HEIDELBERG
UNIVERSITY
HOSPITAL

Propensity Score in Pharmacoepidemiolgy

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Need and significance

> Extend trial finding into real-world settings

- Inclusion/exclusion criteria
- Heterogeneity and complex treatment regimens

> Natural course of diseases

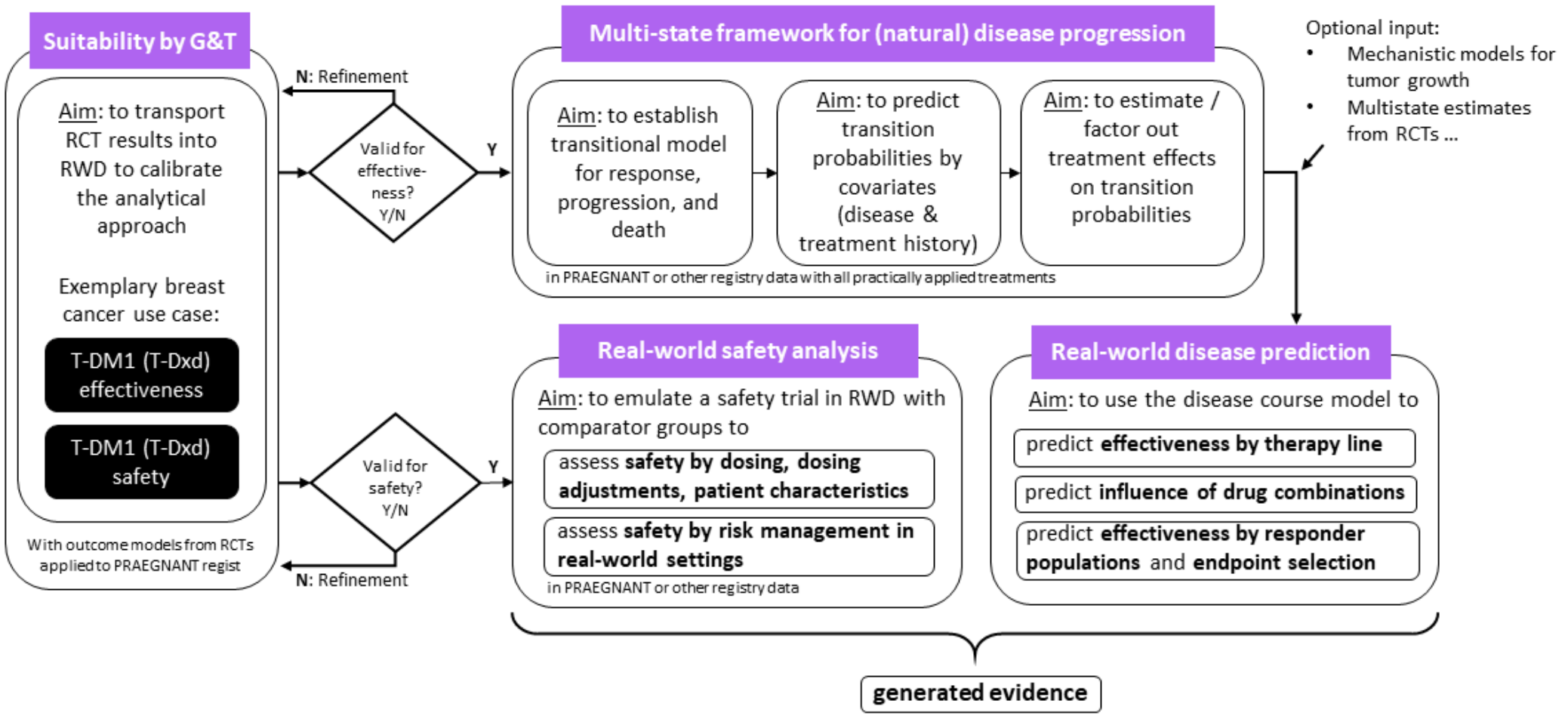
- Endpoint selection
- Evaluation of multiple disease states

What TREND-REVIVAL offers

An integration of the use of `validated real-world data` sources and `multi-state models` to:

- Provide the necessary regulatory information
- Predict success in RW treatment situations
- Support the RCT design to increase success rates in clinical development

Project Overview



Extending RCT inferences

Extending RCT inferences

- Conduct transportability analysis using
  - Either IPW or outcome model-based approach
  - Validation process due to the target and target population differences
  - Variables measurement
- Use of individual patient data from RCTs: `Outcome, exposure and covariate`
- Use of individual patient in RW: Only `covariates` (also possible to use summary-level information)

Extending RCT inferences: critical points

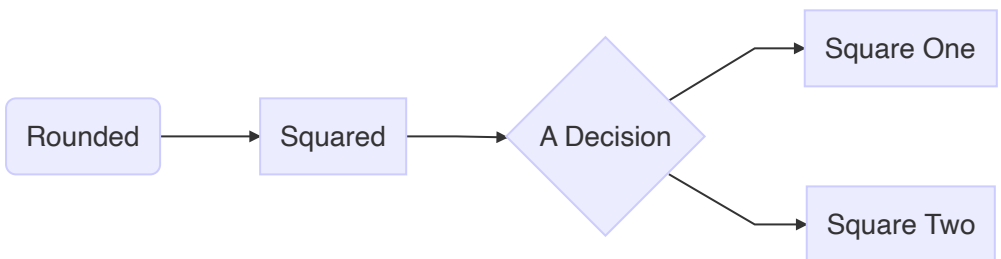
- Check the identifiability conditions
- Identify relevant effect modifiers
- Level of agreement between the predicted treatment effect and the observed

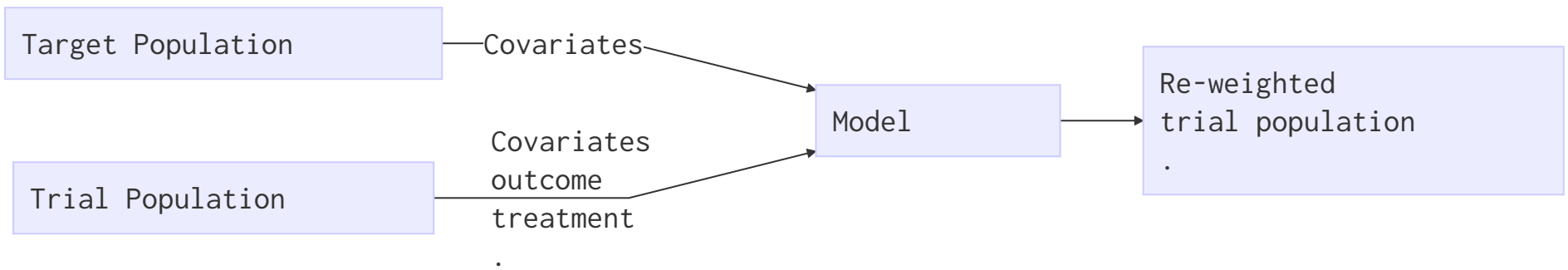
Multi-state modelling

Overall

- Provide more detailed insights about the course of diseases
  - Hazard of transition (intensity), probability of transition, time spent in a state
- Evaluate the effect of covariates on transitions

Multi-state model




Target Population
Covariates
Trial Population
Covariates
outcome
treatment
.
Model
Re-weighted
trial population
.

New topic!

To make a slide like this, use:

```
# Title of slide {background-color="#562457"}
```

Tabset example

Example 1 | Example 2

Content here for tabset 1 :)

Incremental content

Hi!

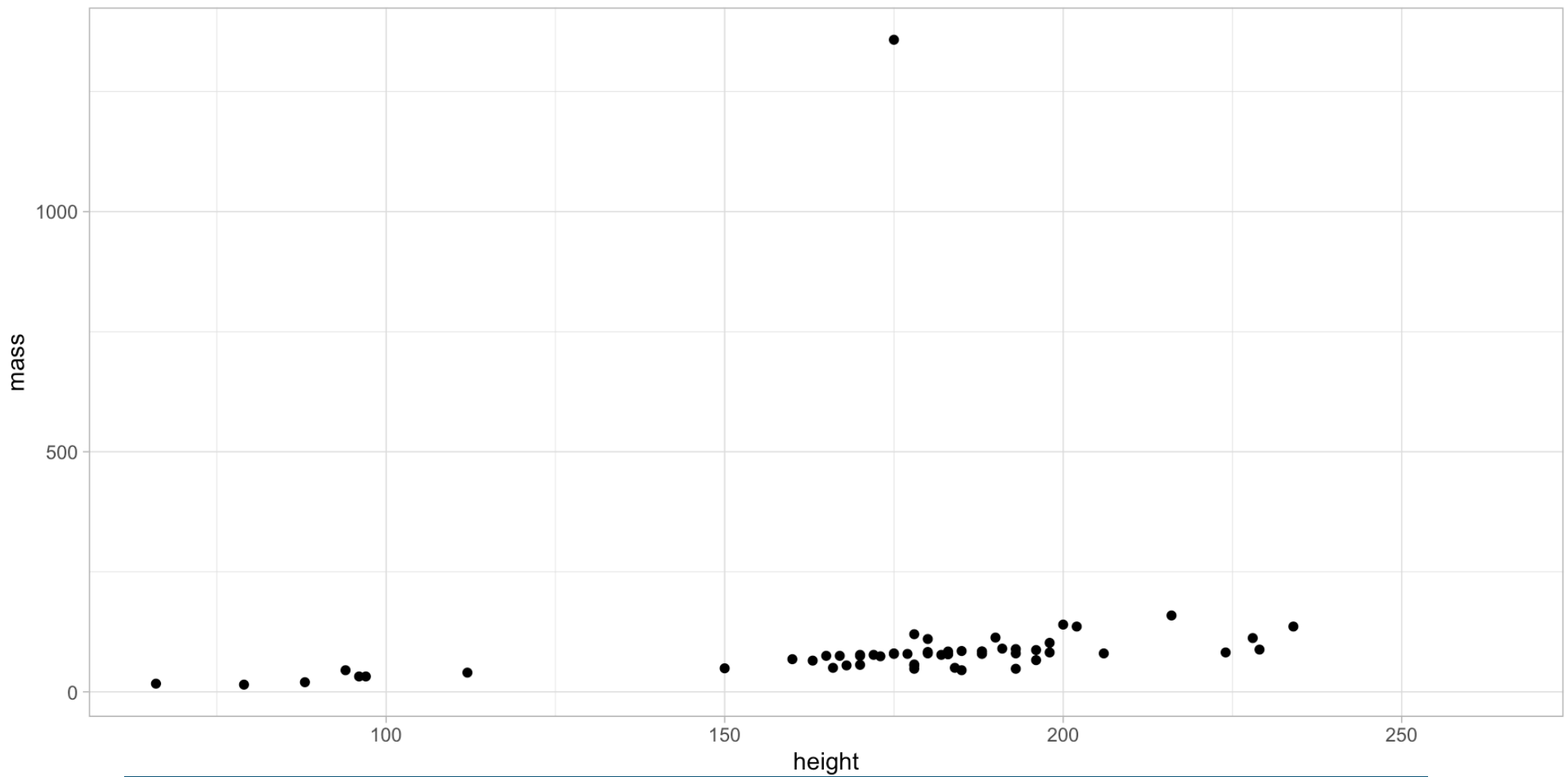
Use . . . to separate content as an incremental slide!

You can add R code

```
library(dplyr)
library(ggplot2)
g <- starwars |>
  ggplot() +
  geom_point(aes(x = height, y = mass)) +
  theme_light()
```

And show the results aswell :)

```
1 g
```



What about tables?

`knitr::kable()`

```
tab <- starwars |>
  tidyr::drop_na(species) |>
  group_by(species) |>
  summarise(
    n = n(),
    mean_heigth = round(mean(height, na.rm = TRUE)),
    mean_mass = round(mean(mass, na.rm = TRUE))
  ) |>
  slice_max(order_by = n, n = 4)

knitr::kable(tab)
```

species	n	mean_heigth	mean_mass
Human	35	178	81
Droid	6	131	70
Gungan	3	209	74
Kaminoan	2	221	88
Mirialan	2	168	53
Twi'lek	2	179	55
Wookiee	2	231	124
Zabrak	2	173	80

DT::datatable()

With the `smaller` class in the slide! Ex: `## slide name {.smaller}`

Show 5 entries Search:

	species	n	mean_heigth	mean_mass
1	Human	35	178	81
2	Droid	6	131	70
3	Gungan	3	209	74
4	Kaminoan	2	221	88
5	Mirialan	2	168	53

Showing 1 to 5 of 8 entries Previous 1 2 Next

gt::gt()

species	n	mean_heigth	mean_mass
Human	35	178	81
Droid	6	131	70
Gungan	3	209	74
Kaminoan	2	221	88
Mirialan	2	168	53
Twi'lek	2	179	55
Wookiee	2	231	124
Zabrak	2	173	80

reactable::reactable()

species	n	mean_heigth	mean_mass
Human	35	178	81
Droid	6	131	70
Gungan	3	209	74
Kaminoan	2	221	88
Mirialan	2	168	53
Twi'lek	2	179	55
Wookiee	2	231	124
Zabrak	2	173	80

Diagrams with Mermaid!

Read about how to create a diagram in this post by Mine Çetinkaya-Rundel.

Exporting into PDF

You can use the function `pagedown::chrome_print()` to print the HTML version into a PDF!

```
pagedown::chrome_print("path-to-file.html")
```