***Education in Reducing Preventable Readmissions: A Continuous Feedback Loop***

***Final Progress Report***

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Wake Forest Internal Medicine Residency Program

Goal: The goal of our project is to identify and ameliorate factors that contribute to readmission of patients discharged by internal medicine resident physician teams.

*Specific Aims:*

1. Identify factors associated with the readmission of patients discharged from the General Medicine services at Wake Forest Baptist Medical Center.
2. Assess the confidence of residents in their knowledge and practices related to the discharge process.
3. Implement a discharge curriculum intended to increase preparedness in optimal discharge processes and awareness of forces that contribute to readmissions.

The following progress has been made toward the specific aims of the project:

1. IRB protocol: The IRB protocol was renewed on December 24th, 2015 for a 12-month study period allowing the retrospective review of factors associated with readmission.
2. Data Extraction: The WakeOne (Epic®) medical records system was queried by one author with enhanced data extraction certification and privileges (A.D.).
3. Analysis and Results: We collaborated with the Wake Forest Translational Science Institute (TSI) who verified the dataset, assembled and performed final analyses. All patients discharged from two similarly-structured academic IM services between 10/1/2013 and 9/30/2014 were included in analysis. Our team identified potential service-level predictors of readmission (e.g. service turnover, total number of admissions, time of day of discharge, day of the week of discharge, holiday discharges) as well as variables that might confound the association between service-related factors and risk of readmission (systolic blood pressure, hemoglobin, sodium, kidney function, total charges, median income, Charlson comorbidity index, loop diuretic use, warfarin use, opiate use, age, BMI, and race). There were 1931 total discharges (after accounting for deaths and removing inappropriately classified discharges) and 258 patients (13.4%) were readmitted within 30 days of the index discharge. Patients discharged on a holiday, which included individual holidays and the 2 weeks around Christmas/New Years were more likely to be readmitted after adjusting for co-morbidity, demographics, medications, and variables related to the workload of the service (Odds Ratio 1.91, 95% CI 1.04-3.52). A switch day discharging intern, weekend discharge, and total number of admissions and discharges by the team was not associated with hospital readmission, although other studies have suggested relationships with workload variables [Mueller, Am J Med, 2013].
4. Dissemination: An abstract was submitted and accepted for poster presentation with the above findings to the North Carolina American College of Physicians Conference in February 2016.
5. Ongoing Progress and Next Steps:
   1. Specific Aim 1: While this aim is largely complete, our next natural step is to examine the reasons for readmission associated with discharges over holidays through structured chart review, which may help to determine if additional staffing, other support services or specific enhancements of our educational curriculum are needed.
   2. Specific Aim 2: Now that we have essentially completed Aim 1 of the project, we will now implement the baseline resident survey to assess the confidence of residents in their knowledge and practices related to the discharge process/preventing readmissions.
   3. Specific Aim 3: We have identified the factors to be included in the readmission chart review intervention (in the domains of medical, psychosocial, healthcare access, adherence, elements of the discharge plan, discharge summary, and post-acute care services). Readmission chart review and education end of each general medicine rotation block is planned for the target services. Reanalysis of outcomes in will occur post-readmission chart review with the support of the TSI.

**EXPENDITURE REPORT**

Our timeline for completion of the project was extended due to delayed deposit of funds until November 2014. Thus far, funds have been spent on database development and analysis.

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|  | **Budget** | **Expenditure** | **Balance** | **Planned 2016-2017\*** |
| **Data Analysis/Project Support** | $3800.00 | $1467.40 | $2332.60 | $2332.60 (post-intervention analysis and publication support) |
| **Travel** | $1200.00 | 0 | $1200.00 | $1200 (National ACP meeting) |
| **Total** | $5,000.00 | $1467.40 | $3532.60 | $3532.60 |

\*We request carryover of $3,532.60 to complete the project follow-up analyses in early 2017.