

Study Design and Statistical Procedures

- Study Design:

Between August 1, 2009 and February 1, 2010, eligible ward oncology patients on all four ten-patient housestaff teams at Milstein Hospital of New York-Presbyterian Hospital (NYPH)/Columbia University Medical Center (CUMC) will be included in the study. The average length of stay (ALOS) will be determined based on the admission and discharge times recorded on the WebCIS information system. This data will be compared to the ALOS of ward oncology patients on all four twelve-patient housestaff teams between August 1, 2008 and February 1, 2009. To account for secular trends, patients on the Physician Assistant (PA) oncology service will be analyzed separately during the same time periods. Providers will be blinded to the intervention.

- Statistical Procedures:

The outcome is ALOS, with the hypothesis that a reduced resident patient cap will lead to a decrease in ALOS. An unpaired t-test will be used. For the fourth quarter of 2008, the ALOS at NYPH was 6.62 with a variance of 0.64 (i.e., a standard deviation of 0.8); budgeted values were 6.31.⁷ For a reduction in ALOS from the current to the budgeted value (an anticipated effect of 0.3 days), the number of patients required in each group (assuming 80% power and $\alpha < 0.05$) using an unpaired t-test is 106 patients.

Study Procedures:

No procedures will be performed on the subjects during the study.

Study Drugs:

No study drugs will be administered for the purposes of the study.

Medical Devices:

No medical devices will be used during the study.

The effect of the reduction in housestaff patient load on average length of stay among oncology ward patients at New-York Presbyterian Hospital/Columbia University Medical Center

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Study Purpose and Rationale

- Study Purpose:

New regulations have decreased the housestaff patient load from twelve to ten patients per intern team. This study aims to determine the effect of this change on average length of stay of ward oncology patients in our hospital.

- Background:

As a result of increasing political and social pressure, particularly following the publication of The Institute of Medicine (IOM)'s report *To Err is Human* (2000),¹ the Accreditation Council for Graduate Medical Education (ACGME) implemented resident duty hour limits in 2003 with the goals of improving resident wellness, increasing patient safety, and improving the educational environment.

These regulations also dictated other elements of residents' schedules, including the number of hours off between shifts and the call frequency; in addition, the ACGME implemented a maximum patient load, or "cap," with one intern being responsible for the ongoing care of no more than twelve inpatients at any one point in time.² Though limited, previous studies have shown either no change or a decrease in length of stay.³

With the publication in 2008 of the IOM's report *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety* (2008),⁴ further measures were implemented to help provide a safer environment for patients and trainees. Effective starting July 1, 2009, these include, among others, the change in resident cap from twelve patients per intern to ten patients per intern.⁵

- Rationale:

While the decrease in resident cap was implemented primarily in an effort to improve resident and patient safety, it may also lead to an earlier discharge of patients as residents can allocate more time and resources per patient. As hospitals are expected to incur a significant cost from the implementation of the new regulations,⁶ they may welcome this reduction in length of stay to counter some of these increased costs.

Study Questionnaires:

No questionnaires will be administered during the study.

Study Subjects:

- Inclusion criteria:

Adult oncology patients on the ward teams at Milstein Hospital of NYPH/CUMC during the study period will be included. Similarly, patients admitted to the oncology PA service will be included.

- Exclusion criteria:

Overflow patients from other services admitted to any of the oncology service teams will be excluded.

Recruitment:

Eligible ward and PA service oncology patients will be recruited into the study. ALOS is routinely calculated for all patients hospitalized at Milstein Hospital at NYPH/CUMC.

Confidentiality of Study Data:

Study subjects will be assigned a unique numerical identifier from a sequential numerical series. All identifying information will be linked to this number.

Potential Conflict of Interest:

The hospital may benefit financially from a decrease in ALOS.

Location of the Study:

All patients will be recruited from the inpatient oncology units within Milstein Hospital at NYPH/CUMC.

Potential Risks:

As no procedures are performed through this study, there are no risks to the patients.

Potential Benefits:

A statistically significant decrease or increase in ALOS will have implications in terms of hospital budgeting. For study subjects, this may translate into changes in terms of payment.

Alternatives:

N/A

Compensation to Subjects:

No compensation will be offered to the subjects.

Costs to Subjects:

There are no costs to the subjects.

Minors as Research Subjects:

No minors will be included as research subjects.

Radiation or Radioactive Substances:

No radiation or radioactive substances will be used for the purposes of the study.

REFERENCES

- ¹ Kohn LT, Corrigan JM, and Donaldson MS, Editors, Institute of Medicine Committee on Quality of Health Care in America. *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press, 2000.
- ² Swide CE, Kirsch JR. "Duty Hours and their Effect on Resident Education and Academic Departments: The American Perspective." *Curr Opin Anaesthesiol*. 2007;20(6):580-4.
- ³ Fletcher KE, Davis SQ, Underwood W, Mangrulkar RS, McMahon LF, and Saint S. "Systematic Review: Effects of Resident Work Hours on Patient Safety." *Ann Intern Med*. 2004;141:851-57.
- ⁴ Committee on Optimizing Graduate Medical Trainee (Resident) Hours and Work Schedules to Improve Patient Safety. *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety*. Washington, DC: National Academies Press, 2008.
- ⁵ ACGME Program Requirements for Resident Education in Internal Medicine. Available online: <http://www.acgme.org/acWebsite/reviewComment/140_internal_medicine_PRs_R&C.pdf>. Accessed 12 June 2009.
- ⁶ Nucokls TK, Bhattacharya J, Miller Wolman D, Ulmer C, and Escarce JJ. "Cost Implications of Reduced Work Hours and Workloads for Resident Physicians" *N Engl J Med* 2009;360:2202-15.
- ⁷ NewYork-Presbyterian Hospital 4th Quarter 2008 Strategic Initiatives Report Card. Available online: <<http://infonet.nyp.org/initiative/4thQ2008SIReportCard.ppt>>. Accessed 12 June 2009.