



INFLUENZA STAFFING ANALYSIS SEASON 2024



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MEDICAL STAFFING AGENCY

Project Overview

- **Motivation:** The United States has an influenza season where more people than usual suffer from the flu. Some people, particularly those in vulnerable populations, develop serious complications and end up in the hospital. Hospitals and clinics need additional staff to adequately treat these extra patients. The medical staffing agency provides this temporary staff.
- **Objective:** Determine when to send staff, and how many, to each state.
- **Scope:** The agency covers all hospitals in each of the 50 states of the United States, and the project will plan for the upcoming influenza season.

Research Hypotheses

- Older folks are more prone to serious issues from ILI diseases. If there's a higher percentage of people aged 65 and above in a specific region, the chances of higher mortality rates due to influenza/pneumonia illnesses in that area go up.
- The average deaths caused by influenza/pneumonia illnesses are higher in individuals over 65 years old compared to those under 65 years old.

Project Deliverables

1. Interim report consolidating findings of hypothesis testing.
2. Dashboard with relevant metrics for stakeholders.

Stakeholder Communication

- Medical agency frontline staff (nurses, physician assistants, and doctors)
- Hospitals and clinics using the staffing agency's services
- Influenza patients
- Staffing agency administrators

All meetings should be held virtually.

| DESCRIPTION | FREQUENCY | METHOD | AUDIENCE |
|----------------------|-----------|------------------|--|
| Project team meeting | Daily | Video conference | <ul style="list-style-type: none">▪ Team members▪ Project manager |
| Status update | Weekly | Email | <ul style="list-style-type: none">▪ Team members▪ Project manager▪ Agency administrators |

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|------------------------------|--------|------------------|--|
| Limitations & Clarifications | Week 3 | Video conference | <ul style="list-style-type: none"> ▪ Project manager ▪ Agency administrators |
| Early insights | Week 4 | Video conference | <ul style="list-style-type: none"> ▪ Project manager ▪ Agency administrators |
| Data storytelling | Week 5 | Video conference | <ul style="list-style-type: none"> ▪ Team members ▪ Project manager |
| Presentation | Week 7 | Video conference | <ul style="list-style-type: none"> ▪ Project manager ▪ Agency administrators ▪ Agency frontline staff representatives |

Project Schedule

| PHASE | DESCRIPTION | TIMELINE |
|---------|--|-----------|
| Ask | <ul style="list-style-type: none"> ▪ Define business requirements ▪ Translate business requirements into actionable steps ▪ Formulate research hypothesis | WEEK 1 |
| Prepare | <ul style="list-style-type: none"> ▪ Data sourcing ▪ Data collection ▪ Identify data limitations | WEEK 2 |
| Process | <ul style="list-style-type: none"> ▪ Data profiling ▪ Data cleaning ▪ Verify data integrity ▪ Implement data quality measures | WEEKS 3-4 |
| Analyze | <ul style="list-style-type: none"> ▪ Data transformation ▪ Statistical analysis ▪ Statistical hypothesis testing | WEEKS 5-6 |

| | | |
|-------|--|--------|
| | <ul style="list-style-type: none"> ▪ Create visualizations | |
| Share | <ul style="list-style-type: none"> ▪ Design a narrative to share insights ▪ Publish presentation as a Tableau Storyboard | WEEK 8 |

Context

1. What kind of healthcare facilities will require additional staff?

During the influenza season in the United States, several types of healthcare facilities require additional medical staff to manage the increased patient load and maintain high-quality care. These facilities include:

- a) **Nursing Homes:** Nursing homes are particularly vulnerable during the influenza season due to the high-risk nature of their resident population, which includes older adults and individuals with chronic health conditions. The Centers for Medicare and Medicaid Services (CMS) has emphasized the importance of vaccinating residents against influenza and pneumococcal disease. Although vaccination of healthcare workers in these settings is not mandated by the proposed regulation, it is strongly encouraged to reduce mortality rates among residents. Additionally, nursing homes have been required to report influenza vaccination among healthcare personnel (HCP) for the first time during the 2022-2023 influenza season.
- b) **Urgent Care Centers:** Urgent care centers play a critical role in providing medical care for influenza and other respiratory illnesses, especially during peak seasons. These centers often experience an increase in patient volume as individuals seek immediate care for flu symptoms. The CDC highlights that influenza is primarily a community-based infection transmitted in households and community settings, with a significant portion of the U.S. population seeking medical care in ambulatory healthcare settings, including urgent care clinics.
- c) **Hospitals:** Hospitals, particularly acute care hospitals, face significant challenges during the influenza season, including increased patient admissions for influenza-related complications and the need for heightened infection control measures. The CDC reports that more than 200,000 persons are hospitalized each year for influenza-related complications in the U.S. Hospitals also experience staffing shortages due to illness among healthcare personnel, which can strain the remaining staff and potentially impact patient care. Acute care hospitals are required to report influenza vaccination data among HCP to the National

Healthcare Safety Network (NHSN), highlighting the importance of vaccination in these settings.

2. What is the staff-to-patient in these healthcare facilities?

The staff-to-patient ratio in healthcare facilities can vary widely based on the type of facility, the specific needs of the patients, and the time of year. During influenza season, the demand for healthcare services increases, which can affect these ratios. However, the research results do not contain specific information about the staff-to-patient ratios in nursing homes, urgent care centers, or hospitals during the influenza season.

In general, nursing homes may have varying staff-to-patient ratios depending on the level of care required by residents and the regulations of the state in which they operate. Urgent care centers typically have a smaller staff compared to hospitals and may adjust their staffing based on anticipated increases in patient volume during flu season. Hospitals, especially during peak influenza season, may experience higher patient-to-staff ratios due to increased admissions and potential staff illness, which can lead to staffing shortages.

Without specific data from the research results, it is not possible to provide exact staff-to-patient ratios for these healthcare facilities during influenza season. These ratios are determined by a combination of regulatory requirements, the acuity of patient care needs, and the resources available to the facility. It is important for healthcare facilities to maintain adequate staffing levels to ensure patient safety and quality of care, particularly during times of increased demand such as influenza season.

3. Are there additional factors that impact demand for medical staff?

During the influenza season, the demand for medical staff in healthcare facilities such as nursing homes, urgent care centers, and hospitals is influenced by several factors beyond the increased patient load. These factors include:

- **Staff Vaccination Rates:** The attitudes of nursing home staff towards influenza vaccination and their hesitancy can significantly impact the spread of influenza within facilities. Low vaccination coverage among staff is associated with outbreak occurrence and duration, highlighting the importance of vaccination as a preventive strategy.
- **Healthcare Workers' Willingness to Work:** The willingness of healthcare workers (HCWs) to work during an influenza pandemic is variable and influenced by numerous risk factors. This willingness directly affects the availability of medical staff during peak seasons.

- **Sickness Presenteeism:** Increased hospital occupancy during influenza season can lead to heightened risk of sickness presenteeism among hospital staff. Presenteeism, where staff continue to work while sick, is detrimental to their health and may lead to reduced productivity and increased spread of infection.
- **Infection Control Measures:** Effective communication and implementation of infection control measures are crucial in preventing the spread of influenza within healthcare settings. This includes minimizing elective visits, ensuring adherence to respiratory etiquette, and triage procedures.
- **Hospital Capacity and Staffing:** Increased patient volumes due to influenza and influenza-like illness strain hospital capacity and staff, leading to fatigue and the need to adjust staff-to-patient ratios. Immediate staffing and capacity responses are crucial for managing increased demand.
- **Staffing Solutions:** Effective flu season staffing solutions are critical for managing the surge in patients. This includes addressing challenges such as inflated hourly rates for temporary staff, communication hurdles due to constant turnover, and resource depletion.

Sources:

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Analysis

- a) When does flu season start?
- b) How long does flu season last?
- c) Does flu season vary across different regions of the United States?
- d) Are there specific months known for peak flu activity?
- e) Which states saw the highest flu and pneumonia cases in 2023?
- f) Which states have the most seniors aged 65 and above?

Privacy and Ethics

- a) How will personal information of patients and medical staff be protected and kept confidential?
- b) How will the distribution plan ensure that patients are not subjected to discrimination, bias, or unequal treatment based on factors such as race, gender, or religion?
- c) What measures will be taken to ensure that the distribution of medical staff is transparent, fair, and accountable?