

Lifeline Hospital Business Proposal

Enhancing Hospital Efficiency and Patient Care through Data-Driven Solutions

Vision: To become a leading healthcare institution known for exceptional patient care, operational efficiency, and innovative use of data-driven strategies.

Mission: To provide high-quality, accessible, and efficient healthcare services by leveraging advanced analytics to optimize hospital operations, reduce patient waiting times, and improve overall patient satisfaction.

1. Executive Summary

This business proposal outlines a data-driven approach to enhance hospital operations by addressing key challenges such as high patient readmission rates, prolonged waiting times, and inefficient staff utilization. By implementing advanced analytics and process optimization, the hospital aims to improve patient care, operational efficiency, and resource management.

2. Problem Statement

The hospital is currently facing:

- A high patient readmission rate (**47.2%**), leading to increased resource strain and costs.
- Prolonged average waiting times (**50 minutes**), impacting patient satisfaction.
- Suboptimal staff utilization (**2,400 units**), causing inefficiencies in service delivery.

3. Objectives

1. Reduce patient readmission rates by addressing underlying factors.
2. Optimize staff scheduling to align with peak patient visit times.
3. Shorten patient waiting times to improve satisfaction and care quality.
4. Enhance operational efficiency through targeted interventions and analytics.

4. Strategic Approach

4.1 Data Analysis and Insights

1. **Readmission Analysis:**
 - Address high readmission rates among the **13–35 age group (27.92%)**.

- Focus on key comorbidities such as diabetes and autoimmune conditions that drive readmissions.
- 2. **Patient Visit Patterns:**
 - Identify peak hours (**1 PM to 5 PM and 9 AM to 1 PM**) to allocate resources effectively.
- 3. **Staff Utilization:**
 - Improve alignment between staff availability and patient demand during peak hours.
- 4. **Waiting Times:**
 - Analyze disproportionate waiting times for certain doctors (e.g., **D-CAR-002**) and streamline patient flow.

4.2 Proposed Solutions

1. Implement predictive models to forecast patient readmissions and traffic.
2. Redesign staff schedules to prioritize high-demand periods.
3. Use operational analytics to reduce bottlenecks and optimize resource utilization.
4. Introduce targeted care plans for high-risk patients to prevent readmissions.

5. Key Performance Indicators (KPIs)

1. **Total Patient** count in the hospital as per dataset
2. **Patients Readmitted** in the hospital withing the same year
3. **Patient Waiting Time** for all wards.
4. **Patient Readmission Rate** across all wards
5. **Staff (Nurses and Doctors) utilization** overall the hospital

6. Goals

- 1.Reduction in patient readmission rates by **15%** within the first year
2. Decrease in average waiting times to below **30** minutes.
3. Improved staff utilization efficiency by **20%**.
4. Increase in patient satisfaction scores by **25%**.

7. Financial Projections

Investment Requirements:

- Technology and analytics tools: \$500,000

- Staff training and process redesign: \$200,000

Projected ROI:

- Increased patient retention and reduced readmission costs: \$1.5 million annually.
- Enhanced operational efficiency leading to cost savings of \$800,000 annually.

8. Implementation Plan

1. **Phase 1 (0–3 months):** Data collection and analysis to identify key inefficiencies.
2. **Phase 2 (3–6 months):** Deployment of predictive models and staff scheduling tools.
3. **Phase 3 (6–12 months):** Monitoring and refinement of implemented strategies.

9. Visual Representation Integration

To strengthen stakeholder buy-in, the following visuals will be included in presentations:

1. **Readmission Rates by Age Group:** Pie chart highlighting percentages by age.
2. **Peak Patient Visit Hours:** Tree map showing time distribution of patient visits.
3. **Comorbidity and Readmission Correlation:** Bar chart displaying the readmission count linked to specific conditions.
4. **Doctor-Specific Waiting Times:** Horizontal bar graph showcasing the average waiting times for each doctor.
5. **Staff Utilization Efficiency:** Stacked bar chart comparing staff availability against patient visits during peak and off-peak hours.

10. Conclusion:

By adopting a data-driven approach, the hospital can address critical operational challenges, enhance patient care, and achieve financial sustainability. This proposal presents a roadmap to transform the hospital into a leader in efficient and quality healthcare delivery.

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