**Comprehensive Staffing Analysis Report**

This report consolidates our research objectives, established through preliminary explorations, and presents our five SMART questions. It also explains the external CMS datasets we plan to integrate with our internal staffing data, details how they complement one another, and concludes with an overview of the selected datasets and the rationale for their use.

**1. Introduction and Objectives**

Our primary goal is to understand how temporary (contract) staffing impacts quality, operational efficiency, and cost in nursing homes. We focus on data from Q2 2024 and examine staffing patterns—particularly the mix of temporary versus permanent staff for critical roles (e.g., Registered Nurses [RNs] and Certified Nursing Assistants [CNAs]) and support staff. We aim to answer key questions about staffing dynamics, correlate them with resident care and financial outcomes, and develop actionable recommendations for optimizing staffing models through an on-demand solution like Clipboard Health’s.

**2. The Five SMART Questions**

**Question 1: Refined RN Staffing Analysis**

**"What is the ratio of contract hours versus employee hours for Registered Nurses (RNs) in Q2 2024 in facilities with fewer than 120 residents?"**

* **Layman Explanation:**  
  We want to know, in smaller nursing homes (fewer than 120 residents), how much work is done by temporary (contract) RNs compared to permanent (employee) RNs during Q2 2024.
* **Justification & Research Objective:**
  + **Critical Role & Time Frame:** RNs are essential for patient care, so analyzing recent data (Q2 2024) is crucial.
  + **Resident Census Threshold:** Our initial quartile analysis indicated that facilities with fewer than 120 residents fall into the smallest 25%—a group likely facing unique staffing challenges (e.g., budget constraints, difficulty retaining full-time staff).
* **Actionable Insight:**  
  Identifying a high reliance on temporary RNs in these facilities would signal a gap in stable staffing, suggesting targeted strategies for a more efficient staffing model.
* **CMS Data Integration:**  
  By linking our internal staffing data with the Skilled Nursing Facility Quality Reporting Program National Data and the FY\_2025\_SNF\_VBP\_Facility\_Performance dataset (using common keys like Medicare Provider Number and Facility Name), we can test whether facilities with high temporary RN ratios also exhibit lower quality scores and poorer financial performance.

**Question 2: Intra-Quarter Variation for CNAs**

**"What are the short-term (within Q2 2024) changes in the ratio of temporary versus permanent staffing for Certified Nursing Assistants (CNAs), and how do these changes relate to fluctuations in the number of residents?"**

* **Layman Explanation:**  
  We plan to track how the mix of temporary versus permanent CNAs changes on a daily or weekly basis during Q2 2024, and check if these shifts align with changes in the resident population.
* **Justification & Research Objective:**
  + **Operational Focus:** CNAs play a vital role in day-to-day care. Short-term fluctuations reveal if staffing adjustments are made when resident numbers change suddenly.
  + **Correlation with Resident Census:** This helps us determine whether busy periods prompt increased temporary staffing.
* **Actionable Insight:**  
  Recognizing predictable peaks or dips in temporary CNA usage can enable facilities to plan ahead and adjust staffing schedules to meet fluctuating demands.
* **CMS Data Integration:**  
  Although primarily an operational question based on our internal data, the outcomes here can later be cross-referenced with quality metrics from CMS datasets (e.g., survey summaries) to evaluate if these short-term staffing fluctuations affect overall care quality.

**Question 3: Comparative Trend and Cost Correlation Analysis**

**"Over Q2 2024, how do temporary staffing trends differ between direct care (nursing) and support (non-nursing) roles, and what correlations exist between these trends and extra costs such as overtime expenses, temporary staffing fees, and penalties?"**

* **Layman Explanation:**  
  We want to compare how temporary staffing patterns vary between care providers (like nurses) and support staff (like administrators or therapists) over Q2 2024, and see if higher temporary staffing correlates with higher extra costs and penalties.
* **Justification & Research Objective:**
  + **Holistic Comparison:** Analyzing both nursing and non-nursing roles provides a complete view of staffing across facilities.
  + **Cost and Penalty Linkage:** If higher temporary staffing drives extra costs (e.g., overtime, agency fees, penalties), it signals operational inefficiency.
* **Actionable Insight:**  
  A strong correlation between temporary staffing and extra costs would build a compelling case for adopting a more efficient, technology-driven staffing solution.
* **CMS Data Integration:**  
  This question will integrate external data from the Skilled Nursing Facility Quality Reporting Program, FY\_2025\_SNF\_VBP\_Facility\_Performance, and NH\_Penalties\_Jan2025.csv datasets. We hypothesize that facilities with higher temporary staffing levels also incur higher extra costs and penalties, reinforcing the need for improved staffing practices.

**Question 4: Cost Implication Forecasting**

**"What are the cost differences in Q2 2024 between facilities with over 50% temporary staffing versus those with less than 50% for both nursing and non-nursing roles, and how would a 10% reduction in temporary staffing affect overall staffing costs?"**

* **Layman Explanation:**  
  We aim to compare the costs incurred by facilities that use a lot of temporary staff (more than 50% of total staffing) with those that use less, and estimate the cost savings if temporary staffing were reduced by 10%.
* **Justification & Research Objective:**
  + **Financial Impact Focus:** Facilities with over 50% temporary staff likely face higher costs. A 10% reduction target is informed by benchmarks or pilot data that suggest significant savings are possible.
* **Actionable Insight:**  
  Quantifying cost differences and projected savings provides a clear ROI model, reinforcing the business case for optimizing staffing practices.
* **CMS Data Integration:**  
  This analysis will incorporate data from the Skilled Nursing Facility Quality Reporting Program, FY\_2025\_SNF\_VBP\_Facility\_Performance, and NH\_Penalties\_Jan2025.csv datasets. By showing that facilities with higher temporary staffing not only perform worse but also face higher costs and penalties, we can forecast the financial benefits of reducing temporary staffing.

**Question 5: Intra-Quarter Staffing Pattern Analysis**

**"What are the short-term (within Q2 2024) variations in temporary staffing levels for both nursing and support roles, and do these patterns show predictable times when staffing gaps occur?"**

* **Layman Explanation:**  
  We’re analyzing the daily or weekly changes in the number of temporary workers for both direct care and support roles during Q2 2024 to identify if there are consistent times when staffing is low.
* **Justification & Research Objective:**
  + **Temporal Patterns:** Understanding these fluctuations helps pinpoint specific times when facilities are consistently understaffed.
  + **Predictability:** If gaps are predictable, facilities can proactively schedule additional staff during those critical periods.
* **Actionable Insight:**  
  Recognizing predictable staffing gaps enables proactive adjustments in scheduling and resource allocation, improving overall operational efficiency.
* **CMS Data Integration:**  
  Although this question is mainly focused on internal operational data, the patterns identified can later be compared against external quality and cost outcomes (from CMS datasets) to see if predictable gaps correlate with poorer performance or higher costs.

**3. External CMS Datasets Overview**

To enrich our analysis, we will integrate the following external CMS datasets with our internal staffing data. These datasets will be merged using common identifiers such as the Medicare Provider Number (PROVNUM) and Facility Name.

1. **Skilled\_Nursing\_Facility\_Quality\_Reporting\_Program\_Provider\_Data\_Jan2025.csv**
   * **Purpose:** Provides detailed quality performance measures (e.g., quality scores, inspection outcomes) for each facility.
   * **Relevance:** Allows us to correlate staffing patterns (especially temporary vs. permanent ratios) with overall quality outcomes.
2. **NH\_SurveySummary\_Jan2025.csv**
   * **Purpose:** Summarizes survey results and deficiencies from CMS inspections.
   * **Relevance:** Helps assess whether facilities with high temporary staffing have more survey deficiencies or lower ratings.
3. **NH\_QualityMsr\_MDS\_Jan2025.csv**
   * **Purpose:** Contains quality measures based on the Minimum Data Set (MDS), reflecting resident care outcomes.
   * **Relevance:** Enables us to link resident care quality with staffing models.
4. **NH\_Ownership\_Jan2025.csv**
   * **Purpose:** Provides ownership details (e.g., for-profit, non-profit, chain-owned).
   * **Relevance:** Ownership type can explain variations in staffing practices and financial outcomes.
5. **NH\_HealthCitations\_Jan2025.csv**
   * **Purpose:** Lists citations and penalties related to health and safety issues.
   * **Relevance:** Offers a financial dimension by quantifying penalties, helping to validate if higher temporary staffing leads to higher costs.

**4. Conclusion**

Our comprehensive analysis is built around five SMART questions that focus on staffing dynamics in Q2 2024, with a particular interest in the impact of temporary staffing on quality, operational efficiency, and costs. By integrating our internal staffing data with key external CMS datasets, we aim to validate our hypotheses through:

* Correlating staffing patterns (temporary vs. permanent) with quality performance measures.
* Comparing operational adjustments with survey outcomes and resident care metrics.
* Linking financial outcomes (overtime, agency fees, penalties) to staffing models.
* Examining short-term staffing fluctuations and their predictability.

**Selected External Datasets:**

* **Skilled Nursing Facility Quality Reporting Program Provider Data (Jan2025)**
* **NH Survey Summary (Jan2025)**
* **NH Quality Measures from MDS (Jan2025)**
* **NH Ownership (Jan2025)**
* **NH Health Citations (Jan2025)**

These datasets complement our internal staffing data by providing robust, standardized measures of facility quality, survey outcomes, resident care, ownership structure, and financial penalties. Together, they create a multi-dimensional view of how staffing practices affect overall performance, supporting actionable insights and strategic recommendations for optimizing staffing through a more efficient, technology-driven solution.

This comprehensive report serves as the foundation for our analysis and outlines a clear, integrated approach to linking staffing data with external quality and cost outcomes.