

OS03: Succeed with gridify

Enriching R Visualisations for Regulatory
Submissions

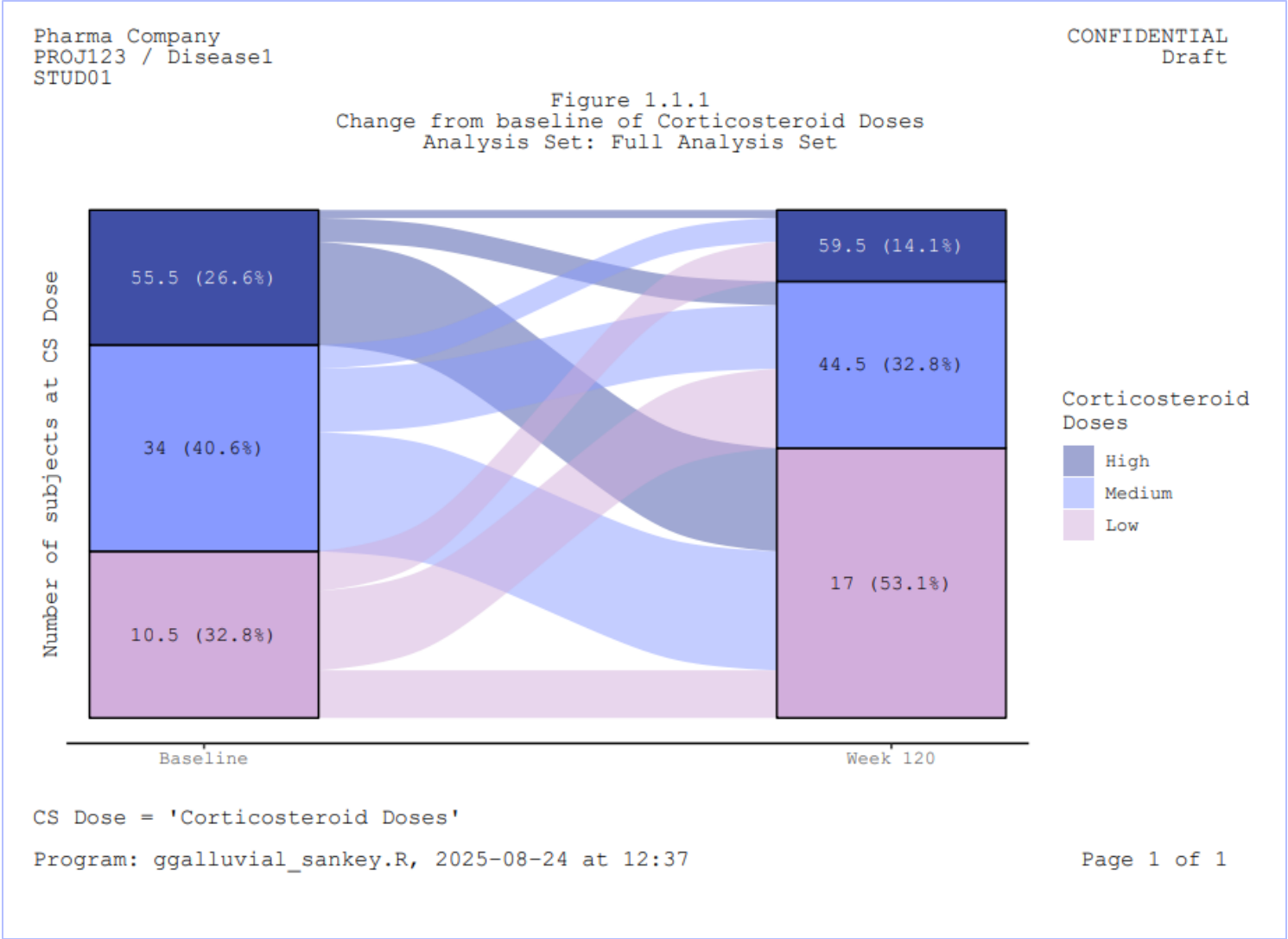
Alexandra Wall, Bristol, UK &
Jennifer Winick-Ng, Toronto, Canada &
Maciej Nasinski, Warsaw, Poland



Inspired by **patients.**
Driven by **science.**



Would you like to create this in R?



How about this?

Pharma Company
PROJ123 / Disease1
STUD01

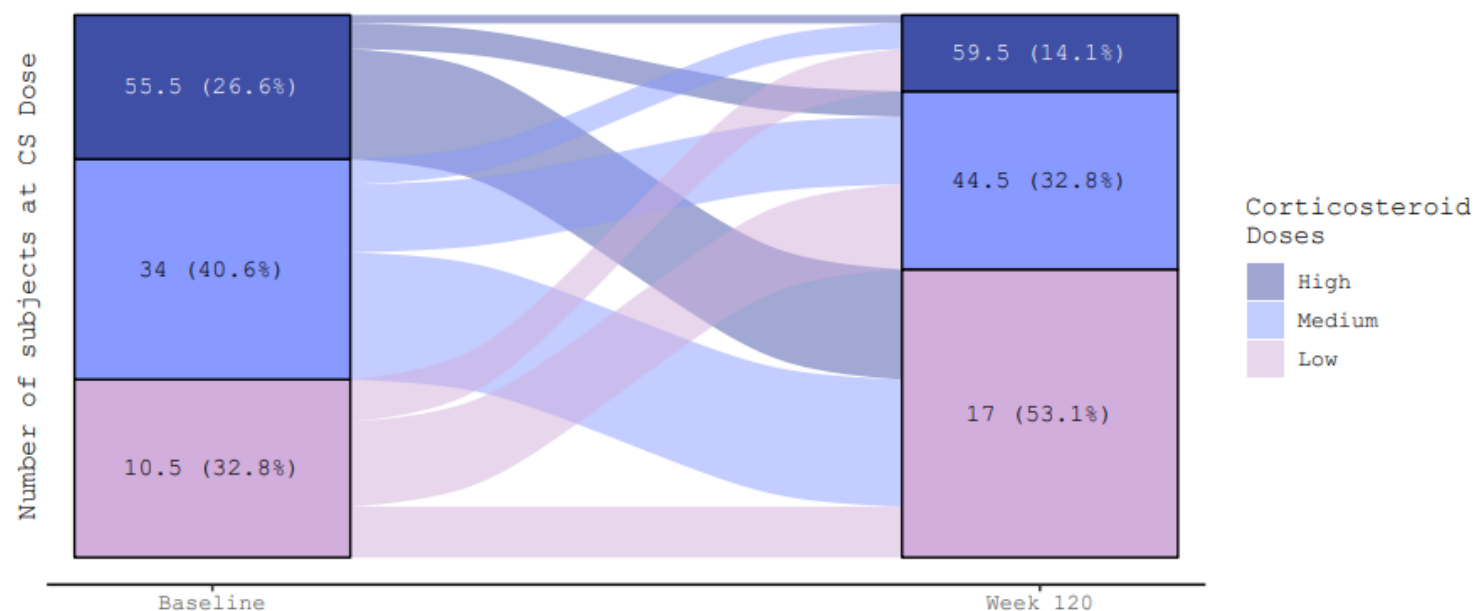
CONFIDENTIAL
Draft

Data Cut-off: 2024-02-13

Figure 1.1.1
Change from baseline of Corticosteroid Doses
Analysis Set: Full Analysis Set

Study participants Initially Randomized to Drug A at Baseline

Treatment Group: Drug A



CS Dose = 'Corticosteroid Doses'

References: previous_sankey_program.R

Program: ggalluvial_sankey.R, 2025-08-24 at 12:37

Page 1 of 1

What about this?

Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL

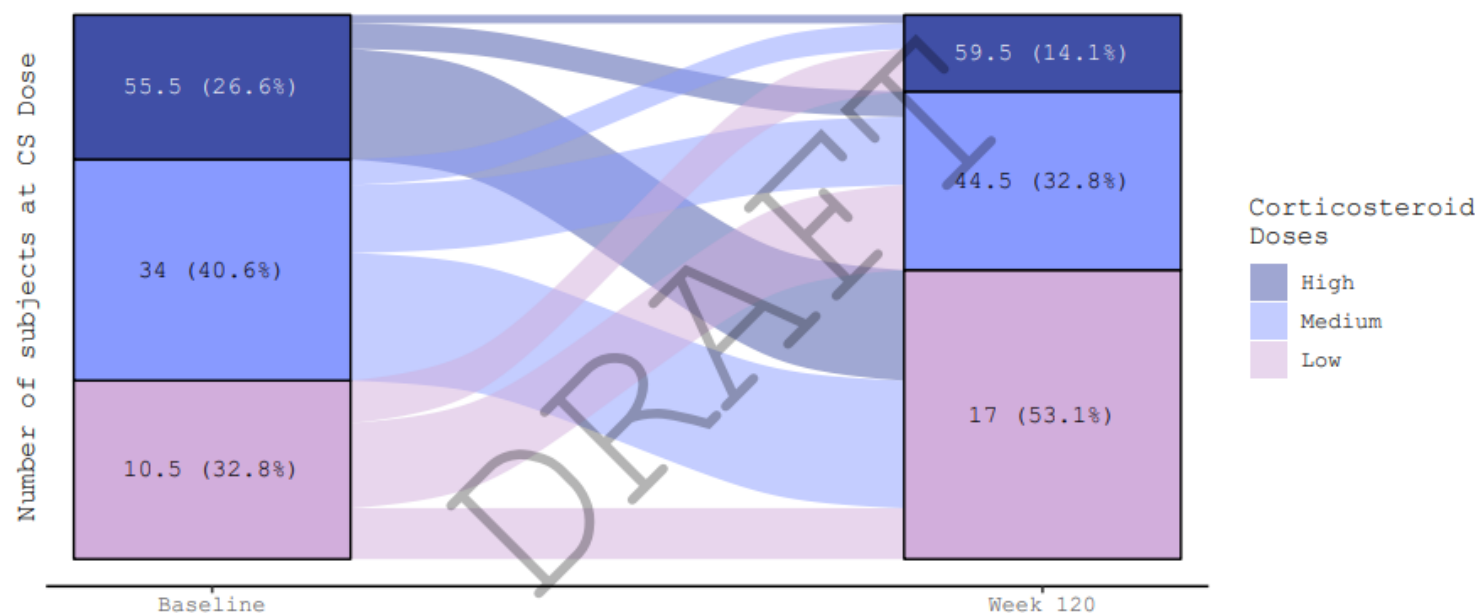
Draft

Data Cut-off: 2024-02-13

Figure 1.1.1
Change from baseline of Corticosteroid Doses
Analysis Set: Full Analysis Set

Study participants Initially Randomized to Drug A at Baseline

Treatment Group: Drug A

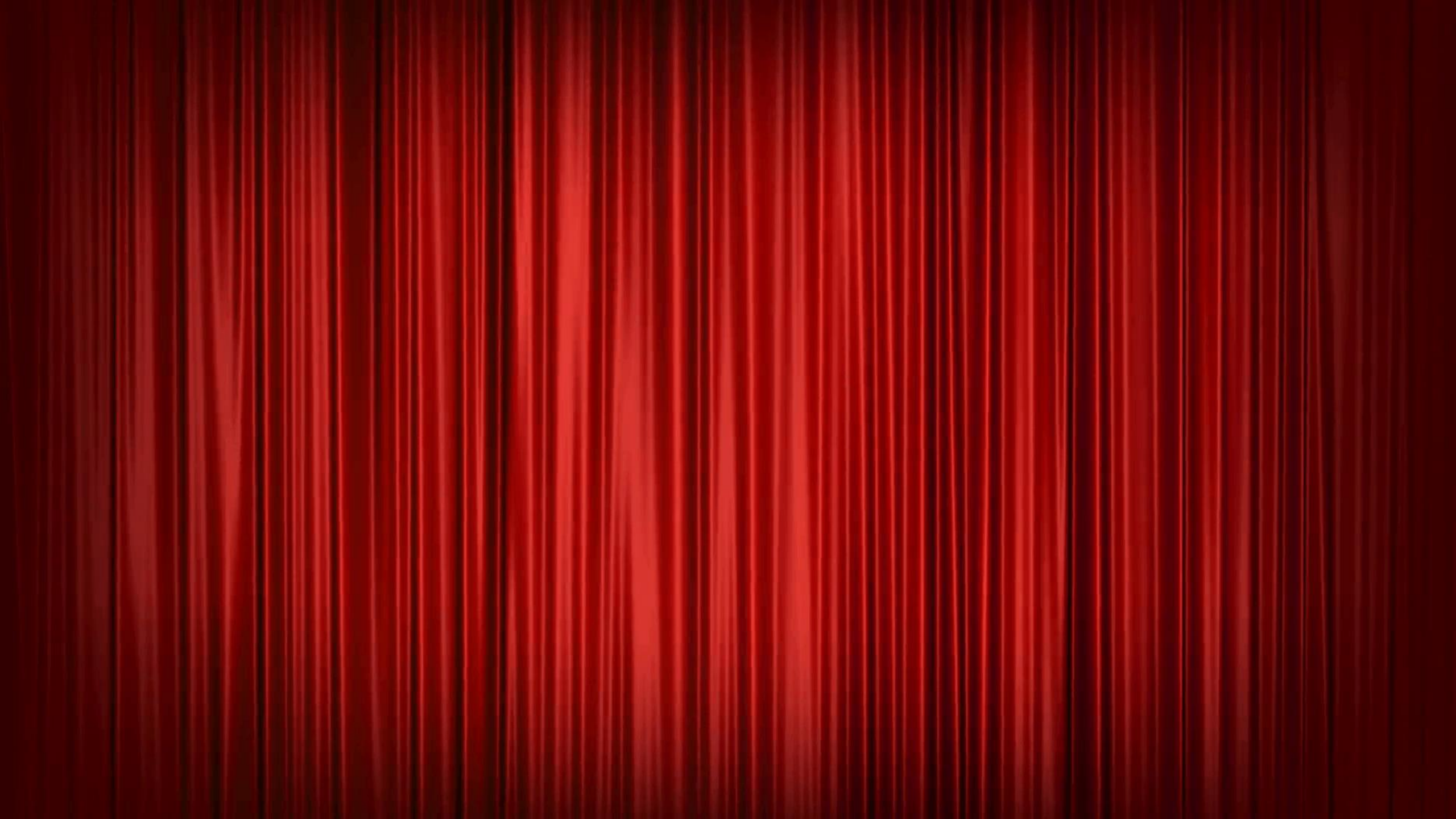


CS Dose = 'Corticosteroid Doses'

References: previous_sankey_program.R

Program: ggalluvial_sankey.R, 2025-08-24 at 12:37

Page 1 of 1



gridify *consistently* and *flexibly* enriches figures and tables

Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL
Final
Data Cut-off:2025-08-26

Table VS T 01a
Vital Signs Observed values and Change form Baseline
Population: Safety

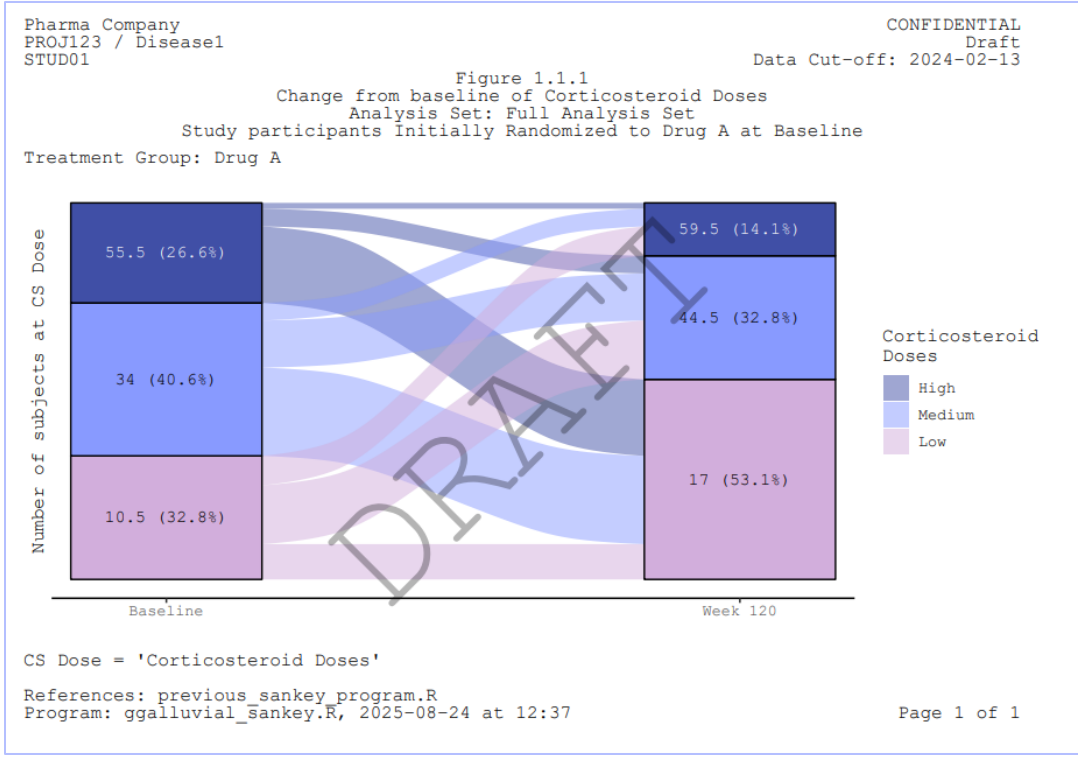
Variable: Diastolic Blood Pressure (mmHg)

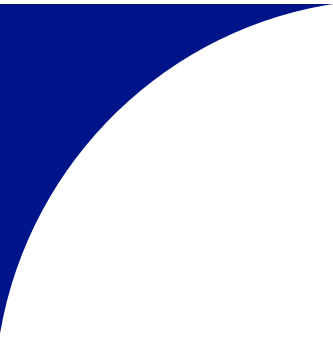
Treatment Group Visit	Observed Result						Change from Baseline Result					
	n	Mean	SD	Median	Min	Max	n	Mean	SD	Median	Min	Max
SCREENING	431	79.9	8.63	81.0	57.0	118.0	431					
BASELINE	1281	78.8	8.15	81.0	53.0	119.0	1281					
WEEK 2	428	79.1	8.36	81.0	56.0	116.0	428	1.6	6.74	6.0	-17.0	27.0
WEEK 4	426	79.2	8.71	81.0	51.0	112.0	426	1.8	6.94	6.0	-22.0	32.0
WEEK 8	421	79.4	8.73	81.0	50.0	119.0	421	1.9	7.47	5.0	-27.0	29.0
WEEK 12	419	78.7	8.33	81.0	46.0	110.0	419	1.3	7.20	5.0	-21.0	38.0
WEEK 16	1196	78.5	7.99	80.0	51.0	112.0	1196	1.2	7.29	5.0	-37.0	31.0

Max=maximum, Min=minimum, SD=standard deviation.
Note: BL Mean is defined as the Baseline results for those subjects who were also assessed at the specified visit.

Program: t_vital_gt_gridify.R,2025-08-26 16:22:17

Page 1 of 1

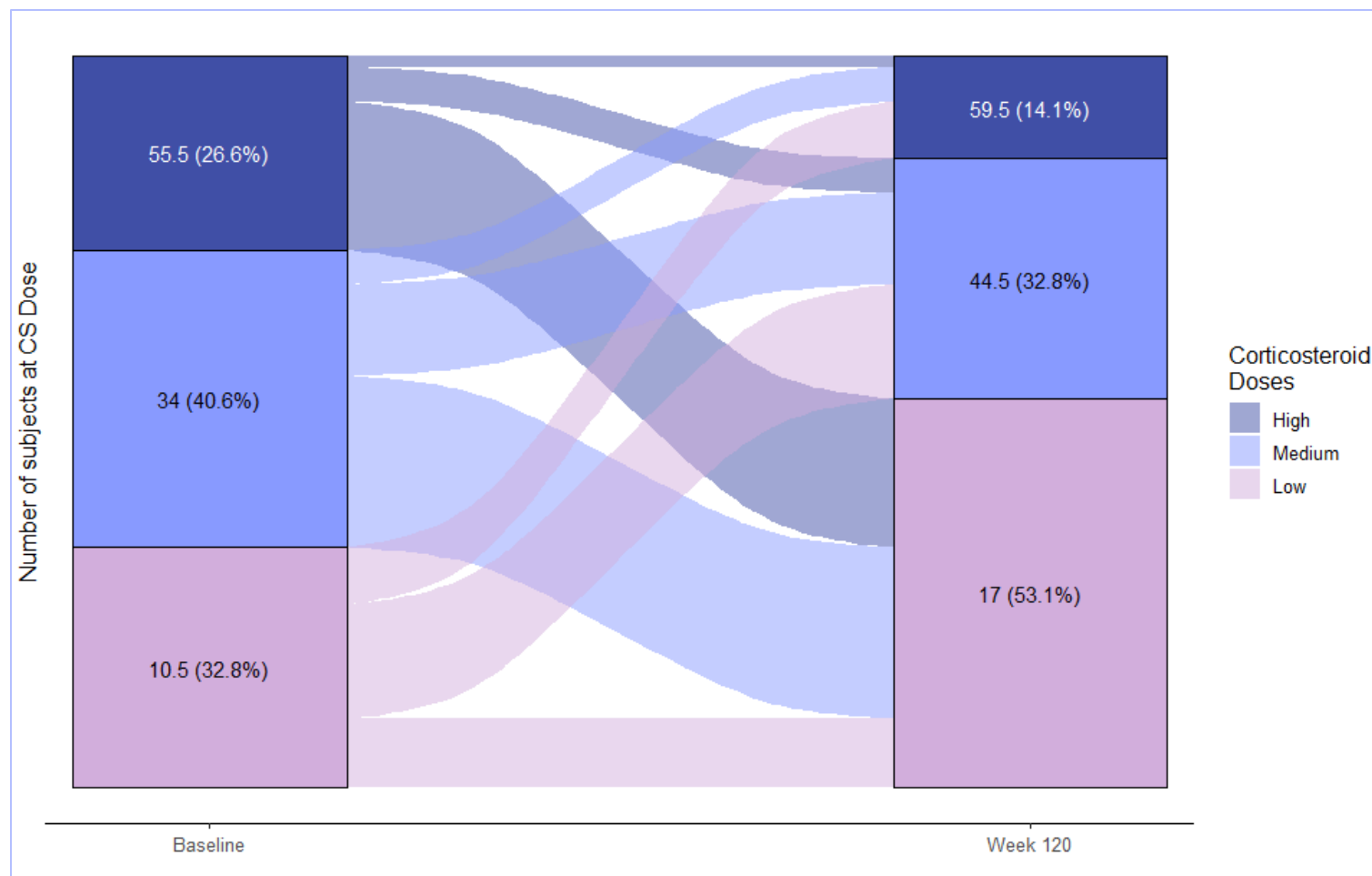




How does gridify work?



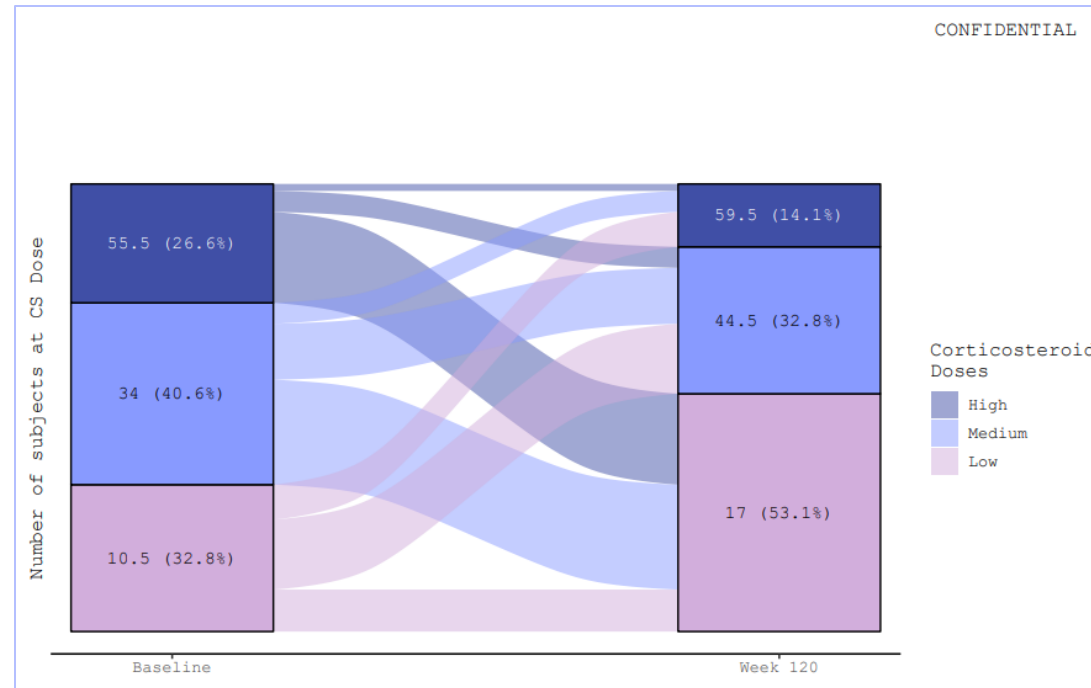
1. Create your plot/table



2. Choose a layout and make a gridify object

```
gridify_empty <- gridify(  
  object = gplot,  
  layout = pharma_layout_letter(global_gpar = grid::gpar(fontfamily = "Courier"))  
)
```

```
> gridify(  
+   object = gplot,  
+   layout = pharma_layout_letter(  
+     global_gpar = grid::gpar(fontfamily = "Courier")  
+   )  
+ )  
gridifyClass object  
-----  
Please run `show_spec(object)` or print the layout to get more specs.  
  
cells:  
header_left_1: empty  
header_left_2: empty  
header_left_3: empty  
header_right_1: filled  
header_right_2: empty  
header_right_3: empty  
output_num: empty  
title_1: empty  
title_2: empty  
title_3: empty  
by_line: empty  
note: empty  
references: empty  
footer_left: empty  
footer_right: empty  
watermark: empty
```



3. Fill out the cells with required text



```
gridify_empty |>
```

```
set_cell("header_left_1", "Pharma Company") |>
```

```
set_cell("header_left_2", "PROJ123 / Disease1") |>
```

```
set_cell("header_left_3", "STUD01") |>
```

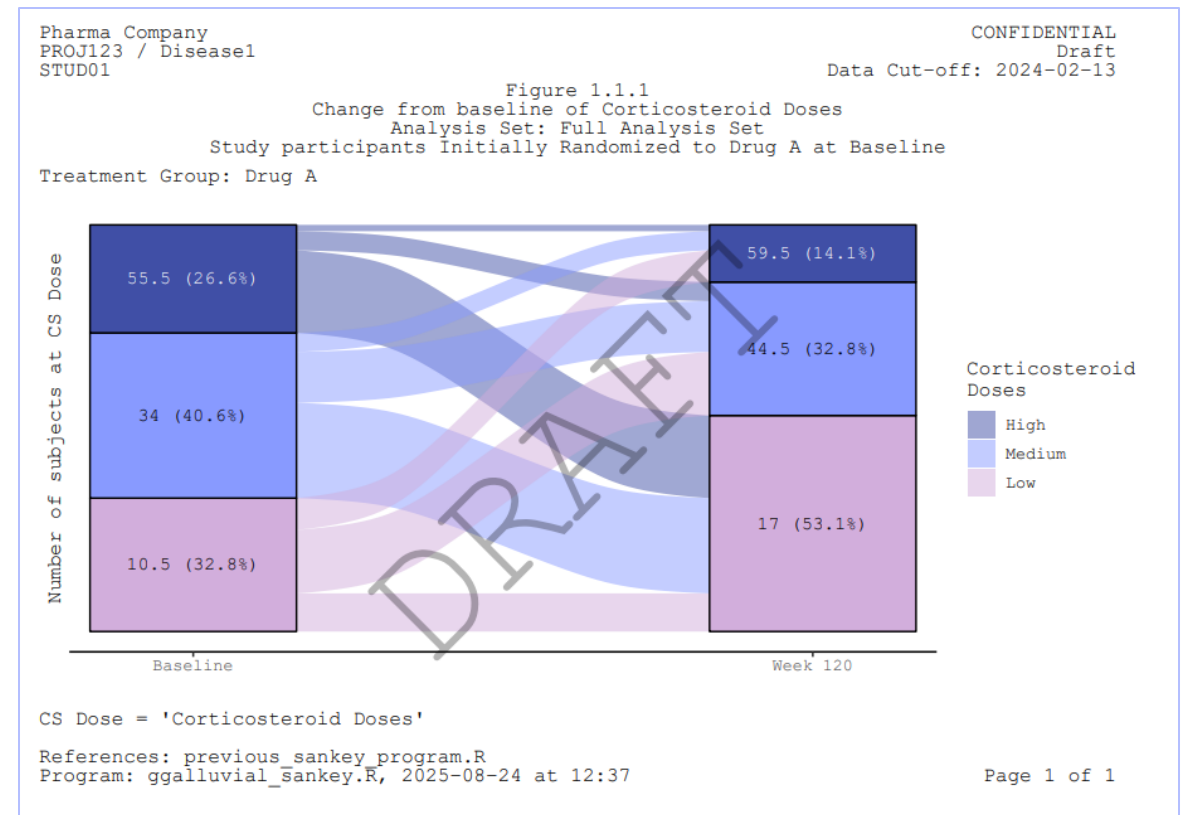
```
...
```

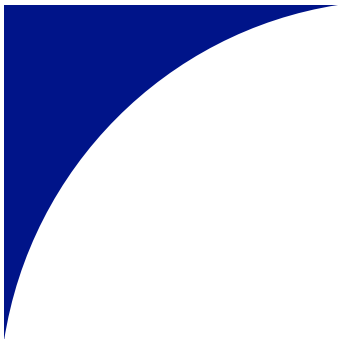
```
...
```

```
set_cell("note", "CS Dose = 'Corticosteroid Doses'") |>
```

```
set_cell("footer_right", "Page 1 of 1") |>
```

```
set_cell("watermark", "DRAFT")
```





Different layouts for different purposes



Three predefined pharma layouts

- pharma_layout_base()
- pharma_layout_A4()
- pharma_layout_letter()

My Company
<PROJECT> / <INDICATION>
<STUDY>

CONFIDENTIAL
<Draft or Final>
Data Cut-off: YYYY-MM-DD

<Table> xx.xx.xx
<Title 1>
<Title 2>
<Optional Title 3>

By: <GROUP>, <optionally: Demographic parameters>

mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
21.0	6	160.0	110	3.90	2.620	16.46	0	1	4	4
21.0	6	160.0	110	3.90	2.875	17.02	0	1	4	4
22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
21.4	6	258.0	110	3.08	3.215	19.44	1	0	3	1
18.7	8	360.0	175	3.15	3.440	17.02	0	0	3	2
18.1	6	225.0	105	2.76	3.460	20.22	1	0	3	1
14.3	8	360.0	245	3.21	3.570	15.84	0	0	3	4
24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
19.2	6	167.6	123	3.92	3.440	18.30	1	0	4	4

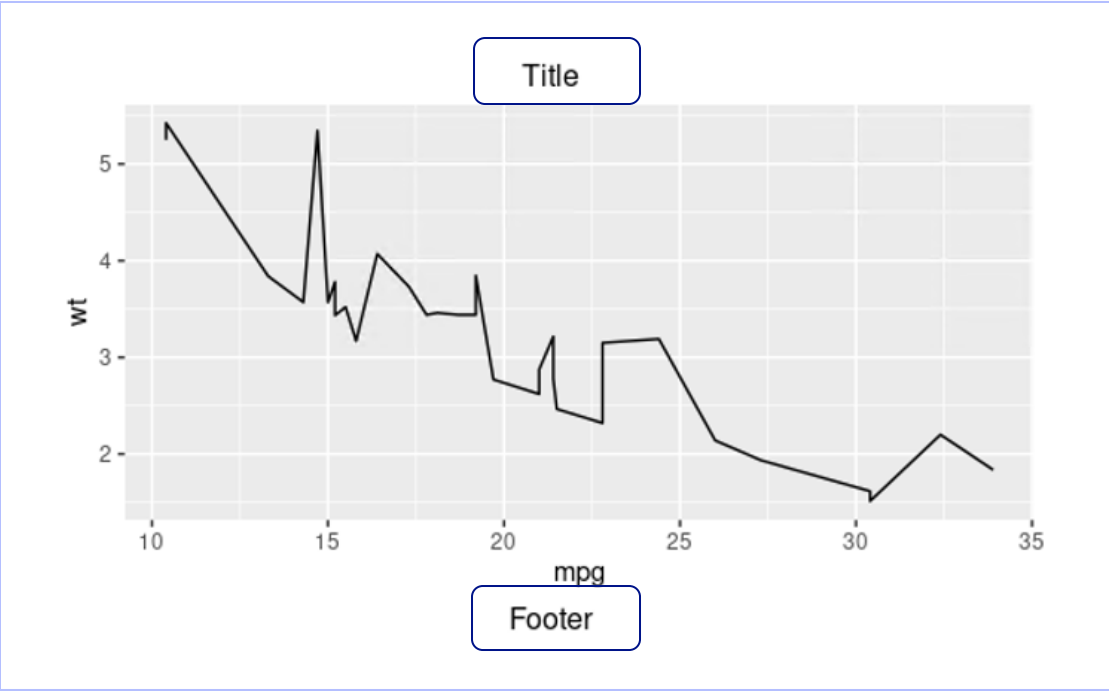
<Note or Footnotes>

<References:>
Program: <PROGRAM NAME>, YYYY-MM-DD at HH:MM

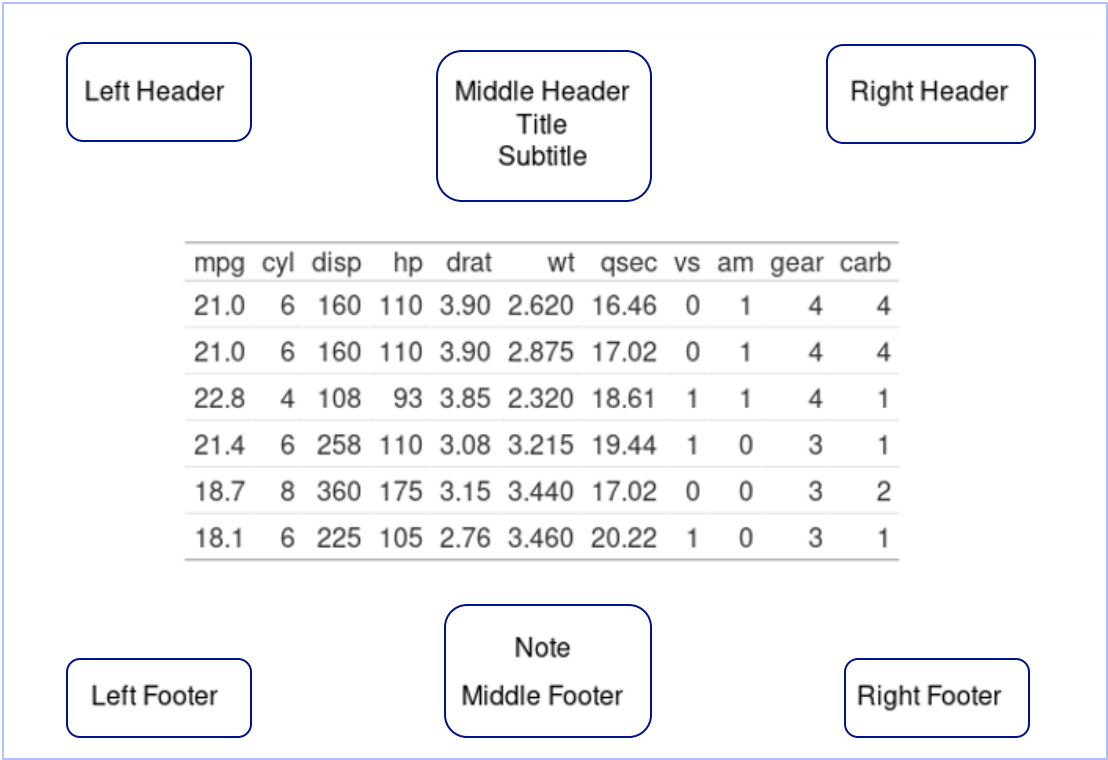
Page xx of nn

Two other predefined layouts

simple_layout()



complex_layout()

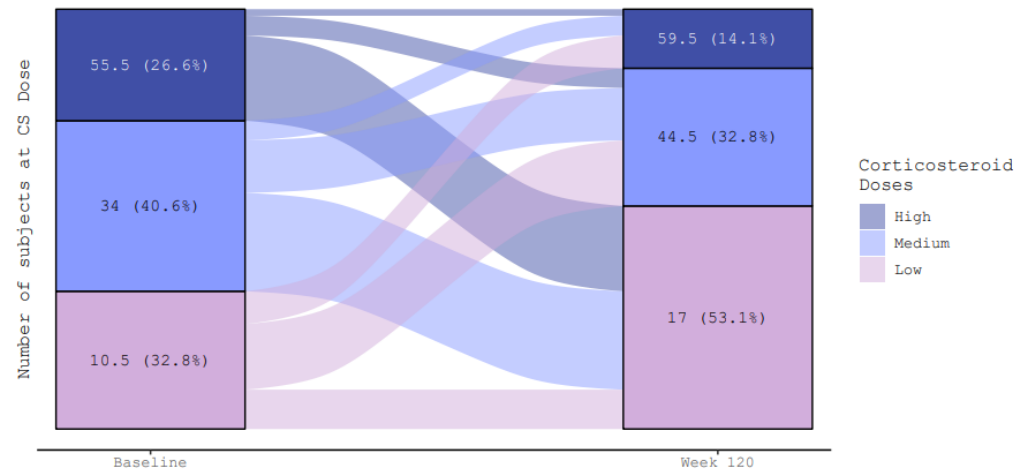


Layouts are customisable

Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL
Draft

Figure 1.1.1
Change from baseline of Corticosteroid Doses
Analysis Set: Full Analysis Set



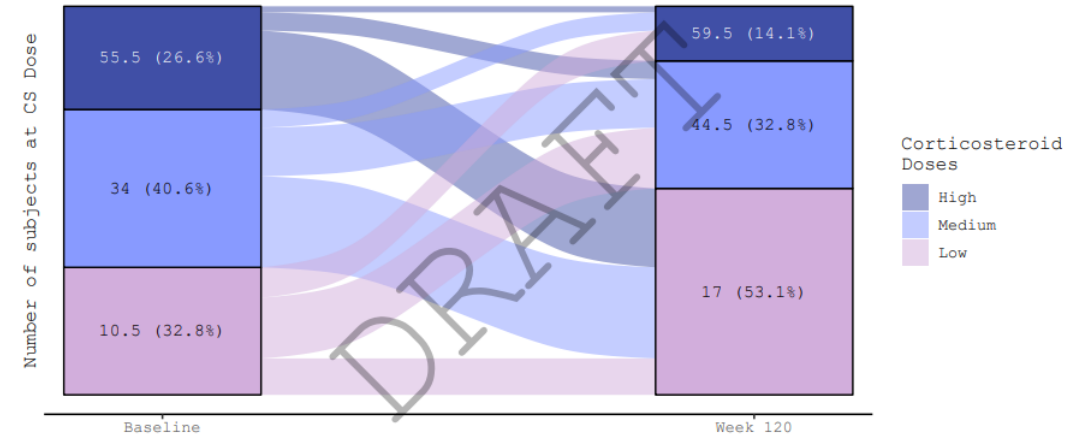
CS Dose = 'Corticosteroid Doses'
Program: ggalluvial_sankey.R, 2025-08-24 at 12:37

Page 1 of 1

Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL
Draft
Data Cut-off: 2024-02-13

Figure 1.1.1
Change from baseline of Corticosteroid Doses
Analysis Set: Full Analysis Set
Study participants Initially Randomized to Drug A at Baseline
Treatment Group: Drug A



CS Dose = 'Corticosteroid Doses'
References: previous_sankey_program.R
Program: ggalluvial_sankey.R, 2025-08-24 at 12:37

Page 1 of 1

Create your own layout

Gridify's Creative Call

Geographic Region 1	MEAN AGE	MEAN BMRKR1
A: Drug X		
Africa	32.62	6.47
Asia	33.11	6.00
Eurasia	38.40	4.88
Europe	29.75	5.44
North America	35.62	6.84
South America	36.69	5.18
B: Placebo		
Africa	31.14	4.65
Asia	35.17	5.97
Eurasia	37.50	6.35
Europe	39.33	4.17
North America	38.80	4.21
South America	32.00	6.22
C: Combination		
Africa	32.73	6.57
Asia	35.45	5.44
Eurasia	31.83	3.58
Europe	54.50	2.35
North America	34.60	6.26
South America	38.30	6.62

*'When standard layouts feel too plain,
And your reports need that custom flair,
Gridify invites you to design and share,
A layout that shows how much you care.
With flexible styling for every text,
Create something bold, something complex,
Scan the QR code, propose your best,
Join the community, pass the creative test.
From corporate branding to research needs,
Your custom layout plants the seeds,
For others seeking that perfect frame,
To showcase data and stake their claim.'*
Anonymous

UCB team

Powered by gridify

Layout = grid

	Gridify's Creative Call		
Geographic Region 1	MEAN AGE	MEAN BMRKR1	<i>'When standard layouts feel too plain, And your reports need that custom flair, Gridify invites you to design and share, A layout that shows how much you care. With flexible styling for every text, Create something bold, something complex, Scan the QR code, propose your best, Join the community, pass the creative test. From corporate branding to research needs, Your custom layout plants the seeds, For others seeking that perfect frame, To showcase data and stake their claim.' Anonymous</i>
A: Drug X			
Africa	32.62	6.47	
Asia	33.11	6.00	
Eurasia	38.40	4.88	
Europe	29.75	5.44	
North America	35.62	6.84	
South America	36.69	5.18	
B: Placebo			
Africa	31.14	4.65	
Asia	35.17	5.97	
Eurasia	37.50	6.35	
Europe	39.33	4.17	
North America	38.80	4.21	
South America	32.00	6.22	
C: Combination			
Africa	32.73	6.57	
Asia	35.45	5.44	
Eurasia	31.83	3.58	
Europe	54.50	2.35	
North America	34.60	6.26	
South America	38.30	6.62	
UCB team			Powered by gridify

1. Specify your grid

```
nrow = 3,  
ncol = 4,  
heights = grid::unit(c(1, 1, 1), c("lines", "null",  
"lines")),  
widths = grid::unit(c(1/4, 1/4, 1/4, 1/4), "npc"),  
margin = grid::unit(c(0.5, 0.5, 0.5, 0.5),  
"inches"),
```

fixed

- inches
- cm
- mm

npc

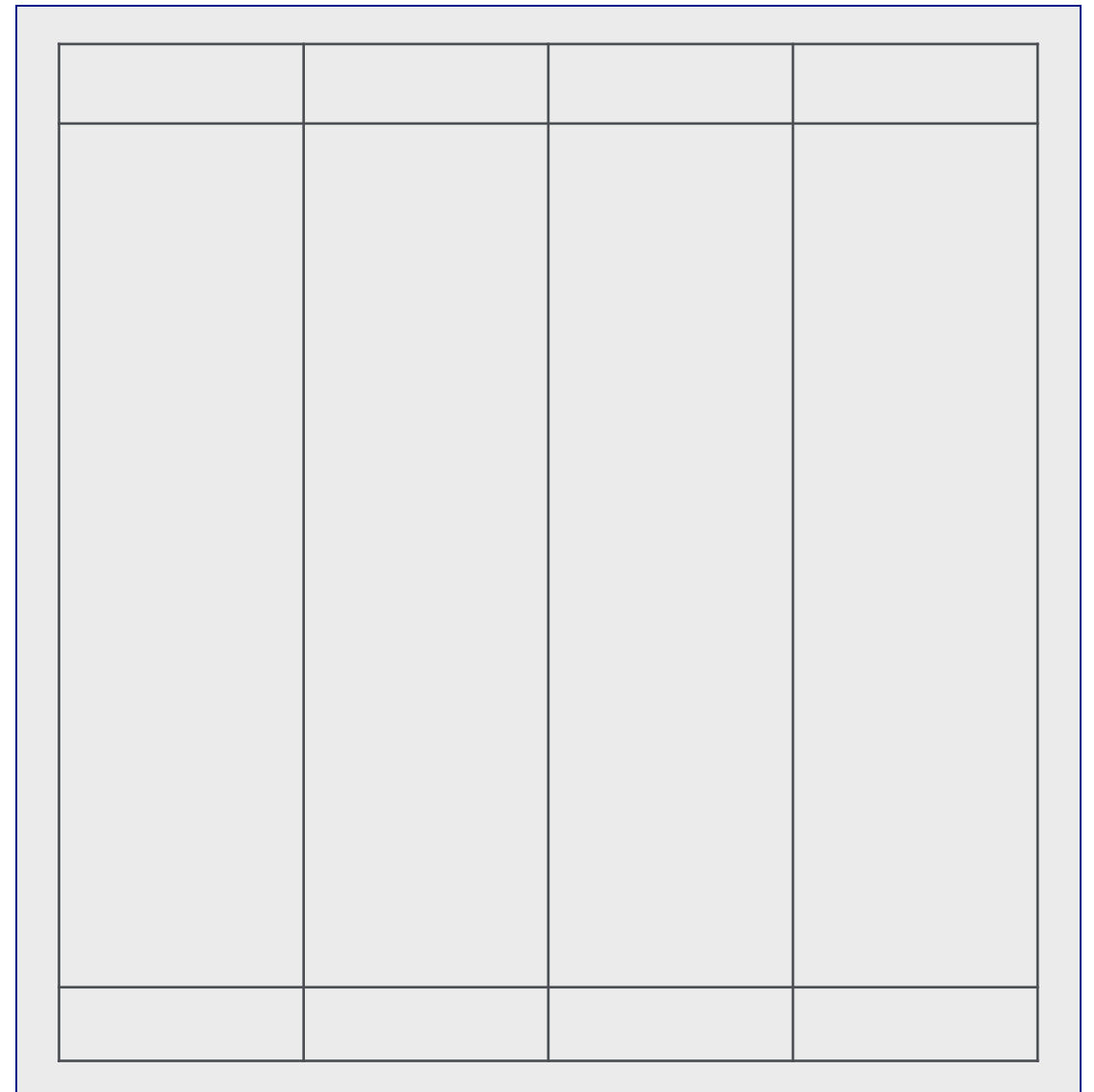
- Proportions

lines

- Number of lines of text
- Dynamic spacing with 0

null

- Leftover space
- Use value 1



Specify
grid

Place
object

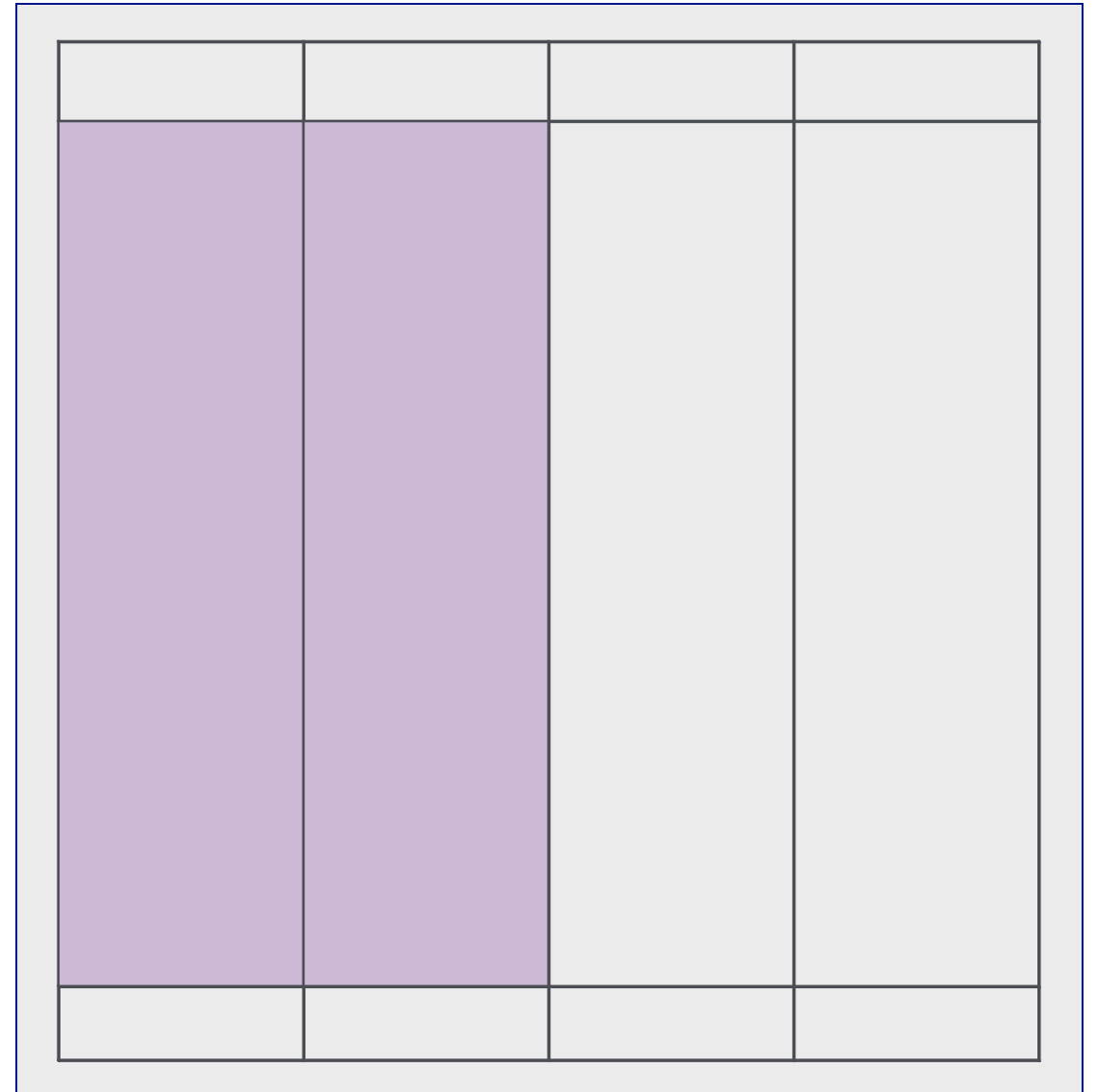
Place
cells

Define
layout

Use
layout

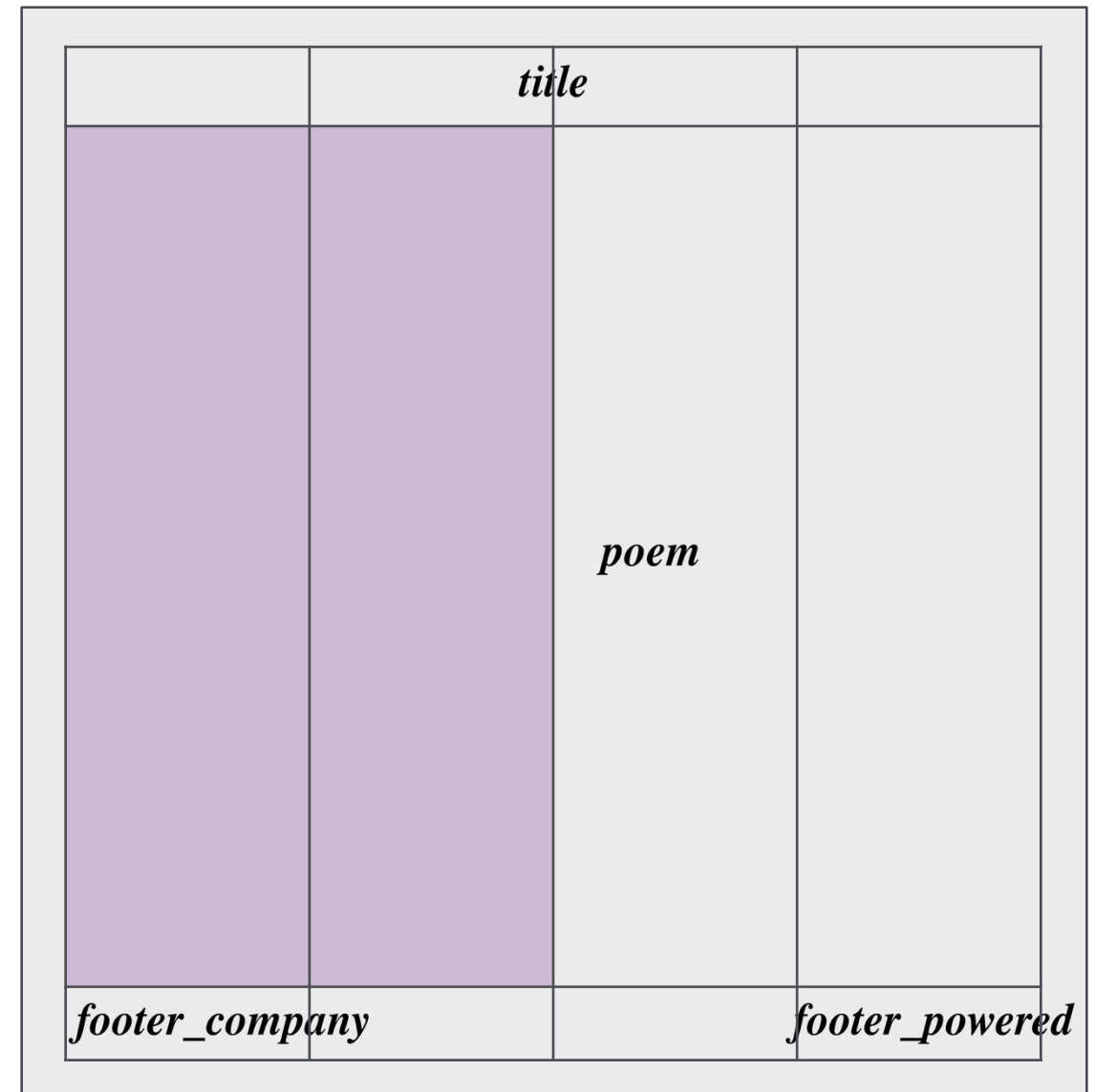
2. Place your object

```
object = gridifyObject(  
  row = 2, col = 1:2  
)
```



3. Place your cells

```
cells = gridifyCells(  
  title = gridifyCell(  
    row = 1, col = 2:3,  
    gpar = grid::gpar(fontsize=28)  
  ),  
  poem = gridifyCell(  
    row = 2, col = 3:4, x = 0.1, hjust = 0  
  ),  
  footer_company = gridifyCell(  
    row = 3, col = 1, x = 0, hjust = 0  
  ),  
  footer_powered = gridifyCell(  
    row = 3, col = 4, x = 0, hjust = 0  
  )  
)
```



4. Define your layout

```
custom_layout <-
```

```
  gridifyLayout(
```

```
    ..., # all above arguments
```

```
    global_gpar = grid::gpar(
```

```
      fontfamily = "serif",
```

```
      fontsize = 24,
```

```
      col = "black",
```

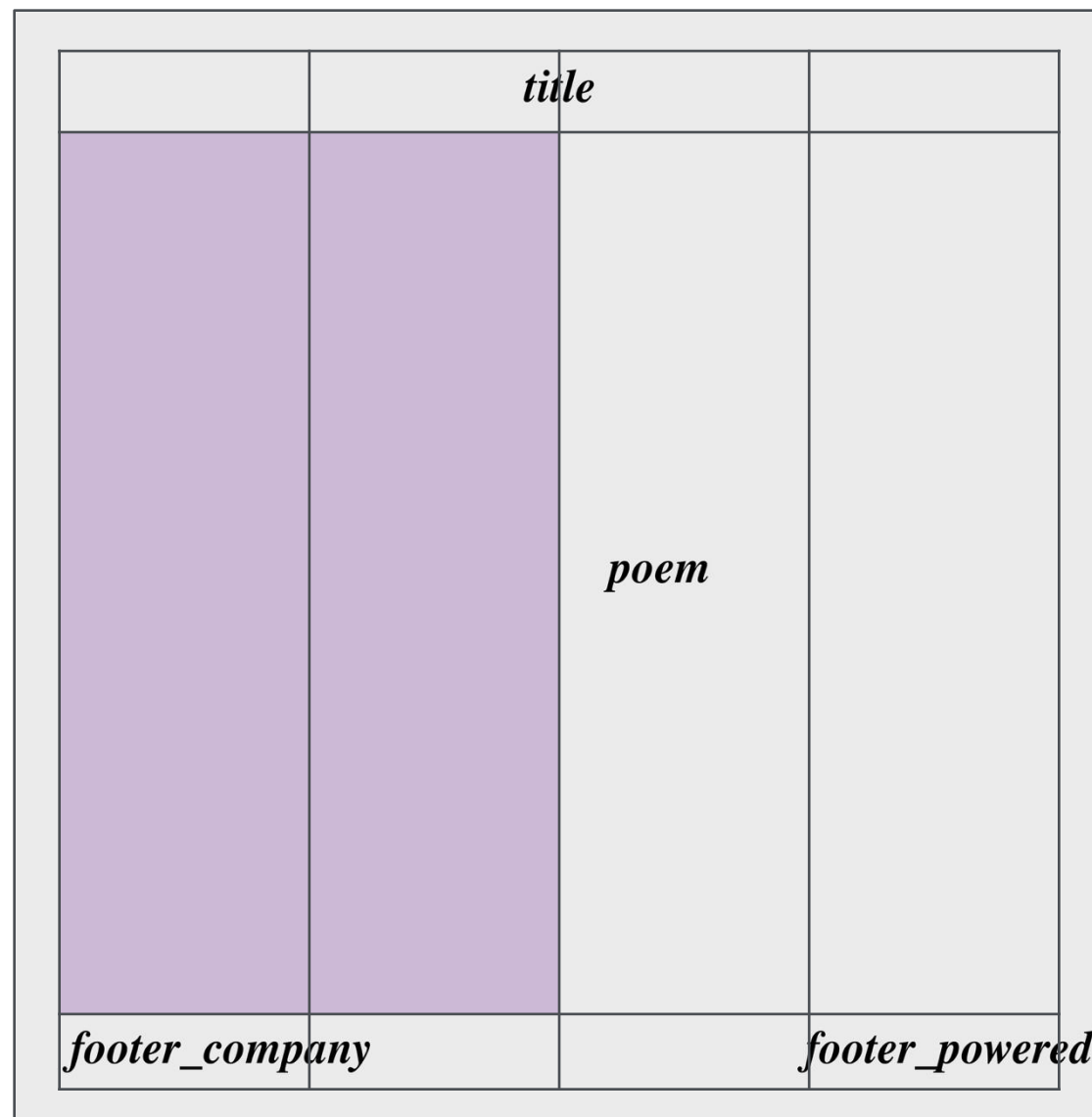
```
      fontface = "bold"
```

```
    ),
```

```
    background = "gray92",
```

```
    adjust_height = TRUE
```

```
  )
```



Specify
grid

Place
object

Place
cells

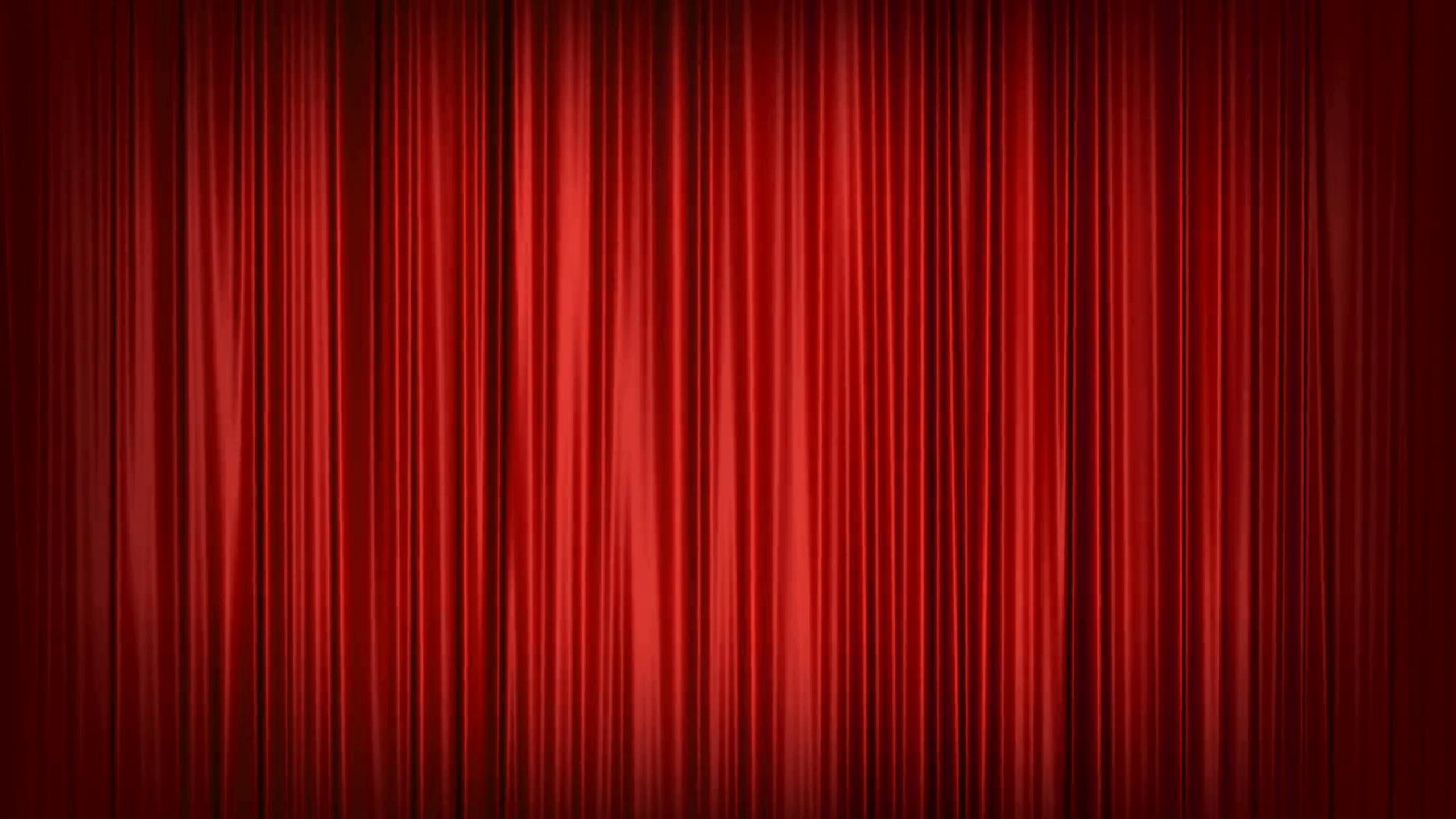
Define
layout

Use
layout

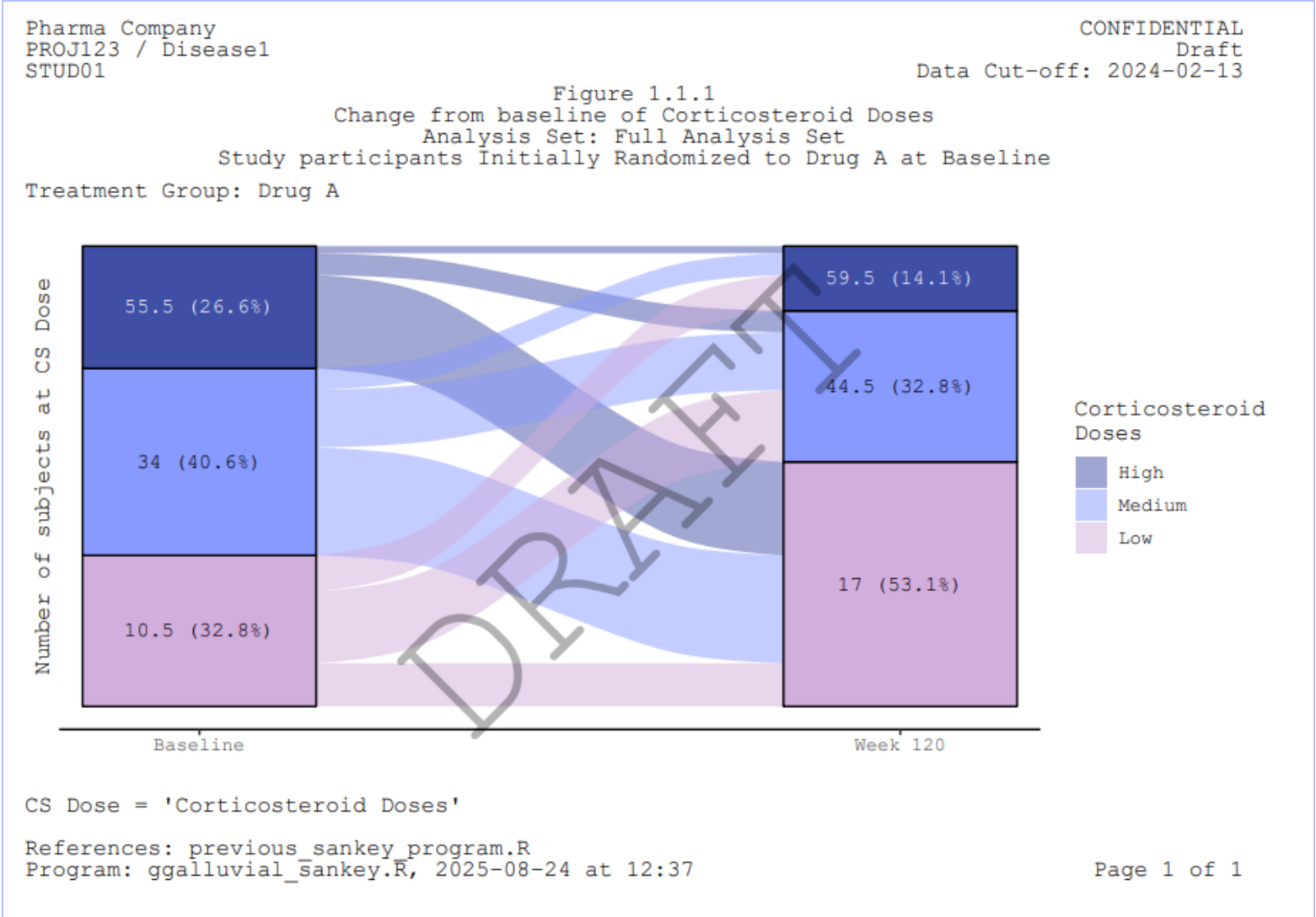
5. Use your custom layout

```
gridify(
  object = gg,
  layout = custom_layout
) |>
  set_cell(
    "title", "Gridify's Creative Call"
  ) |>
  set_cell(
    "poem", poem,
    gpar = grid::gpar(fontface =
      "bold.italic"
    )
  ) ...
```

	Gridify's Creative Call		
Geographic Region 1	MEAN AGE	MEAN BMRKR1	<i>'When standard layouts feel too plain, And your reports need that custom flair, Gridify invites you to design and share, A layout that shows how much you care. With flexible styling for every text, Create something bold, something complex, Scan the QR code, propose your best, Join the community, pass the creative test. From corporate branding to research needs, Your custom layout plants the seeds, For others seeking that perfect frame, To showcase data and stake their claim.'</i> Anonymous
A: Drug X			
Africa	32.62	6.47	
Asia	33.11	6.00	
Eurasia	38.40	4.88	
Europe	29.75	5.44	
North America	35.62	6.84	
South America	36.69	5.18	
B: Placebo			
Africa	31.14	4.65	
Asia	35.17	5.97	
Eurasia	37.50	6.35	
Europe	39.33	4.17	
North America	38.80	4.21	
South America	32.00	6.22	
C: Combination			
Africa	32.73	6.57	
Asia	35.45	5.44	
Eurasia	31.83	3.58	
Europe	54.50	2.35	
North America	34.60	6.26	
South America	38.30	6.62	
UCB team			Powered by gridify



Consistent integration with other R packages



Consistent integration with other R packages

Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL
Draft

AET01
All Adverse Events
Analysis Set: All Subjects Screened

	A: Drug X (N=134)	B: Placebo (N=134)	C: Combination (N=132)
Total number of patients with at least one AE	100 (74.6%)	98 (73.1%)	103 (78.0%)
Total number of AEs	502	480	604
Total number of deaths	25 (18.7%)	23 (17.2%)	22 (16.7%)
Total number of patients withdrawn from study due to an AE	3 (2.2%)	6 (4.5%)	5 (3.8%)
Total number of patients with at least one			
AE with fatal outcome	5 (3.7%)	5 (3.7%)	6 (4.5%)
Serious AE	85 (63.4%)	80 (59.7%)	87 (65.9%)
Serious AE leading to withdrawal from treatment	6 (4.5%)	12 (9.0%)	9 (6.8%)
Serious AE leading to dose modification/interruption	36 (26.9%)	40 (29.9%)	47 (35.6%)
Related Serious AE	64 (47.8%)	52 (38.8%)	64 (48.5%)
AE leading to withdrawal from treatment	20 (14.9%)	24 (17.9%)	26 (19.7%)
AE leading to dose modification/interruption	63 (47.0%)	70 (52.2%)	77 (58.3%)
Related AE	86 (64.2%)	85 (63.4%)	92 (69.7%)
Related AE leading to withdrawal from treatment	10 (7.5%)	9 (6.7%)	12 (9.1%)
Related AE leading to dose modification/interruption	44 (32.8%)	44 (32.8%)	51 (38.6%)
Severe AE (at greatest intensity)	77 (57.5%)	70 (52.2%)	79 (59.8%)

AE=Adverse event, [a]: All deaths is based on all subjects screened and refers to all deaths occurring on study

Note: All deaths is based on all subjects screened and refers to all deaths occurring on study.

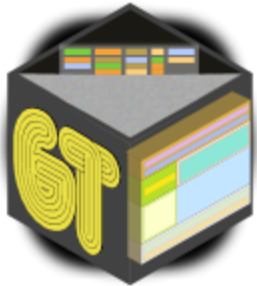
Note: Drug-related is based on the Investigator assessment.

Program: aet01_rtables.R, 2025-08-24 at 12:37

Page 1 of 1



Consistent integration with other R packages



Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL
Final
Data Cut-off:2025-08-26

Table VS T 01a
Vital Signs Observed values and Change form Baseline
Population: Safety

Variable: Diastolic Blood Pressure (mmHg)

Treatment Group Visit	Observed Result						Change from Baseline Result					
	n	Mean	SD	Median	Min	Max	n	Mean	SD	Median	Min	Max
SCREENING	431	79.9	8.63	81.0	57.0	118.0	431					
BASELINE	1281	78.8	8.15	81.0	53.0	119.0	1281					
WEEK 2	428	79.1	8.36	81.0	56.0	116.0	428	1.6	6.74	6.0	-17.0	27.0
WEEK 4	426	79.2	8.71	81.0	51.0	112.0	426	1.8	6.94	6.0	-22.0	32.0
WEEK 8	421	79.4	8.73	81.0	50.0	119.0	421	1.9	7.47	5.0	-27.0	29.0
WEEK 12	419	78.7	8.33	81.0	46.0	110.0	419	1.3	7.20	5.0	-21.0	38.0
WEEK 16	1196	78.5	7.99	80.0	51.0	112.0	1196	1.2	7.29	5.0	-37.0	31.0

Max=maximum, Min=minimum, SD=standard deviation.
Note: BL Mean is defined as the Baseline results for those subjects who were also assessed
at the specified visit.

Program: t_vital_gt_gridify.R,2025-08-26 16:22:17

Page 1 of 1

Consistent integration with other R packages

Pharma Company
PROJ123 / Disease1
STUD01

CONFIDENTIAL
Final

DMT01
Demographics Table
Analysis Set: All Subjects Screened

Characteristic	Overall N = 254	Placebo N = 86	Xanomeline High Dose N = 84	Xanomeline Low Dose N = 84
Age				
Mean (SD)	75.1 (8.2)	75.2 (8.6)	74.4 (7.9)	75.7 (8.3)
Median (Q1, Q3)	77.0 (70.0, 81.0)	76.0 (69.0, 82.0)	76.0 (70.5, 80.0)	77.5 (71.0, 82.0)
Min, Max	51.0, 89.0	52.0, 89.0	56.0, 88.0	51.0, 88.0
Age Group, n (%)				
<65	33 (13.0%)	14 (16.3%)	11 (13.1%)	8 (9.5%)
65-80	144 (56.7%)	42 (48.8%)	55 (65.5%)	47 (56.0%)
>80	77 (30.3%)	30 (34.9%)	18 (21.4%)	29 (34.5%)
Sex, n (%)				
F	143 (56.3%)	53 (61.6%)	40 (47.6%)	50 (59.5%)
M	111 (43.7%)	33 (38.4%)	44 (52.4%)	34 (40.5%)

Program: dmt01_gtsummary.R, 2025-08-24 at 12:37

Page 1 of 1



Flexible outputting with multiple file formats



Easy integration with
Markdown tools



Easy to automate with looping

TITLE	FOOTNOTE
Summary of Key Findings	All results are based on data collected in 2023.
Methodology Overview	Analysis was conducted using R version 4.2.0.
Limitations and Future Work	Further research is needed.

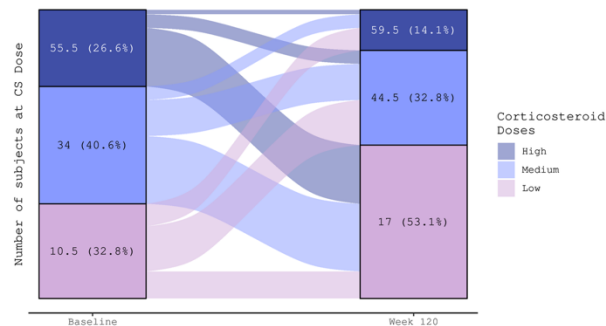


```
obj_list <- list()
for (row in seq_len(nrow(df))) {
  obj <- gridify(
    object = gg,
    layout = custom_layout
  ) |>
  set_cell("title", df$TITLE[row]) |>
  set_cell("footer_company", df$FOOTNOTE[row])

  obj_list[[row]] <- obj
}
obj_list
```

Results

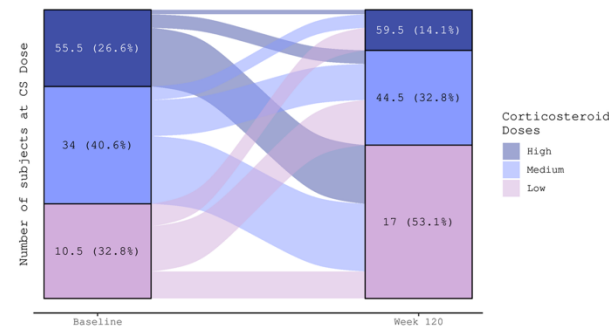
Summary of Key Findings



All results are based on data collected in 2023.

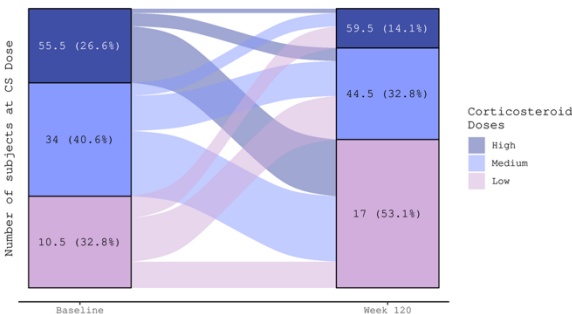


Methodology Overview



Analysis was conducted using R version 4.2.0.

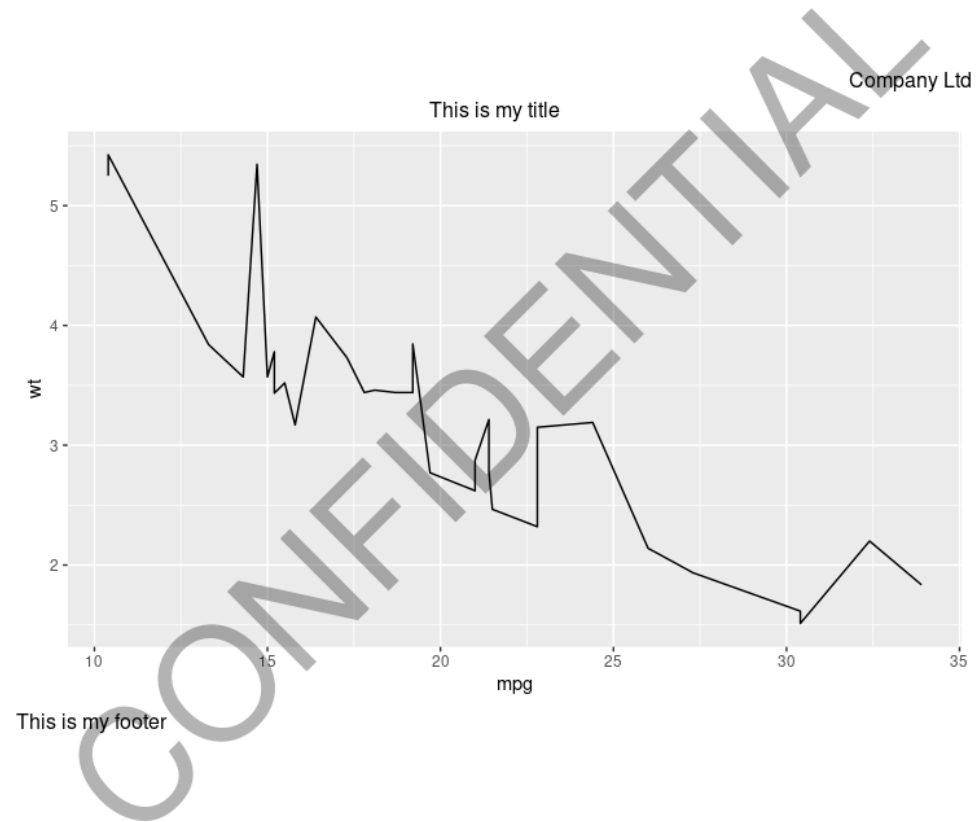
Limitations and Future Work



Further research is needed.

Transparency with meta-programming

```
custom_code <- print(custom_code)_output  
custom_code
```



Transparency with meta-programming

```
custom_code <- print(custom_code_output)
custom_code
```

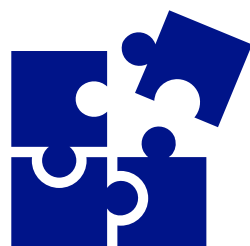
- Builds on base R *grid* package
- Allows you to retrieve, inspect, and reuse the *grid* call code

```
grid::gTree(children = do.call(grid::gList, list(grid::grobTree(grid::editGrob(OBJECT,
  vp = grid::viewport(height = grid::unit.pmax(grid::unit(1,
    "npc"), grid::unit(1, "inch")), width = grid::unit.pmax(grid::unit(1,
    "npc"), grid::unit(1, "inch")))), vp = grid::viewport(layout.pos.row = 3,
  layout.pos.col = 1:2)), grid::grobTree(grid::textGrob(label = "Company Ltd",
  x = 1, y = 1, hjust = 1, vjust = 1, rot = 0, gp = grid::gpar()),
  gp = grid::gpar(), vp = grid::viewport(layout.pos.row = 1,
    layout.pos.col = 2)), grid::grobTree(grid::textGrob(label = "This is my title",
  x = 1, y = 0.5, hjust = 0.5, vjust = 0.5, rot = 0, gp = grid::gpar()),
  gp = grid::gpar(), vp = grid::viewport(layout.pos.row = 2,
    layout.pos.col = 1)), grid::grobTree(grid::textGrob(label = "This is my footer",
  x = 0, y = 0.5, hjust = 0, vjust = 0.5, rot = 0, gp = grid::gpar()),
  gp = grid::gpar(), vp = grid::viewport(layout.pos.row = 4,
    layout.pos.col = 1)), grid::grobTree(grid::textGrob(label = "CONFIDENTIAL",
  x = 0.5, y = 0.5, hjust = 0.5, vjust = 0.5, rot = 45, gp = grid::gpar(fontsize = 90)),
  gp = grid::gpar(fontsize = 90, alpha = 0.3), vp = grid::viewport(layout.pos.row = 1:4,
    layout.pos.col = 1:2))), vp = grid::viewport(name = "lyt",
  x = grid::unit(0.1, "npc"), y = grid::unit(0.1, "npc"), just = c("left",
    "bottom"), width = grid::unit(1, "npc") - grid::unit(0.1,
    "npc") - grid::unit(0.1, "npc"), height = grid::unit(1,
    "npc") - grid::unit(0.1, "npc") - grid::unit(0.1, "npc"),
  gp = grid::gpar(), layout = grid::grid.layout(nrow = 4L,
    ncol = 2L, heights = grid::unit(c(1, 1, 1, 0.05), c("lines",
    "lines", "null", "npc")), widths = grid::unit(c(0.5,
    0.5), c("npc", "npc")))))
```

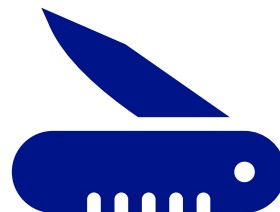
Why use gridify?



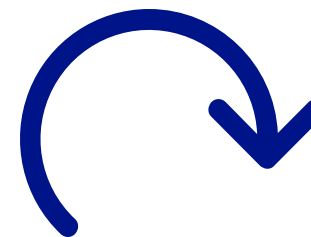
Simple



Customizable



Versatile



Iteration-Friendly



Transparent

Contributing to open source



*'When standard layouts feel too plain,
And your reports need that custom flair,
Gridify invites you to design and share,
A layout that shows how much you care.
With flexible styling for every text,
Create something bold, something complex,
Scan the QR code, propose your best,
Join the community, pass the creative test.
From corporate branding to research needs,
Your custom layout plants the seeds,
For others seeking that perfect frame,
To showcase data and stake their claim.'
Anonymous*

ACKNOWLEDGEMENTS

Alberto Montironi
Jonathan Bleier
Cynthia McShea
Mike Branson
+ gridify Team
+ many others



CONTACTS

Alexandra Wall
(Alexandra.Wall@ucb.com)
Jennifer Winick-Ng
(Jennifer.Winick-Ng@ucb.com)
Maciej Nasinski
(Maciej.Nasinski@ucb.com)



Inspired by **patients.**
Driven by **science.**