Quarto training

📙 Exercise 3

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Table of contents

## 1 Overall objective

* You are tasked with generating a Microsoft Word report on an outbreak. Open the Quarto document exercise3.qmd in RStudio.
* All text formatted in bold is a placeholder and should be replaced with appropriate automated calculations or cross-references.
* Complete each of the following tasks and render the document after each task or set of tasks to track your progress.

## 2 Setup basic elements of the Quarto document

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| Tip |
| * See [Quarto documentation about date formatting](https://quarto.org/docs/reference/dates.html#date-formatting) * See [Quarto documentation about execution options](https://quarto.org/docs/computations/execution-options.html) |

* ☐ Update the title of the Quarto document ;
* ☐ Put your name as author of the Quarto document ;
* ☐ Add the date 2023-12-31 to the Quarto document ;
* ☐ Change the output format to generate a MS Word document ;
* ☐ Configure the Quarto document to hide code in the rendered MS Word document ;
* ☐ Configure the Quarto document to hide warnings in the rendered MS Word document.

## 3 Improve navigation and readability

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| Tip |
| * See [Quarto documentation about MS Word table of contents](https://quarto.org/docs/output-formats/ms-word.html#table-of-contents) |

* ☐ Insert a table of contents to the Quarto document ;
* ☐ Automatically number the different sections of the Quarto document ;
* ☐ Configure the table of contents to only display two levels of section headings.

## 4 Implement dynamic calculations

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| Tip |
| * See [Quarto documentation about dynamic dates](https://quarto.org/docs/reference/dates.html#date-parsing) * See [Quarto documentation about inline code](https://quarto.org/docs/computations/inline-code.html) |

* ☐ Change the date 2023-12-31 to the date at which the Quarto document was last modified, and format this date to display it with the format December 31, 2023 ;
* ☐ Replace the placeholder text in bold with the automated calculation of the outbreak start and end dates ;

“*The outbreak ran from* ***date*** *to* ***date***”

* ☐ Replace the placeholder text in bold with the automated calculation of the number of cases, confirmed cases and deaths.

“*Over the studied period, there were* ***N*** *cases, including* ***N*** *confirmed cases and* ***N*** *confirmed deaths.*”

## 5 Create and reference publication-ready tables

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| Tip |
| * See [gtsummary documentation about summary tables](https://www.danieldsjoberg.com/gtsummary/articles/tbl_summary.html) * See [Quarto documentation about table cross-references](https://quarto.org/docs/authoring/tables.html#cross-references)   Other R packages include [flextable](https://davidgohel.github.io/flextable/) and [gt](https://gt.rstudio.com/) |

* ☐ Create a table summarising the demographic characteristics and outcome frequency of all cases ;
* ☐ Add a caption to the table ;
* ☐ Assign a label to the table ;
* ☐ Replace the placeholder text in bold with a cross-reference to the table ;

“***cross-reference*** *provides a summary of the demographic characteristics and the outcome proportion for the overall population*”

* ☐ Create a table summarising the demographic characteristics of individuals who died versus those who are still alive ;
* ☐ Add a caption to the table ;
* ☐ Assign a label to the table ;
* ☐ Replace the placeholder text in bold with a cross-reference to the table.

“*while* ***cross-reference*** *compares the demographic characteristics of individuals who died versus those who are still alive*”

## 6 Customise figures

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| Tip |
| * See [Quarto documentation about figure cross-references](https://quarto.org/docs/authoring/cross-references.html#computations) * See [Quarto documentation about figure options](https://quarto.org/docs/computations/execution-options.html#figure-options) |

* ☐ Add a caption to the figure ;
* ☐ Assign a label to the figure ;
* ☐ Replace the placeholder text in bold with a cross-reference to the figure ;

“***cross-reference*** *illustrates the outbreak’s progression, which can be divided into distinct phases.*”

* ☐ Adjust the dimensions of the figure until you are happy with it
* ☐ Beautify the plot using ggplot options

## 7 Code

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| Tip |
| * See [gtsummary documentation about formatted table of regression model results](https://www.danieldsjoberg.com/gtsummary/articles/tbl_regression.html) * See [Quarto documentation about code chunk cross-references](https://quarto.org/docs/authoring/cross-references.html#code-listings) |

* ☐ Implement a logistic regression model based on description in the Quarto document ;
* ☐ Create a table summarizing the odds ratios from the logistic regression model ;
* ☐ Add a caption to the table ;
* ☐ Assign a label to the table ;
* ☐ Replace the placeholder text in bold with a cross-reference to the table ;

“The results of the logistic regression model are summarized in the formatted regression table, which is presented in **cross-reference**.”

* ☐ Display the code chunk for your R implementation of the logistic regression (and only this code chunk) in the rendered MS Word document ;
* ☐ Add a caption to the code chunk ;
* ☐ Assign a label to the code chunk ;
* ☐ Replace the placeholder text in bold with a cross-reference to the code chunk.

## 8 Parametrise your report

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| Tip |
| * See [Quarto documentation about parameters](https://quarto.org/docs/computations/parameters.html#knitr) * See [Quarto documentation about rendering outputs using different parameters](https://quarto.org/docs/computations/parameters.html#rendering) |

* ☐ Adjust the report to focus on data for the year 2022 only ;
* ☐ You were unfortunately provided with a previous erroneous version of the dataset. Update the report to use the dataset stored in df2.RData instead of the one stored in df1.RData ;
* ☐ Render 3 reports (1 report with df2.RData for the full outbreak period, 1 report with df1.RData for year 2021 only, 1 report with df2.RData for year 2021 only) adapting the following command which needs to be run in a terminal (ensure your working directory is the one where your Quarto document is stored and all file paths are correct).

quarto render exercise3.qmd --out report\_data1.docx -P dataset:df1.RData

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| Discussion question |
| Discuss the advantages and disadvantages of using R within Quarto compared to using R scripts. |

## 9 Finalise your MS Word report

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| Tip |
| See [Quarto documentation about Word templates](https://quarto.org/docs/output-formats/ms-word-templates.html) |

* ☐ Apply the Swiss TPH template swisstph\_template.docx to your MS Word rendered report ;
* ☐ Create your own template and apply it to your MS Word rendered report.