The Impact of Student Hotspotting on Patients & the Jefferson Health System

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Background

“Super-utilizers,” patients who frequently use emergency and inpatient hospital services, present a significant financial burden to our healthcare system. These patients have two or more hospital admissions in the past six months with admissions that are not primarily oncology, pregnancy, or surgically related. In Pennsylvania, 3% of patients result in $1.25 billion in hospital payments and Philadelphia County has the highest number of “super-utilizers” (33.4/10,000) in the state. To help address this crisis, Thomas Jefferson University serves as one of four new national hubs for student hotspotting. Under the supervision of faculty and staff advisors, teams of interprofessional health professions students enroll “super-utilizers” and provide targeted interventions to address social determinants of health, reduce unnecessary healthcare services, and improve patient outcomes.

This pilot study examines the following questions:

1) How does student hotspotting affect patients’ self-reported and objective health outcomes?
2) What effect does participation in student hotspotting have on healthcare utilization and costs?

Methods

We conducted a controlled experiment using patients enrolled in the program as the experimental group. The control group is comprised of patients who met the inclusion criteria but declined to participate or were not enrolled in student hotspotting.

Data collected from chart reviews in EPIC at time points six months prior to participation in student hotspotting, during participation, and six months after the program concluded includes:

- Number of ED visits
- Number of outpatient visits
- Number of inpatient admissions

We also received health insurance claims data from our Care Coordination team to examine total costs of care for both the treatment and control groups.

Quantitative data collection also includes a pre-/post-questionnaire from the Multidimensional Health Locus of Control Scale, which is still underway.

Preliminary Results

Random-effects Poisson regression was used to investigate the difference in pre- and post-intervention visits of various types. Each regression model includes an interaction term, which tests the significance of a difference in pre-post changes associated with hotspotting compared to controls. The models also control for age and the number of visits during the intervention period.

Average Total Costs by Treatment Group

Conclusion

Pre- and post-intervention analysis suggests that participation in student hotspotting is a promising way to help address the needs of “super-utilizers.” The results show:

- A 6% overall reduction in number of ED visits for the experimental vs. control group
- A 48% reduction in the number of outpatient visits for the experimental group and no change in the control group
- Inpatient admissions were low and remained low at all time points in both the control and treatment groups
- Average total costs of care decrease for both the experimental and control groups

We anticipated that the number of outpatient visits for the experimental group might rise given increased reliance on outpatient services. We also expected inpatient utilization to be higher in both groups. However, for outpatient and inpatient visits as well as the average total costs of care for both groups, a larger sample and qualitative analysis are needed to add context.

Next steps

- Complete more extensive analysis on utilization and health system costs, with cost breakdown by type of visit/admission
- Finish collection of post-survey Multidimensional Health Locus of Control data to provide additional insight into patient experience in program
- Conduct mixed-methods study using qualitative data to inform qualitative freelisting patient interviews
- Conduct multi-site study of student hotspotting program participants at Jefferson and other hubs with different patient populations to increase participant numbers and see if findings are generalizable

References

2. PA Health Care Cost Containment Council (PHC4). Pennsylvania’s “Super Utilizers” of Hospital Care. 2016.