

Springboard: Data Science Career Track
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Overview

This project aims to assess and predict the risk of nursing home closures in the United States.

Clients

Findings will be salient to a broad range of regulatory and community stakeholders:

- State departments of health, accounting for the effects of facility closures on local bed supply and availability of specialty services (e.g. behavioral health, traumatic brain injury) while considering certificate of need applications and reimbursement rate adjustments.
- Labor unions that organize and represent nursing home workers (e.g. 1199SEIU), interested in understanding the workforce implications of facility closures when developing campaign strategy and determining proper allocation of resources.
- Long-term care advocacy organizations (e.g. Center for Medicare Advocacy), concerned about the impact of facility closures on residents and their families, seeking to formulate policy recommendations for distribution among press and public officials.

Data

This project will draw upon two publicly accessible data sources maintained by the Centers for Medicare and Medicaid Services (CMS):

1. Nursing Home Compare. This source contains facility-specific, statewide, and national data on resident census, caregiver staffing, quality outcomes on patient care indicators, deficiency citations, and penalties issued to CMS-certified skilled nursing facilities in the United States.

Data available at: <https://data.cms.gov/data/nursing-home-compare>

2. Healthcare Cost Report Information System. This source contains Medicare cost report data (collected from Form CMS-2540-10 and Form CMS-2540-96) encompassing, *inter alia*, income statement and balance sheet data submitted by skilled nursing facilities to CMS.

Data available at: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Cost-Reports/Cost-Reports-by-Fiscal-Year.html>

Approach

This proposal hypothesizes that correlative relationships exist between the likelihood of a nursing home closure and the following potential risk factors:

- The facility is located on a hospital campus.
- The facility has had frequent and high-severity civil monetary penalties (CMPs) levied by CMS (e.g. denial of reimbursements for new patient admissions).
- The facility's patient census consists disproportionately of Medicaid-funded residents.
- The facility's patient service revenue is disproportionately derived from Medicaid.
- The nursing home has sustained consistent declines in occupancy rates.
- The nursing home has sustained consecutive and high-magnitude net losses (adjusted for related party transaction payments).

Final Products

Code, written report, and presentation slide deck.