DHIS2 Reporting

# DHIS2 Login and Data Link

library(tidyverse)

Warning: package 'ggplot2' was built under R version 4.3.3

Warning: package 'tidyr' was built under R version 4.3.3

Warning: package 'dplyr' was built under R version 4.3.3

── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──  
✔ dplyr 1.1.4 ✔ readr 2.1.5  
✔ forcats 1.0.0 ✔ stringr 1.5.1  
✔ ggplot2 3.5.0 ✔ tibble 3.2.1  
✔ lubridate 1.9.3 ✔ tidyr 1.3.1  
✔ purrr 1.0.2   
── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
✖ dplyr::filter() masks stats::filter()  
✖ dplyr::lag() masks stats::lag()  
ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors

user = "admin"  
password = "district"   
  
link = "https://play.dhis2.org/40.3.0/api/analytics.csv?dimension=pe%3A2024AprilS1%3B2024AprilS2&dimension=dx%3AfbfJHSPpUQD%3BcYeuwXTCPkU%3BJtf34kNZhzP%3BhfdmMSPBgLG%3BieZZgaz6ctO&dimension=ou%3AUSER\_ORGUNIT\_CHILDREN&edi\_cache=74f004da0a9e01c0cc9c686994ee2dcb6608b462&tableLayout=true&columns=pe&rows=dx%3Bou&skipRounding=false&completedOnly=false&showHierarchy=true"

# Function to get CSV data from DHIS2

library(httr)  
  
# Function to get data from DHIS2  
getDHIS2CSV <- function(link, user, password) {  
 # Prepare the authentication  
 auth <- authenticate(user = user, password = password, type = "basic")  
   
 # Make the GET request  
 response <- GET(url = link, auth)  
   
 # Check if the request was successful  
 if (status\_code(response) == 200) {  
 # Parse the CSV content  
 content <- content(response, "text", encoding = "UTF-8")  
   
 # Define the CSV file name (you may want to customize this)  
 file\_name <- paste0(Sys.Date(), "\_dhis2\_report.csv")  
   
 # Write the content to a CSV file  
 writeLines(content, con = file\_name)  
   
 cat("Report downloaded successfully:", file\_name, "\n")  
 } else {  
 cat("Failed to download the report. Status code:", status\_code(response), "\n")  
 }  
}  
  
  
  
# Call the function  
getDHIS2CSV(link, user, password)

Report downloaded successfully: 2024-04-04\_dhis2\_report.csv

# Function to get data from DHIS2 and store it as a dataframe

library(httr)  
# If you choose to use read\_csv(), uncomment the next line to load the readr package  
# library(readr)  
  
# Function to get data from DHIS2 and store it as a dataframe  
getDHIS2Data <- function(link, user, password) {  
 # Prepare the authentication  
 auth <- authenticate(user = user, password = password, type = "basic")  
   
 # Make the GET request  
 response <- GET(url = link, auth)  
   
 # Check if the request was successful  
 if (status\_code(response) == 200) {  
 # Parse the content as text  
 content <- content(response, "text", encoding = "UTF-8")  
   
 # Convert CSV content to a dataframe  
 # Using read.csv from base R  
 data <- read.csv(text = content, stringsAsFactors = FALSE)  
   
 # Alternatively, using read\_csv from the readr package  
 # data <- read\_csv(content)  
   
 cat("Data frame created successfully.\n")  
   
 # Return the dataframe  
 return(data)  
 } else {  
 cat("Failed to fetch data. Status code:", status\_code(response), "\n")  
 return(NULL)  
 }  
}  
  
# Using the function  
  
# Call the function and store the result  
df <- getDHIS2Data(link, user, password)

Data frame created successfully.

# You can now work with the df dataframe directly in R  
print(head(df))

dataid dataname datacode datadescription orgunitlevel1  
1 fbfJHSPpUQD ANC 1st visit DE\_359596 NA Sierra Leone  
2 fbfJHSPpUQD ANC 1st visit DE\_359596 NA Sierra Leone  
3 fbfJHSPpUQD ANC 1st visit DE\_359596 NA Sierra Leone  
4 fbfJHSPpUQD ANC 1st visit DE\_359596 NA Sierra Leone  
5 fbfJHSPpUQD ANC 1st visit DE\_359596 NA Sierra Leone  
6 fbfJHSPpUQD ANC 1st visit DE\_359596 NA Sierra Leone  
 orgunitlevel2 organisationunitid organisationunitname organisationunitcode  
1 Bo O6uvpzGd5pu Bo OU\_264  
2 Bombali fdc6uOvgoji Bombali OU\_193190  
3 Bonthe lc3eMKXaEfw Bonthe OU\_197385  
4 Kailahun jUb8gELQApl Kailahun OU\_204856  
5 Kambia PMa2VCrupOd Kambia OU\_211212  
6 Kenema kJq2mPyFEHo Kenema OU\_222616  
 organisationunitdescription April...September.2024 October...March.2025  
1 NA 17981 7921  
2 NA 9952 2789  
3 NA 4364 658  
4 NA 8014 3549  
5 NA 7191 3764  
6 NA 12886 5954

DHIS2Data <- getDHIS2Data(link, user, password)

Data frame created successfully.

getDHIS2CSV(link, user, password)

Report downloaded successfully: 2024-04-04\_dhis2\_report.csv

# Function to create a publication-ready table using the gt package

library(gt)

Warning: package 'gt' was built under R version 4.3.3

library(dplyr)  
  
# Updated function with parameters for title, subtitle, and footnote  
prettyDHIS2table <- function(df, title = "Monthly Data Report", subtitle = "A summary of the first quarter", footnote = "Source: Your Data Source") {  
 gt\_table <- df %>%  
 select(-c(dataid, datacode, datadescription, organisationunitid, organisationunitdescription, organisationunitcode)) %>%  
 group\_by(dataname, organisationunitname) %>%  
 gt() %>%  
 tab\_header(  
 title = title,  
 subtitle = subtitle  
 ) %>%  
 cols\_label(  
 dataname = "Data Name",  
 organisationunitname = "Organisation Unit"  
 # You might adjust the labels here based on the columns you're including  
 ) %>%  
 tab\_options(  
 heading.background.color = "#D3D3D3",  
 column\_labels.font.size = "small",  
 table.width = pct(100)  
 ) %>%  
 tab\_footnote(  
 footnote = footnote,  
 locations = cells\_title(groups = "title")  
 )  
   
 # Return the gt table  
 return(gt\_table)  
}  
  
# Example of calling the function with custom parameters  
prettyDHIS2table(DHIS2Data, "Your Custom Title", "Your Custom Subtitle", "Your Custom Footnote")

Table 1: Your Custom Title*1*

Your Custom Subtitle

| orgunitlevel1 | orgunitlevel2 | April...September.2024 | October...March.2025 |
| --- | --- | --- | --- |
| ANC 1st visit - Bo | | | |
| Sierra Leone | Bo | 17981.00 | 7921.00 |
| ANC 1st visit - Bombali | | | |
| Sierra Leone | Bombali | 9952.00 | 2789.00 |
| ANC 1st visit - Bonthe | | | |
| Sierra Leone | Bonthe | 4364.00 | 658.00 |
| ANC 1st visit - Kailahun | | | |
| Sierra Leone | Kailahun | 8014.00 | 3549.00 |
| ANC 1st visit - Kambia | | | |
| Sierra Leone | Kambia | 7191.00 | 3764.00 |
| ANC 1st visit - Kenema | | | |
| Sierra Leone | Kenema | 12886.00 | 5954.00 |
| ANC 1st visit - Koinadugu | | | |
| Sierra Leone | Koinadugu | 5347.00 | 1264.00 |
| ANC 1st visit - Kono | | | |
| Sierra Leone | Kono | 5181.00 | 1152.00 |
| ANC 1st visit - Moyamba | | | |
| Sierra Leone | Moyamba | 8500.00 | 3643.00 |
| ANC 1st visit - Port Loko | | | |
| Sierra Leone | Port Loko | 14514.00 | 3788.00 |
| ANC 1st visit - Pujehun | | | |
| Sierra Leone | Pujehun | 7381.00 | 21.00 |
| ANC 1st visit - Tonkolili | | | |
| Sierra Leone | Tonkolili | 12059.00 | 6226.00 |
| ANC 1st visit - Western Area | | | |
| Sierra Leone | Western Area | 28811.00 | 12142.00 |
| ANC 2nd visit - Bo | | | |
| Sierra Leone | Bo | 18152.00 | 6909.00 |
| ANC 2nd visit - Bombali | | | |
| Sierra Leone | Bombali | 8246.00 | 2624.00 |
| ANC 2nd visit - Bonthe | | | |
| Sierra Leone | Bonthe | 4212.00 | 652.00 |
| ANC 2nd visit - Kailahun | | | |
| Sierra Leone | Kailahun | 8392.00 | 3820.00 |
| ANC 2nd visit - Kambia | | | |
| Sierra Leone | Kambia | 6653.00 | 3277.00 |
| ANC 2nd visit - Kenema | | | |
| Sierra Leone | Kenema | 15154.00 | 7456.00 |
| ANC 2nd visit - Koinadugu | | | |
| Sierra Leone | Koinadugu | 4241.00 | 970.00 |
| ANC 2nd visit - Kono | | | |
| Sierra Leone | Kono | 5175.00 | 1091.00 |
| ANC 2nd visit - Moyamba | | | |
| Sierra Leone | Moyamba | 7529.00 | 3302.00 |
| ANC 2nd visit - Port Loko | | | |
| Sierra Leone | Port Loko | 11001.00 | 3406.00 |
| ANC 2nd visit - Pujehun | | | |
| Sierra Leone | Pujehun | 6329.00 | 33.00 |
| ANC 2nd visit - Tonkolili | | | |
| Sierra Leone | Tonkolili | 9357.00 | 5101.00 |
| ANC 2nd visit - Western Area | | | |
| Sierra Leone | Western Area | 24831.00 | 11104.00 |
| ANC 3rd visit - Bo | | | |
| Sierra Leone | Bo | 10385.00 | 6978.00 |
| ANC 3rd visit - Bombali | | | |
| Sierra Leone | Bombali | 6048.00 | 1859.00 |
| ANC 3rd visit - Bonthe | | | |
| Sierra Leone | Bonthe | 2848.00 | 554.00 |
| ANC 3rd visit - Kailahun | | | |
| Sierra Leone | Kailahun | 6994.00 | 3311.00 |
| ANC 3rd visit - Kambia | | | |
| Sierra Leone | Kambia | 4656.00 | 2257.00 |
| ANC 3rd visit - Kenema | | | |
| Sierra Leone | Kenema | 11846.00 | 5521.00 |
| ANC 3rd visit - Koinadugu | | | |
| Sierra Leone | Koinadugu | 3220.00 | 686.00 |
| ANC 3rd visit - Kono | | | |
| Sierra Leone | Kono | 3866.00 | 691.00 |
| ANC 3rd visit - Moyamba | | | |
| Sierra Leone | Moyamba | 6630.00 | 2830.00 |
| ANC 3rd visit - Port Loko | | | |
| Sierra Leone | Port Loko | 6815.00 | 2159.00 |
| ANC 3rd visit - Pujehun | | | |
| Sierra Leone | Pujehun | 4838.00 | 22.00 |
| ANC 3rd visit - Tonkolili | | | |
| Sierra Leone | Tonkolili | 5418.00 | 3013.00 |
| ANC 3rd visit - Western Area | | | |
| Sierra Leone | Western Area | 16657.00 | 7181.00 |
| ANC 4th or more visits - Bo | | | |
| Sierra Leone | Bo | 6953.00 | 3667.00 |
| ANC 4th or more visits - Bombali | | | |
| Sierra Leone | Bombali | 3410.00 | 902.00 |
| ANC 4th or more visits - Bonthe | | | |
| Sierra Leone | Bonthe | 1774.00 | 406.00 |
| ANC 4th or more visits - Kailahun | | | |
| Sierra Leone | Kailahun | 4681.00 | 2103.00 |
| ANC 4th or more visits - Kambia | | | |
| Sierra Leone | Kambia | 2324.00 | 1166.00 |
| ANC 4th or more visits - Kenema | | | |
| Sierra Leone | Kenema | 7441.00 | 3663.00 |
| ANC 4th or more visits - Koinadugu | | | |
| Sierra Leone | Koinadugu | 2379.00 | 540.00 |
| ANC 4th or more visits - Kono | | | |
| Sierra Leone | Kono | 2091.00 | 250.00 |
| ANC 4th or more visits - Moyamba | | | |
| Sierra Leone | Moyamba | 5553.00 | 2588.00 |
| ANC 4th or more visits - Port Loko | | | |
| Sierra Leone | Port Loko | 3753.00 | 1198.00 |
| ANC 4th or more visits - Pujehun | | | |
| Sierra Leone | Pujehun | 2840.00 | 4.00 |
| ANC 4th or more visits - Tonkolili | | | |
| Sierra Leone | Tonkolili | 2096.00 | 1256.00 |
| ANC 4th or more visits - Western Area | | | |
| Sierra Leone | Western Area | 11518.00 | 6577.00 |
| test - Bo | | | |
| Sierra Leone | Bo | 0.99 | 1.10 |
| test - Bombali | | | |
| Sierra Leone | Bombali | 1.20 | 1.10 |
| test - Bonthe | | | |
| Sierra Leone | Bonthe | 1.00 | 1.00 |
| test - Kailahun | | | |
| Sierra Leone | Kailahun | 0.95 | 0.93 |
| test - Kambia | | | |
| Sierra Leone | Kambia | 1.10 | 1.10 |
| test - Kenema | | | |
| Sierra Leone | Kenema | 0.85 | 0.80 |
| test - Koinadugu | | | |
| Sierra Leone | Koinadugu | 1.30 | 1.30 |
| test - Kono | | | |
| Sierra Leone | Kono | 1.00 | 1.10 |
| test - Moyamba | | | |
| Sierra Leone | Moyamba | 1.10 | 1.10 |
| test - Port Loko | | | |
| Sierra Leone | Port Loko | 1.30 | 1.10 |
| test - Pujehun | | | |
| Sierra Leone | Pujehun | 1.20 | 0.64 |
| test - Tonkolili | | | |
| Sierra Leone | Tonkolili | 1.30 | 1.20 |
| test - Western Area | | | |
| Sierra Leone | Western Area | 1.20 | 1.10 |
| *1*Your Custom Footnote | | | |

# Function to create a publication-ready table using the flextable package

library(flextable)

Warning: package 'flextable' was built under R version 4.3.3

Attaching package: 'flextable'

The following object is masked from 'package:purrr':  
  
 compose

library(dplyr)  
  
set\_flextable\_defaults(  
 font.size = 10, theme\_fun = theme\_vanilla,  
 padding = 6,  
 background.color = "#EFEFEF")  
  
prettyDHIS2table <- function(df,   
 caption = "Monthly Data Report",  
 footnote = "Source: Your Data Source",   
 header\_row\_values = c("ID", "other measures"),  
 colwidths = c(3, 2)) {  
 # Prepare the data frame, assuming df is already imported  
 df\_prepared <- df %>%  
 select(-c(dataid, datacode, datadescription, organisationunitid, organisationunitdescription, organisationunitcode, orgunitlevel2)) %>%  
 group\_by(dataname, organisationunitname) %>%  
 rename("Measure"=dataname, "Country" = orgunitlevel1, "Organizational Unit Name" = organisationunitname)  
   
 # First replace "..." with " - ", then replace remaining "." with " "  
 colnames(df\_prepared) <- gsub("\\.\\.\\.", " - ", colnames(df\_prepared))  
 colnames(df\_prepared) <- gsub("\\.", " ", colnames(df\_prepared))  
   
 # Create the flextable  
 ft <- df\_prepared %>%  
 flextable() %>%  
   
 set\_caption(caption = caption) %>%  
 add\_footer\_lines(footnote) %>%   
   
  
   
 autofit()%>%  
 merge\_v(j = ~Measure + Country) %>% # Merge cells vertically in the 'dataname' column   
 add\_header\_row(  
 values = header\_row\_values,  
 colwidths = colwidths) %>%  
 add\_header\_lines(  
 values = c(caption) ) %>%  
 theme\_vanilla()  
   
 # Add a footnote  
 ft <- tryCatch({  
 ft <- ft %>% footnote\_general(content = footnote, ref\_symbols = "\*")  
 return(ft)  
 }, error = function(e) {  
 message("Error adding footnote, proceeding without it: ", e$message)  
 return(ft)  
 })  
  
 return(ft)  
}  
  
# Example of how to call the function with custom parameters  
ft\_table <- prettyDHIS2table(DHIS2Data, "Your Custom Title", "Your Custom Footnote")

Error adding footnote, proceeding without it: could not find function "footnote\_general"

ft\_table

| **Your Custom Title** | | | | |
| --- | --- | --- | --- | --- |
| **ID** | | | **other measures** | |
| **Measure** | **Country** | **Organizational Unit Name** | **April - September 2024** | **October - March 2025** |
| ANC 1st visit | Sierra Leone | Bo | 17,981.00 | 7,921.00 |
| Bombali | 9,952.00 | 2,789.00 |
| Bonthe | 4,364.00 | 658.00 |
| Kailahun | 8,014.00 | 3,549.00 |
| Kambia | 7,191.00 | 3,764.00 |
| Kenema | 12,886.00 | 5,954.00 |
| Koinadugu | 5,347.00 | 1,264.00 |
| Kono | 5,181.00 | 1,152.00 |
| Moyamba | 8,500.00 | 3,643.00 |
| Port Loko | 14,514.00 | 3,788.00 |
| Pujehun | 7,381.00 | 21.00 |
| Tonkolili | 12,059.00 | 6,226.00 |
| Western Area | 28,811.00 | 12,142.00 |
| ANC 2nd visit | Bo | 18,152.00 | 6,909.00 |
| Bombali | 8,246.00 | 2,624.00 |
| Bonthe | 4,212.00 | 652.00 |
| Kailahun | 8,392.00 | 3,820.00 |
| Kambia | 6,653.00 | 3,277.00 |
| Kenema | 15,154.00 | 7,456.00 |
| Koinadugu | 4,241.00 | 970.00 |
| Kono | 5,175.00 | 1,091.00 |
| Moyamba | 7,529.00 | 3,302.00 |
| Port Loko | 11,001.00 | 3,406.00 |
| Pujehun | 6,329.00 | 33.00 |
| Tonkolili | 9,357.00 | 5,101.00 |
| Western Area | 24,831.00 | 11,104.00 |
| ANC 3rd visit | Bo | 10,385.00 | 6,978.00 |
| Bombali | 6,048.00 | 1,859.00 |
| Bonthe | 2,848.00 | 554.00 |
| Kailahun | 6,994.00 | 3,311.00 |
| Kambia | 4,656.00 | 2,257.00 |
| Kenema | 11,846.00 | 5,521.00 |
| Koinadugu | 3,220.00 | 686.00 |
| Kono | 3,866.00 | 691.00 |
| Moyamba | 6,630.00 | 2,830.00 |
| Port Loko | 6,815.00 | 2,159.00 |
| Pujehun | 4,838.00 | 22.00 |
| Tonkolili | 5,418.00 | 3,013.00 |
| Western Area | 16,657.00 | 7,181.00 |
| ANC 4th or more visits | Bo | 6,953.00 | 3,667.00 |
| Bombali | 3,410.00 | 902.00 |
| Bonthe | 1,774.00 | 406.00 |
| Kailahun | 4,681.00 | 2,103.00 |
| Kambia | 2,324.00 | 1,166.00 |
| Kenema | 7,441.00 | 3,663.00 |
| Koinadugu | 2,379.00 | 540.00 |
| Kono | 2,091.00 | 250.00 |
| Moyamba | 5,553.00 | 2,588.00 |
| Port Loko | 3,753.00 | 1,198.00 |
| Pujehun | 2,840.00 | 4.00 |
| Tonkolili | 2,096.00 | 1,256.00 |
| Western Area | 11,518.00 | 6,577.00 |
| test | Bo | 0.99 | 1.10 |
| Bombali | 1.20 | 1.10 |
| Bonthe | 1.00 | 1.00 |
| Kailahun | 0.95 | 0.93 |
| Kambia | 1.10 | 1.10 |
| Kenema | 0.85 | 0.80 |
| Koinadugu | 1.30 | 1.30 |
| Kono | 1.00 | 1.10 |
| Moyamba | 1.10 | 1.10 |
| Port Loko | 1.30 | 1.10 |
| Pujehun | 1.20 | 0.64 |
| Tonkolili | 1.30 | 1.20 |
| Western Area | 1.20 | 1.10 |
| Your Custom Footnote | | | | |