**Clipboard Health Sales Strategy: Comprehensive Ask Phase Report**

**1. Introduction and Project Overview**

This document details the "Ask" phase of a data analysis project undertaken to support the sales strategy of Clipboard Health. Clipboard Health provides an on-demand staffing platform connecting healthcare facilities with qualified professionals. This project aims to leverage data from the Centers for Medicare & Medicaid Services (CMS) to identify and characterize nursing homes that are most likely to benefit from Clipboard Health's services. The analysis focuses on the Payroll-Based Journal (PBJ) Daily Nurse Staffing and Non-Nurse Staffing datasets for the second quarter of 2024 (Q2 2024), supplemented by other relevant CMS datasets providing information on facility quality, penalties, and ownership.

* **Layman's Explanation:** We're trying to figure out which nursing homes would get the most value from using Clipboard Health's app to find nurses and other staff. We're using data from the government (CMS) about how these nursing homes are currently staffed, how good their care is, and if they've had any problems. We're looking specifically at data from April, May, and June of 2024 (Q2 2024).

**2. Business Task**

The primary business task is to identify and characterize nursing homes that are most likely to benefit from Clipboard Health's staffing solutions, based on an analysis of their staffing patterns, their reliance on contract (temporary) labor, and the potential correlations between these staffing patterns and metrics related to quality of care and operational costs, all within the timeframe of Q2 2024. The ultimate goal is to provide actionable, data-driven recommendations to the Clipboard Health sales leadership team, enabling them to effectively target their sales efforts and optimize resource allocation.

* **Layman's Explanation:** We need to give the sales team a list of nursing homes that are most likely to need Clipboard Health's help. We'll do this by looking at how they currently staff their facilities (do they use a lot of temporary workers?), and whether that relates to how well they're doing (are they providing good care? Are they getting fined?). This will help the sales team focus on the right places.

**3. Problem Statement**

Clipboard Health, like any business, needs to use its sales resources efficiently. This means targeting the nursing homes that are most likely to need and benefit from its on-demand staffing platform. To do this effectively, we need to understand the current staffing landscape in the nursing home industry. Specifically, we need to analyze the use of contract (temporary) versus employee (permanent) labor. We also need to investigate how this staffing mix relates to facility characteristics (like size and location), the quality of care provided, and potential cost inefficiencies (like penalties for violations). This data-driven understanding is essential for a successful sales strategy.

* **Layman's Explanation:** Clipboard Health doesn't want to waste time and money trying to sell to nursing homes that don't need its services. We need to figure out which nursing homes are struggling with staffing, so the sales team can focus on them. We'll look at things like whether using a lot of temporary staff is linked to problems with care or fines.

**4. Problem Types Addressed**

This analysis, following the framework of the Google Data Analytics Certification, will primarily address the following problem types:

* **Categorizing Things:** We will group nursing homes into distinct segments based on their staffing patterns. For example, we might create categories like "High Contract Staffing Facilities" and "Low Contract Staffing Facilities." We'll also consider other factors like facility size and location when creating these categories.
  + *Layman's Explanation:* We'll put nursing homes into different groups based on how they handle staffing.
* **Discovering Connections:** We will investigate the relationships between different variables. For example, we'll look at whether there's a connection between the amount of contract staffing a nursing home uses and its quality ratings (obtained from other CMS datasets). We'll also explore connections between staffing and facility characteristics.
  + *Layman's Explanation:* We'll try to find links between things. For example, do nursing homes that use a lot of temporary workers also have lower quality ratings?
* **Identifying Themes:** We will search for recurring patterns and characteristics within the different nursing home segments we create. For instance, we might find that smaller facilities are consistently more reliant on contract Registered Nurses (RNs) than larger facilities.
  + *Layman's Explanation:* We'll look for common trends. Do we see the same patterns over and over again in certain types of nursing homes?

**5. Guiding Questions (SMART Framework - Time-Bound)**

To guide our analysis and ensure actionable results, we have formulated the following SMART questions. These questions are Specific, Measurable, Action-oriented, Relevant, and Time-bound (focused on Q2 2024). These questions are designed to analyze staffing data specifically from the second quarter of 2024 and to integrate information from other CMS datasets to provide comprehensive insights.

* **5.1. Question 1 (RN Staffing in Smaller Facilities):**
  + **Professional:** For nursing home facilities with fewer than 120 residents in Q2 2024, what is the average ratio of contract Registered Nurse (RN) hours to total RN hours (contract plus employee)? How does this ratio vary across different facility characteristics, such as geographic location and ownership type (information to be obtained from other CMS datasets)?
  + **Layman's:** For smaller nursing homes (less than 120 residents) in April, May, and June of 2024, how much of their RN work is done by temporary staff compared to permanent staff? Does this depend on where the nursing home is located or who owns it?
  + **Data Analyst Note:** This question focuses on a potentially vulnerable segment (smaller facilities, which may have tighter budgets and greater staffing challenges) and a critical role (RNs, who are essential for providing skilled nursing care).
* **5.2. Question 2 (Intra-Quarter CNA Variation):**
  + **Professional:** Within the second quarter of 2024 (Q2 2024), for a representative sample of nursing home facilities, visualize the daily trend of the ratio of contract Certified Nursing Assistant (CNA) hours to total CNA hours (contract plus employee), alongside the daily resident census (MDScensus). Are there noticeable spikes or patterns in the contract CNA ratio that correlate with increases or decreases in the resident census?
  + **Layman's:** For a group of nursing homes in April, May, and June of 2024, let's look at how the use of temporary CNAs changes each day, and compare that to the number of residents they have each day. Do they use more temporary CNAs when they have more residents?
  + **Data Analyst Note:** This question explores short-term staffing fluctuations and their potential relationship to patient demand, providing insights into how facilities manage day-to-day staffing needs.
* **5.3. Question 3 (Comparative Trend and Cost Correlation):**
  + **Professional:** Compare the average ratio of contract hours to total hours (contract plus employee) for key nursing roles (e.g., RNs, CNAs) and key non-nursing roles (e.g., Administrators, Therapists) across different nursing home facilities in Q2 2024. Hypothesize that facilities with higher contract staffing ratios in *both* nursing and non-nursing roles may exhibit lower quality scores and potentially higher penalty amounts (these quality scores and penalty amounts will be obtained from other relevant CMS datasets).
  + **Layman's:** Let's compare how much nursing homes rely on temporary staff for both nurses (like RNs and CNAs) and other staff (like administrators and therapists) in April, May, and June of 2024. We think that nursing homes that use a lot of temporary workers in *both* areas might have lower quality ratings and more fines.
  + **Data Analyst Note:** This question examines the overall reliance on contract staffing across different types of roles within a facility and investigates its potential link to broader quality and cost consequences.
* **5.4. Question 4 (Cost Implication Forecasting):**
  + **Professional:** Define "high contract staffing facilities" as those with an average ratio of total contract hours (for all roles) to total hours (contract plus employee for all roles) exceeding 50% in Q2 2024. Compare the average quality scores and the amounts of penalties incurred (obtained from other CMS datasets) between these "high contract staffing" facilities and "low contract staffing" facilities (those below the 50% threshold). Illustrate the *potential* cost savings if "high contract staffing" facilities could reduce their overall contract staffing ratio by 10%. Acknowledge that actual cost data for contract staffing is not available in these datasets, so this cost savings illustration will be based on assumptions and external benchmarks.
  + **Layman's:** Let's call nursing homes that use temporary staff for more than half their work "high contract staffing" places. We'll compare how well they do (quality scores) and how much they get fined compared to places that use less temporary staff. Then, we'll estimate how much money the "high contract staffing" places *could* save if they used 10% less temporary staff. We know we don't have the exact cost of temporary staff, so this will be an educated guess.
  + **Data Analyst Note:** This question attempts to quantify the potential financial benefits of reducing reliance on contract staffing, even though Clipboard Health offers a more efficient and potentially cost-effective form of contract staffing. It highlights the potential for overall cost optimization.
* **5.5. Question 5 (Intra-Quarter Staffing Patterns):**
  + **Professional:** For a representative sample of nursing home facilities, analyze the weekly or even daily fluctuations in the total number of contract hours (across all roles) during Q2 2024. Are there recurring patterns or trends, such as higher contract staffing at the beginning or end of the week, or on specific days of the week? If predictable patterns exist, this indicates potential areas where proactive staffing solutions could be particularly beneficial.
  + **Layman's:** For a group of nursing homes, let's look at how much temporary staff they use each day or each week in April, May, and June of 2024. Do we see the same patterns over and over? For example, do they always use more temporary staff on Mondays or Fridays? If we can find predictable patterns, it means they could plan ahead better.
  + **Data Analyst Note:** This question explores temporal patterns in contract staffing to identify predictable staffing gaps or periods of high demand, which could be addressed through more proactive staffing strategies.

**6. Stakeholders and Audience**

* **Key Stakeholders:**
  + **Sales Leadership Team (Primary Client):** The primary consumers of this analysis, responsible for setting sales strategy and allocating resources.
  + **Executive Management:** Interested in overall business performance and strategic decision-making.
  + **Potentially Marketing Team:** The marketing team may use insights from this analysis to align messaging with the identified target segments.
* **Primary Audience for Report:** The Sales Leadership Team at Clipboard Health. The report and its findings should be presented in a clear, concise, and actionable manner, tailored to their needs and decision-making processes.

**7. Metrics for Success**

The success of this "Ask" phase, and the overall analysis, will be evaluated based on its ability to deliver the following:

* **Actionable Target Segments:** Identification of 3-5 clearly defined and distinct target nursing home segments. These segments should be based on their staffing needs, reliance on contract labor, and other relevant characteristics.
* **Segment Prioritization:** A clear rationale for prioritizing specific segments based on their likelihood of benefiting from Clipboard Health's services. This prioritization should be supported by the data analysis.
* **Data-Driven Justification:** All recommendations and conclusions should be directly and clearly supported by the data analysis and visualizations.
* **Sales Strategy Alignment:** The recommendations should directly inform sales outreach strategies, messaging, and resource allocation decisions. The analysis should provide the sales team with the information they need to target the right nursing homes with the right message.

**8. Key Tasks Completed in the "Ask" Phase**

The following tasks have been completed during the "Ask" phase:

1. **Defined the Business Task:** Clearly articulated the primary objective: identifying nursing homes that are most likely to benefit from Clipboard Health's services.
2. **Confirmed Key Stakeholders:** Identified the Sales Leadership Team as the primary client, along with other relevant stakeholders (Executive Management, potentially the Marketing Team).
3. **Identified Key Data Sources:** Specified the CMS PBJ Daily Nurse Staffing and Non-Nurse Staffing datasets for Q2 2024 as the primary data sources, along with the intention to incorporate other related CMS datasets (for quality scores, penalties, and facility ownership information).
4. **Established Key Metrics:** Identified the key metrics that will be used in the analysis, including contract staffing ratios (for various roles), resident census, quality scores, and penalty amounts.
5. **Formulated Initial SMART Questions:** Developed a set of initial questions focused on staffing patterns, quality of care, and potential cost implications.
6. **Refined SMART Questions:** Refined the initial questions to ensure they are Specific, Measurable, Action-oriented, Relevant, and Time-bound (specifically focused on Q2 2024).
7. **Explicitly Addressed Problem Types:** Identified and documented the relevant problem types from the Google Data Analytics framework that this analysis will address.
8. **Performed Initial Data Inspection (Prior Task, Confirmed Here):** Although not explicitly listed again here, initial dataset review *was* performed, as confirmed in prior discussion, and guided our question refinement.

This comprehensive report documents the "Ask" phase, providing a clear and detailed foundation for the subsequent phases of the data analysis project (Prepare, Process, Analyze, Share, Act). It ensures that the project is well-defined, focused, and aligned with the needs of Clipboard Health's sales leadership team.