Simulation Visit Data Analysis - Comparison Tables

```
options(warn = -1)
suppressPackageStartupMessages(library(dplyr))
```

Simulation Visit Data Analysis

Comparison Tables (Based on visit_data.txt)

```
# Read visit data
df <- read.table("visit_data.txt", header = TRUE, sep = ",", stringsAsFactors = FALSE)

# Simulation runs for 365 days (ticks)
sim_days <- 365

cat("Simulation Duration: 365 days\n")
```

Simulation Duration: 365 days

```
cat("Total Visits Recorded:", nrow(df), "\n")
```

Total Visits Recorded: 1332768

```
cat("Unique HCWs:", n_distinct(df$hcwId), "\n")
```

Unique HCWs: 112

```
cat("Unique Patients:", n_distinct(df$patientId), "\n")
```

Unique Patients: 7250

Table 1: Average Patient Room Visit Frequency per 24 Hours

Visits per HCW per 24-hour day, averaged across all patients and days

```
# Reference targets from Word document
reference_targets_table1 <- data.frame(
  hcwType = c("DOCTOR", "DOCTOR", "NURSE", "NURSE", "RT", "RT", "PT", "PT", "OT", "OT", "ICU
  patientLocation = c("ICU", "Ward", "ICU", "Ward", "ICU", "Ward", "ICU", "Ward", "ICU", "War
  target_min = c(20, 15, 60, 30, 6, 1, 1, 0.8, 0.7, 0.3, 6),
  target_max = c(25, 20, 80, 40, 15, 2, 2, 1.2, 2.0, 1.0, 15)
)

table1 <- df %>%
  group_by(hcwType, patientLocation) %>%
  summarise(
    total_visits = n(),
    num_hcws = n_distinct(hcwId),
    visits_per_hcw_per_day = n() / (n_distinct(hcwId) * sim_days),
    .groups = 'drop'
  ) %>%
  arrange(hcwType, patientLocation) %>%
  left_join(reference_targets_table1, by = c("hcwType", "patientLocation")) %>%
  mutate(
    visits_per_hcw_per_day = round(visits_per_hcw_per_day, 2),
    target_range = paste0(target_min, "-", target_max),
    target_range = ifelse(is.na(target_min), "N/A", target_range)
  ) %>%
  select(hcwType, patientLocation, total_visits, num_hcws, visits_per_hcw_per_day, target_ran

# Display as formatted table
knitr::kable(table1,
  col.names = c("HCW Type", "Location", "Total Visits", "# HCWs",
                "Sim Visits/Day", "Target Range (visits/day)"),
  caption = "Average Patient Room Visit Frequency per 24 Hours")
```

Table 1: Average Patient Room Visit Frequency per 24 Hours

HCW Type	Location	Total Visits	# HCWs	Sim Visits/Day	Target Range (visits/day)
DOCTOR	ICU	67870	6	30.99	20-25
DOCTOR	Ward	248546	26	26.19	15-20
ICURT	ICU	299558	10	82.07	6-15
NURSE	ICU	234823	10	64.34	60-80
NURSE	Ward	447644	40	30.66	30-40
OT	ICU	1271	12	0.29	0.7-2
OT	Ward	13986	12	3.19	0.3-1
PT	ICU	886	12	0.20	1-2
PT	Ward	10566	12	2.41	0.8-1.2
RT	ICU	588	12	0.13	6-15
RT	Ward	7030	12	1.61	1-2