



Reducing International Normalized Ratio (INR) Related After-Hours Calls A Performance Improvement (PI) Project



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Introduction

Many skilled nursing facility (SNF) residents take warfarin requiring International Normalized Ratio (INR) monitoring. Nurses often report INRs after-hours, congesting after-hours lines with non-urgent calls and preventing urgent or emergent calls from being addressed expediently. This project was done in conjunction with OptumCare of Washington and Gonzaga University. It included 60 SNFs and 30 Nurse Practitioners (NPs).

Objectives

Reduce the volume of after-hours INR related calls by determining the factors that lead these calls, and implementing a plan address them.

Background

December 2014 call logs detail SNFs and the day of the week were used to detect baseline trends. Lab based monitoring was used in 56% of SNFs despite evidence of more time spent at therapeutic INR with point-of-care (POC) monitoring. Lab monitoring causes lag time between blood draws and results, so SNFs receive results in the afternoon, leaving the nurse little time to communicate with Nurse Practitioners (NPs) before the close of business; this results in after-hours INR calls. At baseline 15.34% of after-hours calls were INR related. A disproportionate number of INR calls come in on weekends. 25 SNFs called regarding INR results, with the majority coming from 13 SNFs.

Methods and Implementation

Warfarin management training occurred in February 2015 with email follow-up every two weeks through the month of March 2015.

Expected Practice Changes:

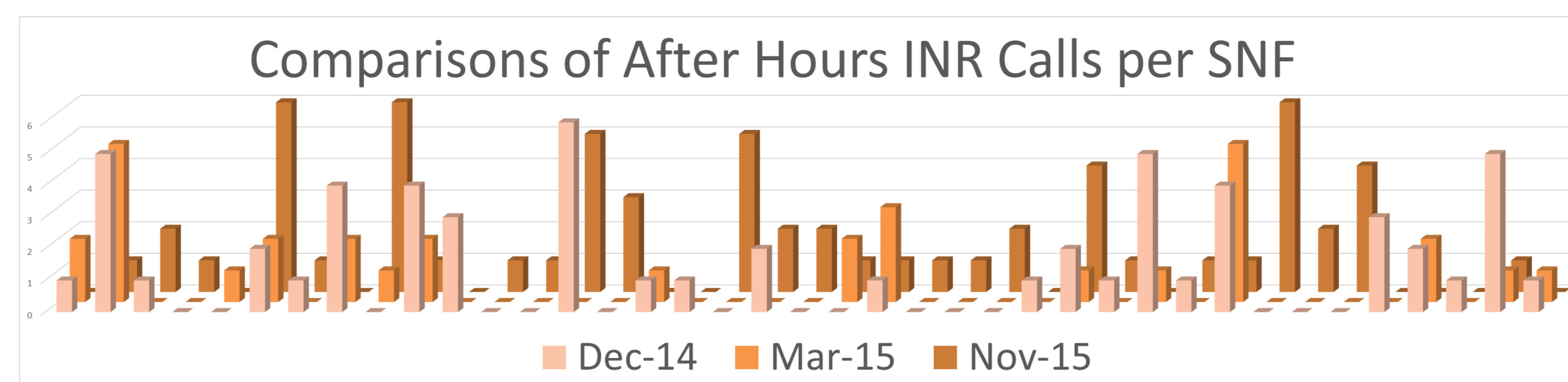
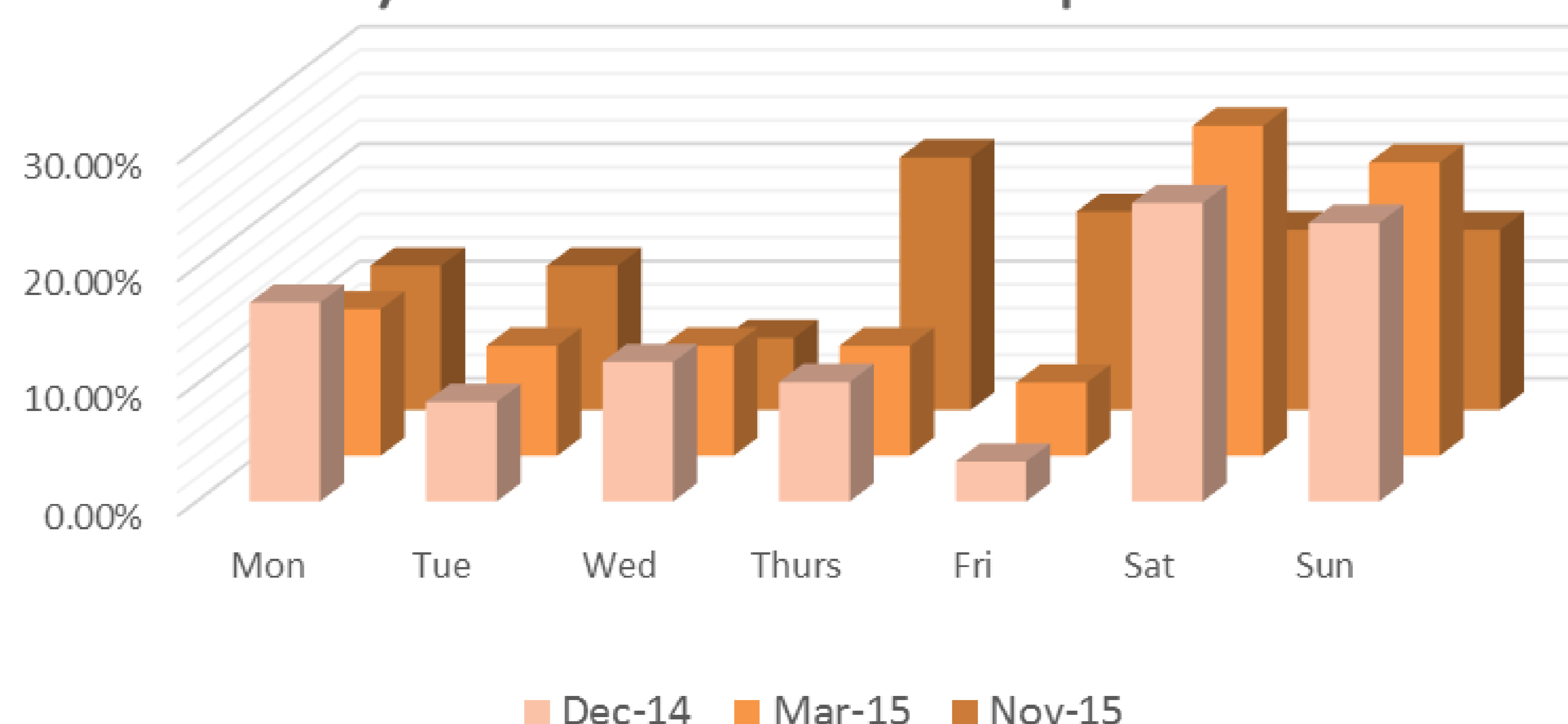
1. Evidence-based dosing protocol use to improve INR stability to allow longer INR monitoring intervals.
2. Use of smart phone application guidelines for warfarin dosing, INR monitoring, and the CHA2DS2-VASc.
3. Order routine INRs for early morning on a set INR day (Tuesday or Wednesday), avoiding holidays and scheduled days off.
4. Schedule follow-up for out of range INRs before the weekend.
5. SNFs using POC monitoring should obtain INRs and new orders on day shift avoid after-hours calls.

Results

There was a statistically significant reduction in INR related after-hours call volume in March 2015 ($P=0.00013$). INR call percentage declined from 15.34% at baseline to 7.48%. By November 2015, the team maintained a statistically significant reduction in the number of after-hours INR related calls ($p=0.04$); however, the percentage of INR related calls increased to 11.75%. This was

due to the large number of calls on Thanksgiving and Black Friday which comprised 34% (22/65) of the total INR related calls for the month. This represents a need to reinforce the use of Tuesday and Wednesday as preferred days for routine INR testing. The number of SNFs calling with INR results declined from 25 at baseline to 16 in March 2015 showing a statistically significant reduction in the number of SNFs making after hours INR related calls ($P=0.001$). This number increased to 27 in November 2015. However, seven of these buildings only called over Thanksgiving. There was no statistically significant change in the number of INR related calls on the weekends compared with those coming in on weekdays, and there was no statistically significant change in the number of calls coming in from SNFs using POC monitoring compared with those using lab based monitoring.

Day of the week Comparisons



Discussion

The use of a standard dosing protocol and INR monitoring early in the day on Tuesday or Wednesday shows promise in improving continuity of care through reducing after-hours provider involvement in warfarin management. Reducing calls for routine monitoring helps to avoid after-hours phone line congestion so that after-hours providers can attend to urgent or emergent issues. There is still room for improvement as weekends and holidays are still seeing a disproportionate number INR related after-hours calls compared with the weekdays. The number of calls from buildings using POC monitoring could be further reduced

through requesting that facilities using this method obtain INRs and notify the Nurse Practitioner early in the day. The results of this project should have wide application due to the large and diverse sample of patients, NPs, and SNFs and due to the length of follow-up. Future research should be conducted to determine longer term outcomes of this type of project to see if improvement is sustained. These studies should include a larger baseline sample, and they should also include a control group. This study is also limited as it does not directly address patient outcomes.

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