disorders	Insomnia	2024-01-23	2024-02-18
			Nervous system disorders	Dizziness	2024-01-22	2024-02-07
			Gastrointestinal disorders	Constipation	2024-03-07	2024-03-15
DEMO-001-094	Male	29	Gastrointestinal disorders	Constipation	2024-01-13	2024-02-11
			Skin disorders	Rash	2024-03-15	2024-03-22
DEMO-001-095	Male	56	Respiratory disorders	Cough	2024-03-06	2024-03-12
DEMO-001-096	Male	65	Gastrointestinal disorders	Nausea	2024-01-19	2024-02-18
DEMO-001-097	Female	28	Gastrointestinal disorders	Vomiting	2024-03-18	2024-03-19
			Gastrointestinal disorders	Vomiting	2024-03-14	2024-04-07
			Psychiatric disorders	Insomnia	2024-02-06	2024-02-16
			Gastrointestinal disorders	Diarrhea	2024-01-13	2024-02-01
DEMO-001-098	Male	53	Musculoskeletal disorders	Back Pain	2024-03-24	2024-04-17
			Respiratory disorders	Cough	2024-01-21	2024-02-07
DEMO-001-099	Male	52	Musculoskeletal disorders	Back Pain	2024-01-31	2024-02-16
			Psychiatric disorders	Insomnia	2024-02-12	2024-02-22
			General disorders	Pyrexia	2024-01-09	2024-01-25
			Nervous system disorders	Dizziness	2024-01-20	2024-02-12
DEMO-001-100	Male	76	Skin disorders	Rash	2024-02-02	2024-02-08
			Vascular disorders	Hypertension	2024-03-05	2024-03-29

MedDRA version: 25.1

Export Options

Filename:

listing_output

Download TXT

Generate R Code

Download .R File

Adverse Events Listings

Unique Subject Identifier	Sex	Age (years)	Body System or Organ Class	Reported Term for the Adverse Event	Analysis Start Date	Analysis End Date
DEMO-001-001	Male	41	Gastrointestinal disorders	Nausea	2024-03-19	2024-03-26
			Infections	Nasopharyngitis	2024-02-21	2024-03-12
			Infections	Nasopharyngitis	2024-01-11	2024-02-02
DEMO-001-002	Female	33	Nervous system disorders	Dizziness	2024-02-25	2024-03-02
			Gastrointestinal disorders	Vomiting	2024-01-20	2024-02-01
			Skin disorders	Rash	2024-02-17	2024-03-02
			Musculoskeletal disorders	Arthralgia	2024-02-18	2024-02-27
			Gastrointestinal disorders	Constipation	2024-03-22	2024-03-27
DEMO-001-003	Female	69	Gastrointestinal disorders	Constipation	2024-01-24	2024-02-02
DEMO-001-005	Female	41	Respiratory disorders	Cough	2024-03-17	2024-03-24
DEMO-001-006	Male	75	Nervous system disorders	Headache	2024-03-16	2024-03-27
			Nervous system disorders	Dizziness	2024-01-08	2024-01-11
DEMO-001-007	Male	66	Gastrointestinal disorders	Vomiting	2024-02-13	2024-02-23
DEMO-001-098	Male	53	Musculoskeletal disorders	Back Pain	2024-03-24	2024-04-17
			Respiratory disorders	Cough	2024-01-21	2024-02-07
DEMO-001-099	Male	52	Musculoskeletal disorders	Back Pain	2024-01-31	2024-02-16
			Psychiatric disorders	Insomnia	2024-02-12	2024-02-22
			General disorders	Pyrexia	2024-01-09	2024-01-25
			Nervous system disorders	Dizziness	2024-01-20	2024-02-12
DEMO-001-100	Male	76	Skin disorders	Rash	2024-02-02	2024-02-08
			Vascular disorders	Hypertension	2024-03-05	2024-03-29

MedDRA version: 25.1

DEMO-001-096	Male	65	Gastrointestinal disorders	Nausea	2024-01-19	2024-02-18
DEMO-001-097	Female	28	Gastrointestinal disorders	Vomiting	2024-03-18	2024-03-19
			Gastrointestinal disorders	Vomiting	2024-03-14	2024-04-07
			Psychiatric disorders	Insomnia	2024-02-06	2024-02-16
			Gastrointestinal disorders	Diarrhea	2024-01-13	2024-02-01
DEMO-001-098	Male	53	Musculoskeletal disorders	Back Pain	2024-03-24	2024-04-17
			Respiratory disorders	Cough	2024-01-21	2024-02-07
DEMO-001-099	Male	52	Musculoskeletal disorders	Back Pain	2024-01-31	2024-02-16
			Psychiatric disorders	Insomnia	2024-02-12	2024-02-22
			General disorders	Pyrexia	2024-01-09	2024-01-25
			Nervous system disorders	Dizziness	2024-01-20	2024-02-12
DEMO-001-100	Male	76	Skin disorders	Rash	2024-02-02	2024-02-08
			Vascular disorders	Hypertension	2024-03-05	2024-03-29

MedDRA version: 25.1

Export Options

Filename:

listing_output

Download TXT

Generate R Code

Download .R File

Generated R Code

```
# ============================================================================
# rlistings Code - Generated by TLF Generator Dashboard
# Generated on: 2026-01-28 16:29:10.921382
# ============================================================================

library(rlistings)

# Create the listing
lst <- as_listing(
  adae,
  key_cols = c("USUBJID", "SEX", "AGE"),
  disp_cols = c("AEBODSYS", "AETERM", "ASTDT", "AENDT")
)

# Set titles and footnotes
main_title(lst) <- "Adverse Events Listings"
prov_footer(lst) <- "MedDRA version: 25.1"

# Display the listing
lst
```

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Geometry

Geom Type:

Bar

- Point
- Line
- Bar
- Column
- Histogram
- Boxplot
- Violin
- Density

None

Color (group):

None

Fill:

None

Faceting

Facet By:

None

Facet Type:

Figures - Demo

Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Geometry

Geom Type:

Bar

Aesthetics (aes)

X Variable:

AETERM

Y Variable:

None

Color (group):

None

Fill:

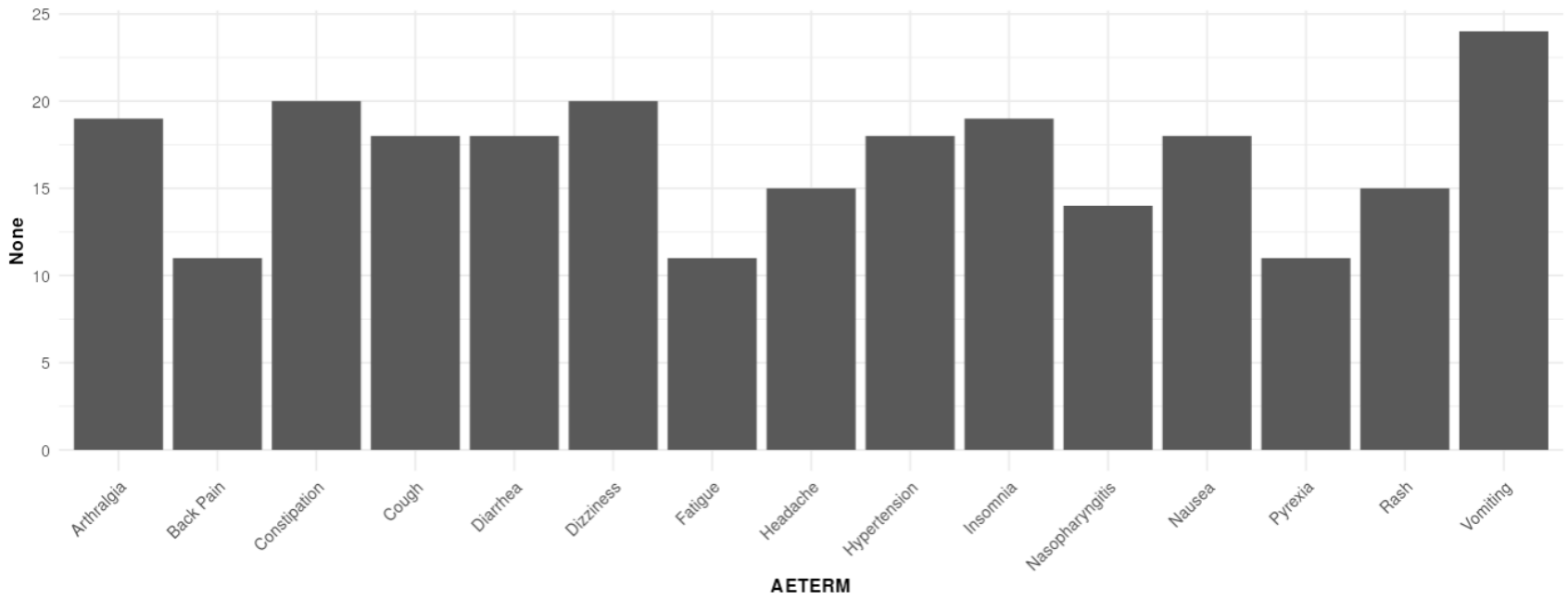
None

Faceting

Facet By:

None

Facet Type:



Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Geometry

Geom Type:

Bar

Aesthetics (aes)

X Variable:

AETERM

Y Variable:

None

Color (group):

ARM

Fill:

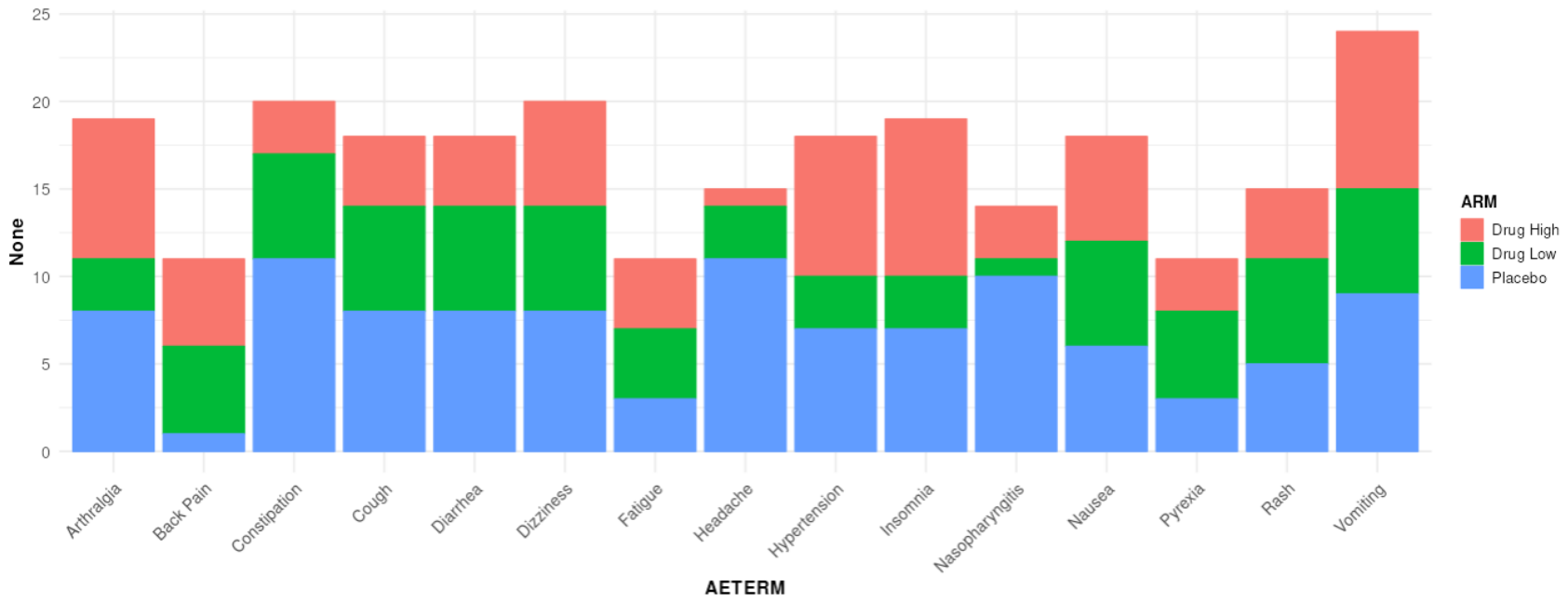
ARM

Faceting

Facet By:

None

Facet Type:



Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot | Generate R Code | Download .R File

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Geometry

Geom Type:

Bar

Aesthetics (aes)

X Variable:

AETERM

Y Variable:

None

Color (group):

ARM

Fill:

ARM

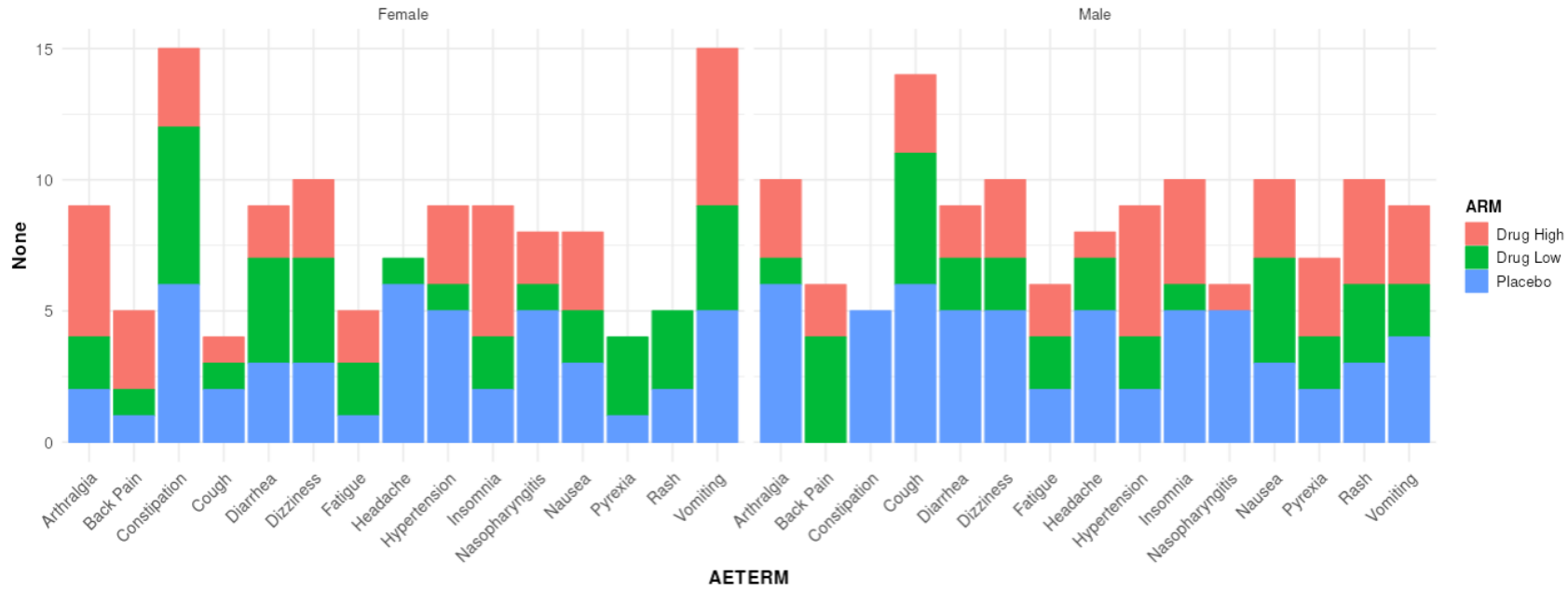
Faceting

Facet By:

SEX

Facet Type:

Wrap



Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot

Generate R Code

Download .R File

Faceting

Facet By:

SEX

Facet Type:

Wrap

Labels

Title:

Barplot

Subtitle:

X Label:

Adverse Event Term

Y Label:

Frequency

Theme

Theme:

B&W

- Minimal
- Classic
- B&W
- Light
- Dark
- Gray
- Void

Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot

Generate R Code

Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Geometry

Geom Type:

Bar

Aesthetics (aes)

X Variable:

AETERM

Y Variable:

None

Color (group):

ARM

Fill:

ARM

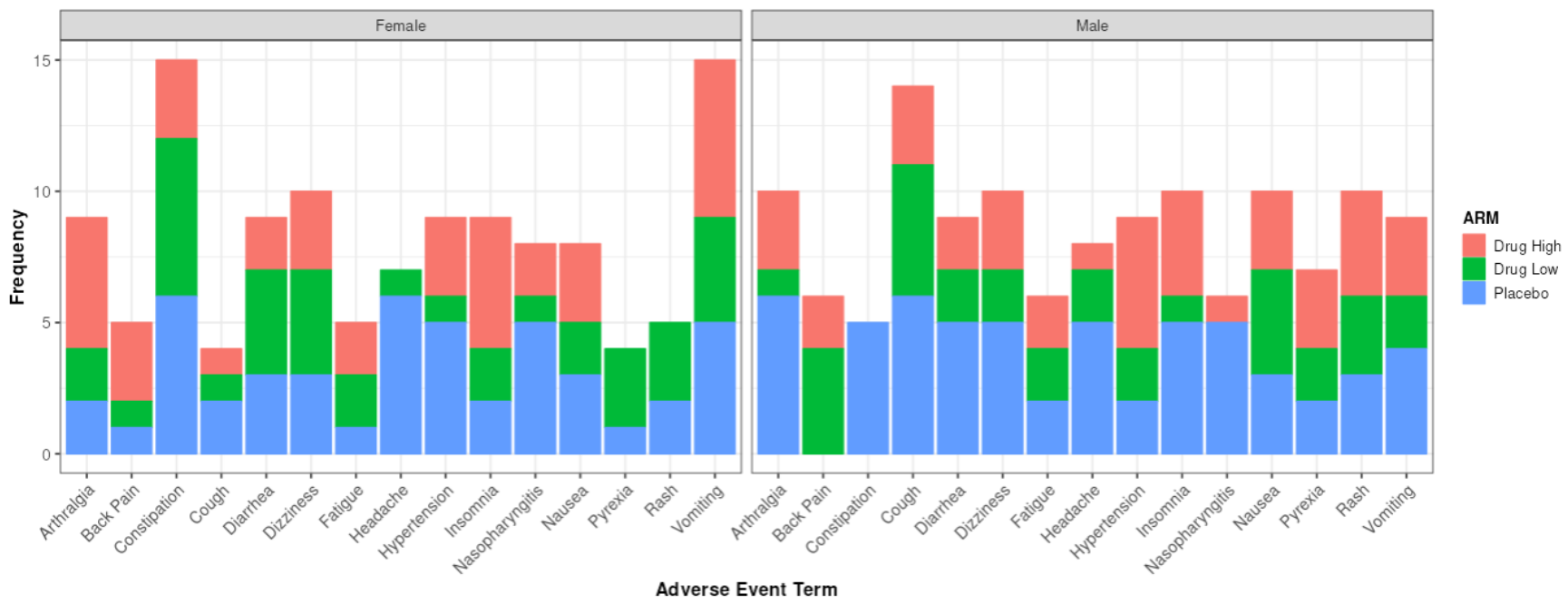
Faceting

Facet By:

SEX

Facet Type:

Barplot



Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot | Generate R Code | Download .R File

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adae

Rows: 251 | Columns: 23

Geometry

Geom Type:

Bar

Aesthetics (aes)

X Variable:

AETERM

Y Variable:

None

Color (group):

ARM

Fill:

ARM

Faceting

Facet By:

SEX

Barplot

Female

15

Downloads

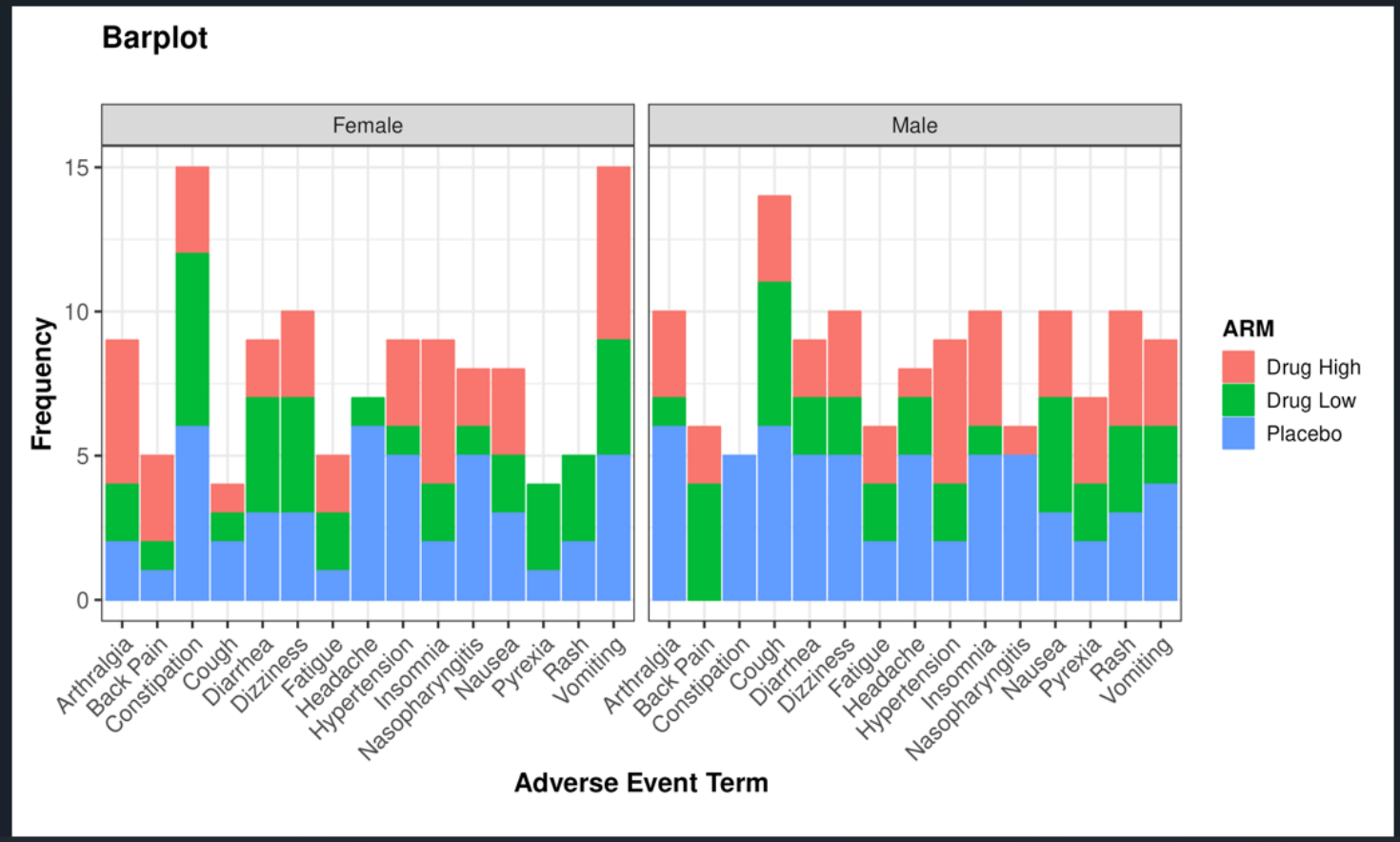
plot_output.png

Open file

See more

Edit

plot_output.png



3000 x 1800 275.8 KB 37%

Aesthetics (aes)

X Variable:

AETERM

Y Variable:

None

Color (group):

ARM

Fill:

ARM

Faceting

Facet By:

SEX

Facet Type:

Wrap

Labels

Title:

Barplot

Subtitle:

X Label:

Adverse Event Term

Y Label:

Frequency

Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot | Generate R Code | Download .R File

Generated R Code

```
# ================================================================================
# ggplot2 Code - Generated by TLF Generator Dashboard
# Generated on: 2026-01-28 17:14:17.267285
# ================================================================================

library(ggplot2)

# Create the plot
p <- ggplot(adae, aes(x = AETERM, color = ARM, fill = ARM)) +
  geom_bar(stat = 'count') +
  facet_wrap(~SEX) +
  labs(
    title = "Barplot",
    subtitle = "",
    x = "Adverse Event Term",
    y = "Frequency"
  ) +
  theme_bw()

# Display the plot
print(p)
```

TLF Generator | Tables | Listings | Figures

Dataset Selection

Select Dataset:

adlb

Rows: 3600 | Columns: 26

Geometry

Geom Type:

Boxplot

Aesthetics (aes)

X Variable:

PARAM

Y Variable:

AVAL

Color (group):

PARAM

Fill:

None

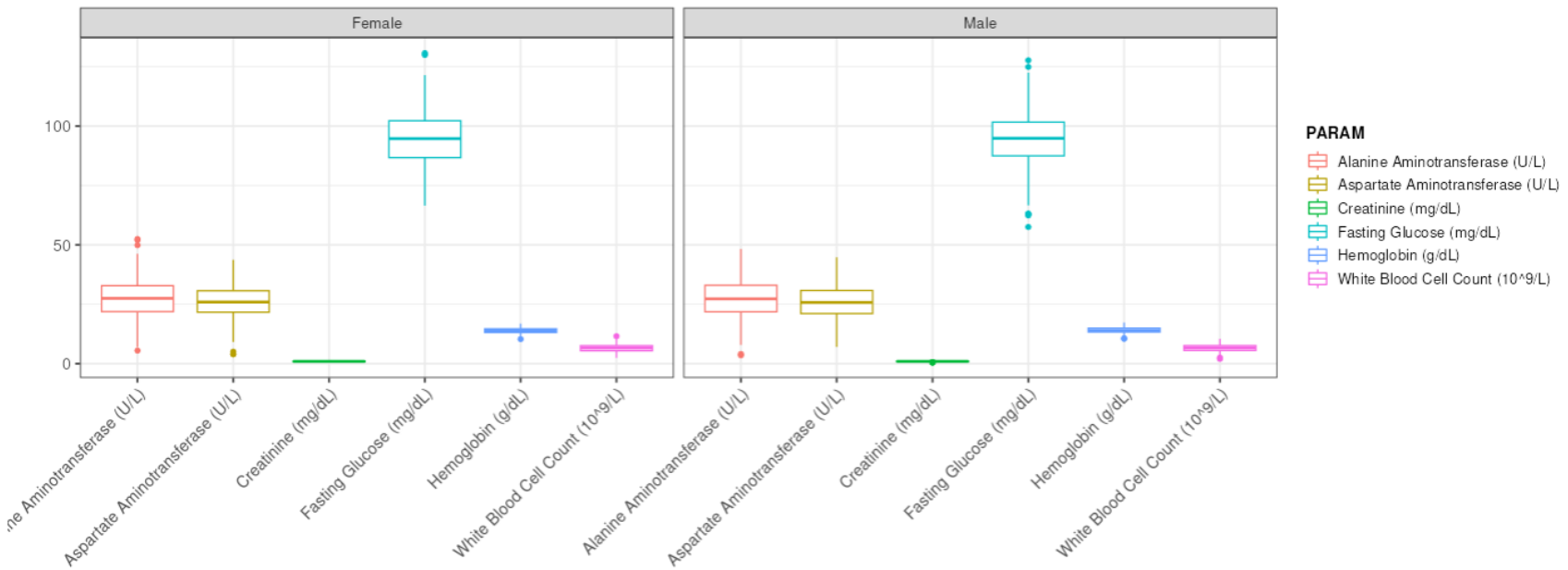
Faceting

Facet By:

SEX

Facet Type:

Boxplot



Export Options

Filename: plot_output

Format: png

Width: 10

Height: 6

Download Plot | Generate R Code | Download .R File

Generated R Code

```
# ================================================================================
# ggplot2 Code - Generated by TLF Generator Dashboard
# Generated on: 2026-01-28 17:29:16.185636
# ================================================================================

library(ggplot2)

# Create the plot
```

Benefits

- **Streamlined Quality Control**: The automated, “no-code" nature of the tool reduces the need for repetitive manual re-validation of outputs.
- **High-Precision Deliverables**: Provides consistent generation of clinical-grade reports that maintain high accuracy and quality.
- **Reliable Reproducibility**: Every output is backed by a dynamically generated R script, making results highly reproducible for audits and peer review.
- **Operational Efficiency**: Drastically reduces time consumption and manual work by allowing non-programmers to perform tasks without writing code.

Future Improvements

- **Advanced Statistical Analysis**: Expanding the "Compute Engines" to perform a wider range of statistical tests beyond basic summaries, allowing for deeper inferential analysis directly within the UI.
- **Catalog Expansion**: Moving toward a robust, template-based system featuring a library of standard clinical output formats.
- **Enhanced Data Exploration**: Integrating more granular data-mining features within the existing dashboard for real-time investigative tasks.

Resources

- **Shiny** - https://shiny.posit.co/
- **rtables** - https://insightsengineering.github.io/rtables/latest-tag/
- **rlistings** - https://insightsengineering.github.io/rlistings/latest-tag/
- **ggplot2** - https://ggplot2.tidyverse.org/index.html
- **Google Gemini 3**

Contact Information

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dxza@novonordisk.com

Thank You