

CARELINK PRE-ANALYSIS REPORT

Pre-Analysis Report for Patients Healthcare and Healthcare Revenue Analysis (2019–2024)

1. Title: CareLink: Patients Healthcare and Healthcare Revenue Analysis (2019–2024)

2. Aims:

- To connect the insights from healthcare data analysis with CareLink’s goals of improving access, efficiency, and patient care in underserved communities.
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3. Objectives:

1. Provide actionable insights to inform CareLink’s features, such as virtual consultations, appointment scheduling, and health education tools.
 2. Use data to identify target demographics and regions for CareLink’s initial implementation and scaling.
 3. Analyze patient demographics and admission statistics to understand service utilisation patterns.
 4. Examine revenue distribution across demographics, medical conditions, and test results.
 5. Highlight disparities in healthcare access and resource allocation.
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4. Hypothesis: Analyzing healthcare data from 2019–2024 will:

- Uncover inefficiencies in patient care and hospital operations that CareLink can address.
 - Highlight chronic conditions and demographic groups as key priorities for CareLink’s proposed features.
 - Demonstrate the relevance of solutions like telemedicine, appointment scheduling, and health education in addressing healthcare access and efficiency challenges.
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5. Dataset Overview: The dataset includes:

1. **Demographics:** Patient gender, age.
2. **Admission Details:** Types of admissions (elective, urgent, emergency), length of stay.
3. **Medical Information:** Conditions, test results.

4. **Revenue Information:** Billing amounts, insurance providers.
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6. Analysis Conducted:

1. **Exploratory Data Analysis (EDA):**

- Trends in patient demographics.
- Admission and revenue segmentation by types and conditions.

2. **Key Metrics:**

- Total Admissions.
- Total Revenue.
- Revenue by medical condition, age group, and gender.
- Average duration of admission by condition.

3. **Dashboards Created:**

- **Admissions Dashboard:** Statistics by age, gender, and admission type.
 - **Revenue Dashboard:** Billing trends segmented by demographics and conditions.
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7. Problems Identified in CareLink's Proposal:

- Limited access to healthcare facilities, especially in rural and underserved areas.
 - Long waiting times and inefficiencies in hospital operations.
 - Lack of reliable health information and tools for patient self-management.
 - Challenges in scheduling appointments and accessing virtual consultations.
 - Poor treatment adherence due to a lack of medication reminders and health monitoring tools.
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8. Relevance of Pre-Analysis Results to CareLink's Goals:

1. **Admissions Dashboard:**

- **By Age and Gender:** High admissions among patients aged 30–50 years highlight a target demographic for CareLink's features, such as appointment booking and health education.
- **By Admission Type:** The dominance of elective and urgent admissions suggests the need for virtual consultations to reduce unnecessary hospital visits.

- **By Medical Conditions:** Chronic conditions driving longer stays align with CareLink's proposed monitoring tools for diabetes, hypertension, and arthritis.

2. Revenue Dashboard:

- **Revenue by Condition:** Chronic diseases like diabetes and hypertension are significant cost drivers, underscoring the importance of CareLink's health management and monitoring features.
- **By Insurance Providers:** Insights into insurance trends can guide partnerships with providers to expand CareLink's reach.
- **By Gender and Test Results:** Billing patterns associated with abnormal test results suggest opportunities for telemedicine and follow-up care integration in CareLink.

9. Recommendations:

- **Focus on Chronic Conditions:** Develop targeted features in CareLink to address conditions like diabetes and hypertension.
- **Enhance Accessibility:** Implement GPS-based tools for finding nearby healthcare providers to bridge access gaps in rural areas.
- **Streamline Operations:** Use appointment booking and virtual consultations to reduce waiting times.
- **Promote Patient Self-Management:** Integrate medication reminders and health tracking tools into CareLink's offerings.
- **Build Insurance Partnerships:** Collaborate with top-performing insurance providers for seamless patient onboarding.

10. Challenges and Limitations:

- **Data Consistency:** Incomplete records may limit analysis precision.
- **Cultural Barriers:** Resistance to adopting telemedicine and digital tools in certain regions.
- **Infrastructure:** Limited internet and smartphone access in underserved areas.

11. Expected Outcomes:

- Improved allocation of healthcare resources based on identified trends.
- Enhanced efficiency in hospital operations through digital solutions.
- Increased patient satisfaction and better health outcomes with CareLink's features.

- Expanded access to healthcare for underserved communities via targeted app deployment.
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12. Next Steps:

1. Conduct a regional survey of patients using questionnaires to validate findings and refine the app design.
 2. Refine CareLink's features based on pre-analysis insights.
 3. Pilot the app in target regions with high admission and revenue trends.
 4. Monitor app usage and feedback to improve functionality.
 5. Develop public awareness campaigns to encourage adoption of CareLink.
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13. Relevant Questions for Further Research:

1. What are the most common barriers to healthcare access in underserved areas?
2. How do chronic conditions like diabetes and hypertension impact patient behaviour and hospital operations?
3. What features of a telemedicine app would be most valuable to patients in rural areas?
4. How do patients currently manage appointments and follow-up care?
5. What level of digital literacy exists among the target audience for CareLink?
6. How can insurance providers collaborate to improve patient access through digital platforms?
7. What role does gender play in healthcare service utilisation and revenue generation?

Conclusion: This pre-analysis validates the relevance of CareLink's proposed solutions in addressing healthcare challenges identified in the data. By leveraging insights into patient demographics, revenue drivers, and chronic conditions, CareLink can effectively bridge gaps in healthcare access and efficiency. The alignment between the pre-analysis findings and CareLink's goals ensures a data-driven approach to improving health outcomes in Nigeria.