

ANALYTICS SUITE FOR A GLOBAL HEALTH ORGANIZATION

Georgia Jenkins

OVERVIEW

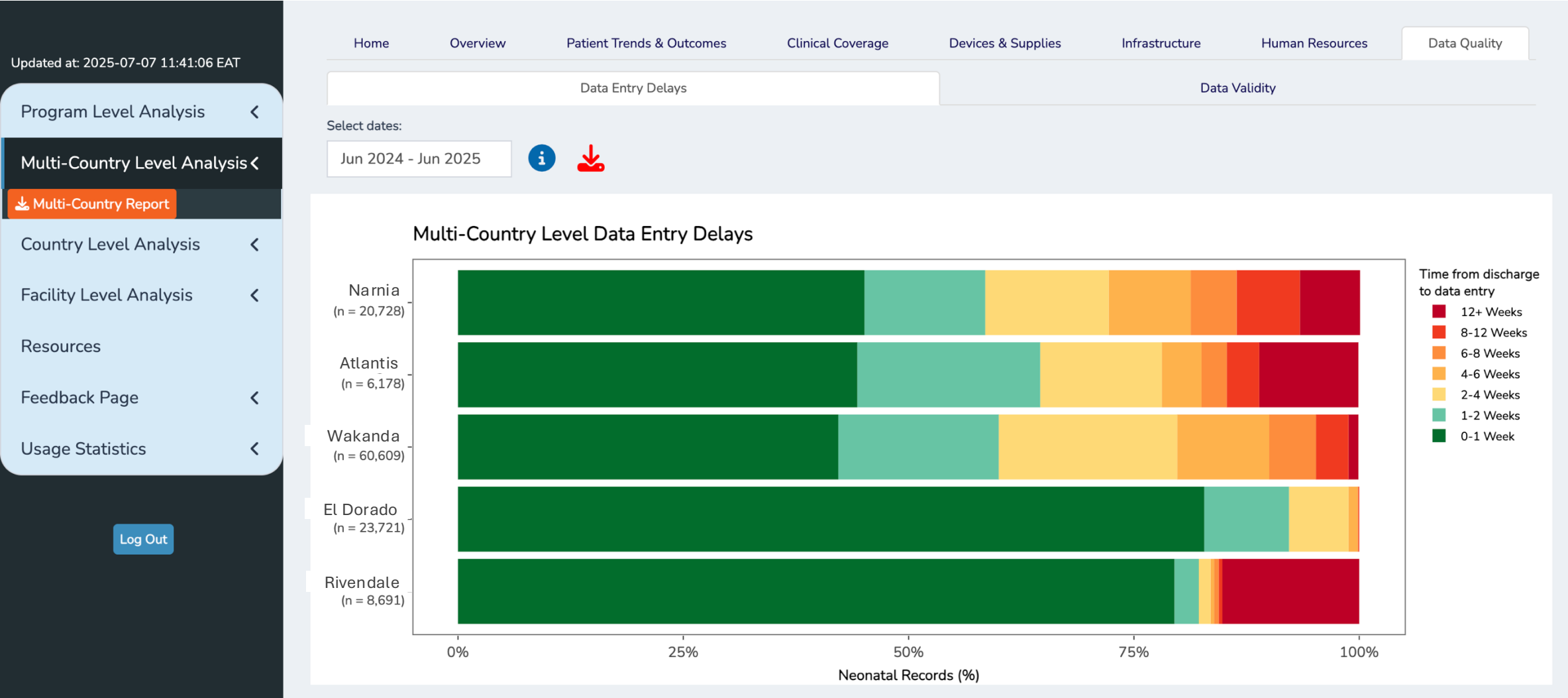
- **Purpose:** one analytics tool that can be used by all stakeholders to inform progress on neonatal mortality reduction goals
 - **My Role:** product founder, top individual contributor, and team lead
 - **Timeline:**
 - Founded the product in December 2022
 - Launched for internal organization users in April 2023
 - Launched for all stakeholders in September 2023
 - Users logged in more than 35K times in the first year
 - Product contained more than 100 data visualizations
 - R, R Shiny, HTML, CSS
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PRODUCT STRUCTURE

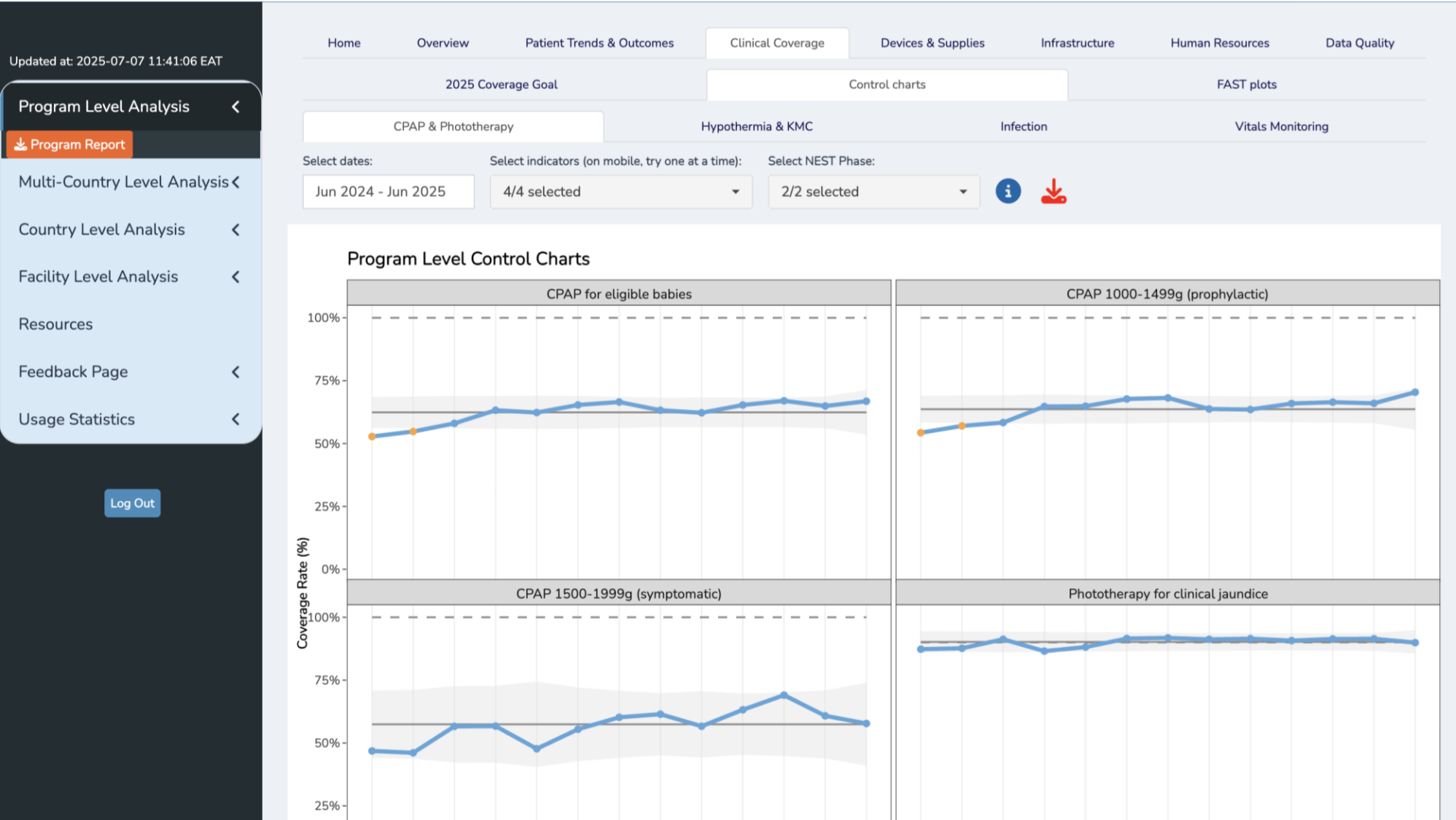
All data was visualized in 4 levels of aggregation to meet the needs of a diverse set of stakeholders

| Level | Description | Stakeholders / Users |
|-------------------------|---|---|
| Program | Highest level of aggregation, used to assess overall progress on program-wide goals | Funders Internal organization members |
| Multi-Country | Compare aggregated data from hospitals in each country | Funders Internal organization members |
| Country | Compare NICUs within a country | Ministry of Health officials Internal organization members |
| Individual Neonatal ICU | Zoom in on one NICU at a time with the highest level of detail | Doctors, nurses, biomedical engineers, data clerks, and administrators employed at 70+ hospitals Internal organization members |

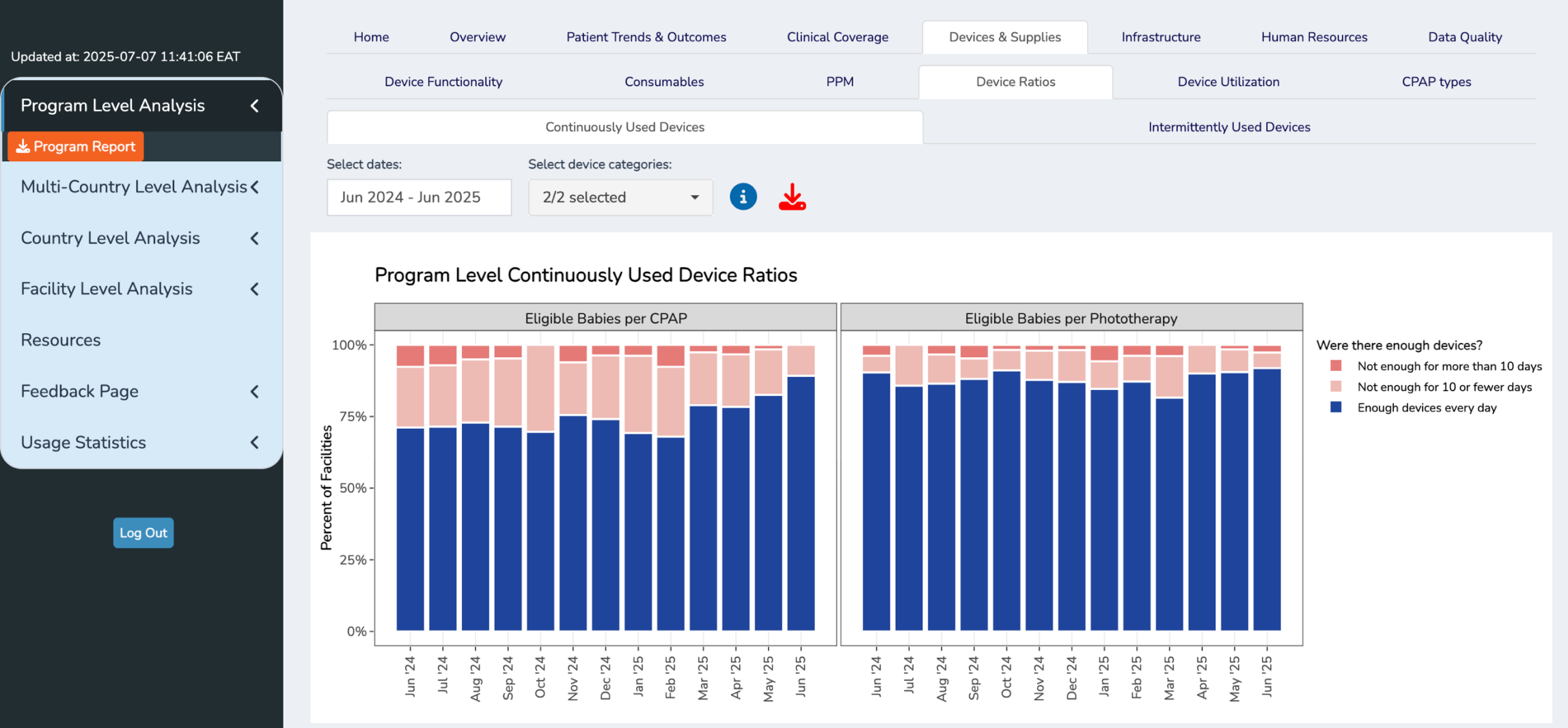
Working with resource limited hospitals meant frequent data entry delays. This section gave users context about the data quality of other visualizations and helped hospital data teams track progress on quality goals.



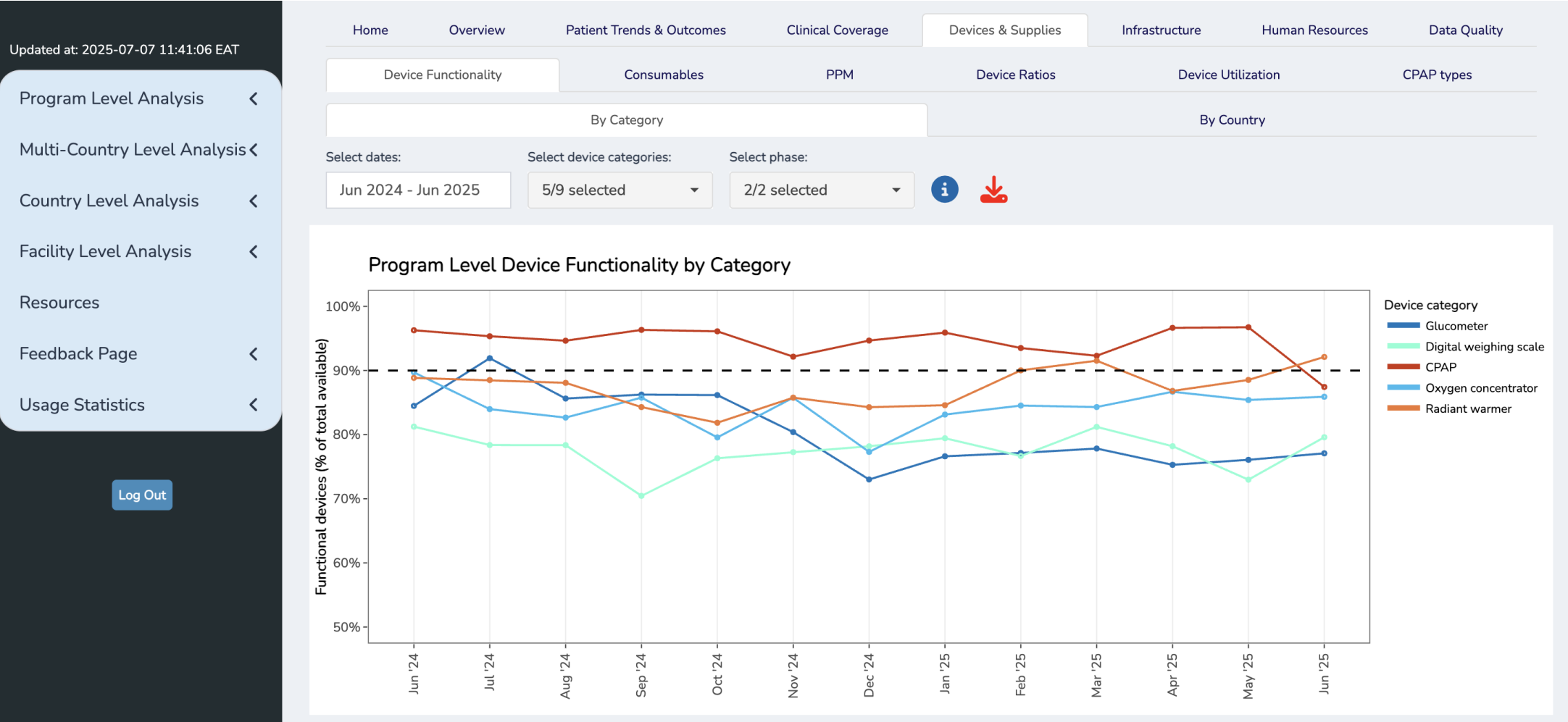
Clinical coverage data was displayed for key indicators at all levels. The Program Level used QI Control Charts.



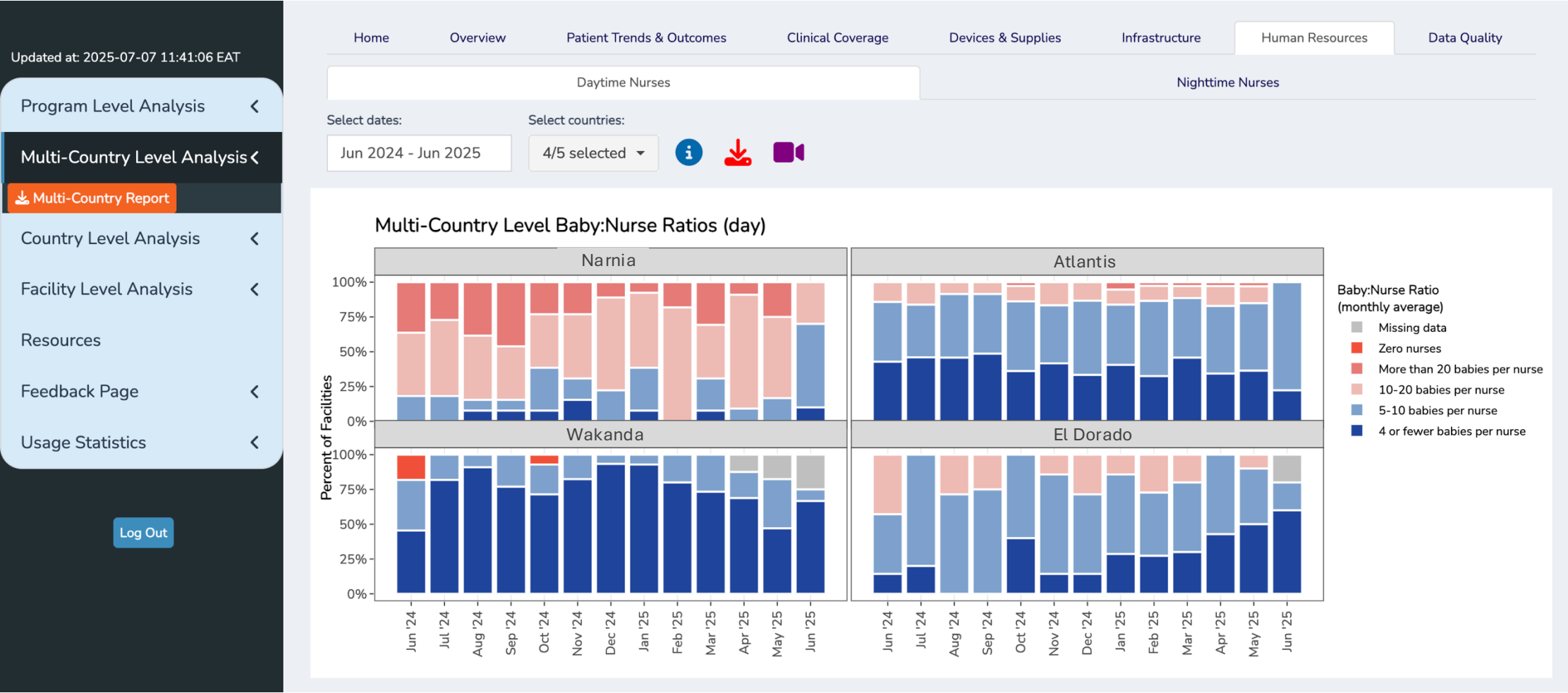
A top concern was whether there were enough CPAP and Phototherapy devices to serve all babies who needed them in the NICU, as well as how often there was a shortage. We worked with neonatologists to build an algorithm that identified babies in need and estimated how long they would need the device.



Device functionality was also important. We scraped data from biomedical technician logs and quality improvement exercises to track functionality of key medical devices.



Nurse shortages were a major problem in all NICUs in the program. Our HR Ratio visualizations were frequently used to help country and hospital level stakeholders advocate for more staff.



Users often needed tabular data in addition to visualizations. We answered with tables, then later a data download feature on every visualization. Users could filter data to their needs, then download it as a CSV.

Updated at: 2025-07-07 11:41:06 EAT

Program Level Analysis <

Multi-Country Level Analysis <

Multi-Country Report

Country Level Analysis <

Facility Level Analysis <

Resources

Feedback Page <

Usage Statistics <

Log Out

Home

Overview

Patient Trends & Outcomes

Clinical Coverage

Devices & Supplies

Infrastructure

Human Resources

Data Quality

Admissions & Mortality

Birthweight Table

Inborn %

Length of Stay

Primary Diagnoses

CPAPs done and Mortality

Birthweight Overview

Select dates: Jun 2024 - Jun 2025

Select NEST Phase: Phase I

i

Download icon

Data download button

Narnia

| Birthweight (g) | Admissions (n) | Deaths | Mortality Rate (%) | Inborn (%) |
|-----------------|----------------|--------|--------------------|------------|
| <1000 | 683 | 573 | 84% | 66% |
| 1000-1499 | 1,846 | 742 | 40% | 63% |
| 1500-1999 | 3,221 | 417 | 13% | 66% |
| 2000-2499 | 3,354 | 265 | 8% | 70% |
| 2500-4000 | 13,377 | 1018 | 8% | 62% |

Atlantis

| Birthweight (g) | Admissions (n) | Deaths | Mortality Rate (%) | Inborn (%) |
|-----------------|----------------|--------|--------------------|------------|
| <1000 | 1,041 | 889 | 85% | 66% |
| 1000-1499 | 4,263 | 1818 | 43% | 59% |
| 1500-1999 | 8,020 | 972 | 12% | 64% |
| 2000-2499 | 11,740 | 732 | 6% | 67% |
| 2500-4000 | 32,466 | 2760 | 9% | 61% |

Wakanda

| Birthweight (g) | Admissions (n) | Deaths | Mortality Rate (%) | Inborn (%) |
|-----------------|----------------|--------|--------------------|------------|
| <1000 | 130 | 114 | 88% | 71% |
| 1000-1499 | 317 | 135 | 43% | 66% |
| 1500-1999 | 436 | 60 | 14% | 67% |
| 2000-2499 | 439 | 41 | 9% | 58% |
| 2500-4000 | 1,767 | 134 | 8% | 47% |

El Dorado

| Birthweight (g) | Admissions (n) | Deaths | Mortality Rate (%) | Inborn (%) |
|-----------------|----------------|--------|--------------------|------------|
| <1000 | 507 | 346 | 68% | 53% |
| 1000-1499 | 1,452 | 457 | 31% | 52% |
| 1500-1999 | 2,644 | 318 | 12% | 56% |
| 2000-2499 | 2,987 | 294 | 10% | 55% |
| 2500-4000 | 9,536 | 889 | 9% | 51% |

Country names have been concealed to honor data sharing agreements

ADDITIONAL FEATURES

The screenshot shows a web application interface with a dark sidebar on the left and a main content area on the right. The sidebar contains a 'Log Out' button and a list of menu items: 'Updated at: 2025-07-07 11:41:06 EAT', 'Program Level Analysis', 'Multi-Country Level Analysis', 'Multi-Country Report', 'Country Level Analysis', 'Facility Level Analysis', 'Resources', 'Feedback Page', and 'Usage Statistics'. The main content area has a top navigation bar with links: 'Home', 'Overview', 'Patient Trends & Outcomes', 'Clinical Coverage', 'Devices & Supplies', 'Infrastructure', 'Human Resources', and 'Data Quality'. Below this is a sub-navigation bar with 'Nighttime Nurses'. The main content area also features a 'Select dates:' dropdown showing 'Jun 2024 - Jun 2025' and a 'Select countries:' dropdown showing '4/5 selected'. There are icons for information, download, and video. Callout boxes provide details about these features.

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Log Out

Home Overview Patient Trends & Outcomes Clinical Coverage Devices & Supplies Infrastructure Human Resources Data Quality

Nighttime Nurses

Select dates: Jun 2024 - Jun 2025

Select countries: 4/5 selected

cron job called hospitals APIs every 24 hours

Training video briefly explaining how to use and interpret the data

General program resources, like clinical & biomedical job aids, and data dictionaries

Short description of the plot with tips

Users could submit questions and suggestions directly to the data team. We made a point to answer every message within a week

Internal page used to track data usage. We used this to encourage stakeholders to view their data and offer technical support where data usage was lacking.