**TECHNICAL REPORT**

**MEDICAL OUTREACH PROGRAM – DECEMBER 2024**

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**Client:** Joseph Penawou Foundation  
**Date:** 5th January 2025

**1. Executive Summary**

This report summarizes the data collection, processing, analysis, and reporting conducted during the December 2024 medical outreach hosted by the Joseph Penawou Foundation. As the lead data analyst, I was responsible for designing the data flow process, ensuring accurate data entry, identifying and resolving inconsistencies, and creating a dashboard that informed key stakeholders about outreach outcomes.

**2. Project Overview**

* **Location:** Akugbene Town, Delta State
* **Duration:** December 2024
* **Objective:** Deliver free medical services to the populations, capture accurate service metrics, and generate analytical insights for operational review and future planning.
* **Link to interact with Dashboard:** <https://app.powerbi.com/view?r=eyJrIjoiMWQ1MzU4ZjAtNjU2OC00NDFkLTgwZTMtZDJhOGIwOWE2NjgyIiwidCI6IjYyOTQxYjlmLWMwYWUtNDk4YS1hOWE3LWM2Mzc0NzQ2NTlmNiJ9>

**3. My Role and Contributions**

As the data analyst, my responsibilities included:

* Designing data capture forms and coordinating data flow
* Overseeing real-time data entry and correction
* Cleaning datasets using **Microsoft Excel** and **Power Query**, resolving issues such as duplicate entries and misclassifications
* Creating a dynamic Report using Power BI to present insights
* Delivering specialized dashboards for nurses and doctors
* Producing summary metrics for foundation management

**4. Data Processing Workflow**

* **Data Collection:** Carried out via digital and manual forms during outreach
* **Data Cleaning:**
  + Detected and corrected misspelled entries and format inconsistencies
  + Unified numeric units (e.g., height in cm, weight in kg)
  + Removed duplicate entries and handled missing values
* **Tools Used:**
  + Excel
  + Power Query
  + Power BI

**5. Key Metrics & Insights**

**A. Patient Demographics**

* **Total Patients Seen:** 3,000
* **Gender Distribution:** 53.3% Male, 46.7% Female
* **Age Distribution:**
  + 31–45 years: 985
  + 46–60 years: 749
  + 60+: 635
  + 18–30 years: 592
  + 0–17 years: 39
* **Occupations Represented:**
  + Farmers (733), Business/Traders (710), Civil/Public Servants, etc.

**B. Services Rendered**

* **FBS and RBS Screenings:** 503 each
* **Orthopedic Services:** 744 (most common: lumbar/knee braces – 453)
* **Dental Services:** 501
* **Glasses Distributed:** 1,262
* **Hepatitis B & RVS Screenings:** 520 each
* **Lab Investigations:** 1,846 (Malaria test was highest – 960)
* **Scans Conducted:** 841 (Abdominal scans highest – 746)

**C. Diagnoses & Treatment**

* **Top Diagnoses:**
  + Malaria: 1,300 cases
  + Hypertension: 541
  + Diabetes Mellitus: 500
  + Peptic Ulcer: 459
* **Positive Malaria Cases:** 384
* **Positive Hepatitis B/RVS:** 10 each
* **Drugs Dispensed:** 18,606

**D. Medical Personnel Metrics**

* **Nurses:**
  + Patients Seen: 1,000
  + Avg. Weight: 75.29 kg, Avg. Height: 169.89 cm
  + Avg. Pulse: 79.80 bpm
* **Doctors:**
  + Patients Seen: 19 (Dr. Hope Imegbemosun)
  + Common Diagnoses: Malaria, Diabetes, Hypertension
  + Drugs Prescribed: 127

**6. OUTREACH HIGHLIGHTS**

As part of the December 2024 Medical Outreach conducted by the **Joseph Penawou Foundation in Akugbene, Delta State**, I designed and developed a series of interconnected dashboards to provide a real-time, visual representation of operations, patient data, diagnoses, treatments, and services rendered. Each reporting sheet was customized to meet the specific needs of both clinical staff and program managers.

**1. Services Rendered Board**

This analysis consolidated all the services provided across departments. It showed:

* **503 FBS and 503 RBS screenings**, allowing blood sugar monitoring at scale.
* **744 orthopedic services**, including lumbar braces (453), crutches (150), walkers (131), and wheelchairs (10).
* **501 dental procedures**, with scaling/polishing (401) being the most common.
* **1,262 eyeglasses distributed**, demonstrating the significant optical support provided.
* Screening results for **Hepatitis B and RVS**, each testing over 500 patients.

This analysis helped the coordination team understand the scope of direct interventions and identify the most utilized services during the outreach.

**2. Diagnosis & Treatment Board**

Focused on clinical assessments and diagnostic trends, this analysis included:

* **1,846 laboratory investigations**, with malaria parasite tests topping the list (960).
* **841 scans**, mainly abdominal (746) and chest X-rays (90).
* Disease-specific breakdowns for **hypertension (541)**, **diabetes mellitus (500)**, and **peptic ulcer disease (459)**.
* A visual pie chart of **positive/negative malaria results**, and bar graphs for other diseases.

The analysis supported the medical team in identifying prevalent conditions and guiding treatment priorities.

**3. Doctor’s Board**

Tailored for each doctor, this analysis displayed:

* Total patients seen (e.g., 19 patients for Dr. Hope Imegbemosun).
* Common diagnoses like **malaria, diabetes, hypertension, and peptic ulcer disease**.
* **Age ranges** of patients seen, helping with trend analysis.
* **127 drugs prescribed**, showing the doctor’s clinical impact.

This tool enabled physician-level performance reviews and facilitated follow-ups.

**4. Nurse’s Board**

This analysis tracked preliminary patient screenings and vitals, including:

* **1,000 patients screened** by nurses.
* Average physical metrics: **weight (75.29 kg)**, **height (169.89 cm)**, and **pulse (79.80 bpm)**.
* BP checks completed for all 1,000 patients.

It highlighted the essential role nurses played in early detection and triaging.

**5. Patient Demographics Board**

This provided detailed population profiling:

* **3,000 total patients**, with **1,401 females and 1,599 males**.
* Age breakdown across five bands, with the highest group being ages **31–45 (985 patients)**.
* **Occupation distribution**, showing a high turnout from farmers (733) and traders (710).
* Additional distribution insights by address (e.g., **896 patients from Akugbene**) and referral status.

This analysis was crucial for identifying population reach and tailoring health messaging for future outreaches.

**7. Challenges & Resolutions**

| **Challenge** | **Resolution** |
| --- | --- |
| Multiple mis-inputs during entry | Extensive cleaning using Excel and Power Query |
| Inconsistent formats and duplicates | Standardized fields and de-duplicated entries |
| Data integration across teams | Created unified reporting templates and lookup sheets |

**8. RECOMMENDATIONS**

Based on my hands-on experience and the outcomes of the December outreach, I propose the following improvements to optimize future medical outreach operations and data management:

**1. Adopt Digital Data Collection Tools**

Implement mobile-friendly digital forms using platforms like **Google Forms, KoboToolbox, ODK**, or **Airtable**. These tools can:

* Minimize data entry errors with built-in validation
* Sync data in real time from the field
* Eliminate the need for manual transcription

**2. Standardize Data Entry Procedures**

Before outreach begins, establish a standard operating procedure (SOP) for data entry:

* Define acceptable formats (e.g., “M” or “Male” only)
* Use dropdowns or radio buttons instead of free-text fields where possible
* Provide mock forms or training simulations for volunteers

**3. Conduct Volunteer Training on Data Handling**

Organize a pre-outreach orientation session focused on:

* Accurate data capture
* Protecting patient privacy
* Real-time error identification
* Use of mobile/desktop entry platforms

This will increase data quality and reduce post-event cleaning effort.

**4. Develop a Centralized Data Platform**

Consider building a simple centralized **data analysis system** that can:

* Pull data live from form responses
* Provide field leads with on-site summaries
* Archive past outreach data for comparative analysis

Platforms like Power BI, Tableau Public, or Google Data Studio can be used for this.

**5. Incorporate Performance Tracking for Medical Staff**

Maintain dashboards like those built for **doctors and nurses** to:

* Monitor daily activity levels
* Identify gaps in care delivery
* Recognize high-performing staff for reward or follow-up

**6. Expand Analytics to Include Outcome Measures**

Beyond services delivered, future reports should track:

* Patient follow-up requirements
* Referral completion rates
* Outcome improvements (e.g., BP/BS levels pre- vs. post-treatment)

This would offer deeper insights into the **impact** of the outreach rather than just the **volume**.

**9. Conclusion**

The outreach was a success, both operationally and analytically. The data gathered, cleaned, and analyzed have provided key insights into the healthcare needs of the community served. I recommend institutionalizing the analytical approach used here for future outreach programs.