

Background

- In the US, 5% of Medicaid patients account for nearly half of health care costs¹, but this spending does not improve patient outcomes.
- Cost-effectiveness and value are an increasing focus in health care; therefore these so-called superutilizer (SU) patients are garnering increased national attention, through the initiatives of Camden Coalition².
- Interdisciplinary care can improve care for patients³, but medical education often neglects these interprofessional (IP) experiences.
- Triangle Interprofessional Partners for Prevention (TIPP) was established with a to improve SU patient care, decrease hospitalization costs, and promote IP education among students in health care fields.

- Develop sustainable processes to engage IP students in improving quality of health care.
- Decrease unnecessary hospitalizations and Emergency Department visits for SU patients, lowering total hospital charges.
- Increase opportunities for IP students to collaborate, fostering mutual understanding and respect.

- An EMR-generated algorithm identified SU patients at UNC (>3 hospitalizations in 12 months).
- IP teams of 2-3 social work, nursing, public health, and medicine students conducted home visits and appointments to identify root causes of hospitalizations. Teams worked closely with patients to address risk factors for readmission and coordinate care.
- Students met weekly with IP faculty to discuss patient needs and progress. Examples of services provided to patients include: assistance with food insecurity and unstable housing, arranging a new primary care physician, facilitating application for financial assistance with medical bills.

Outcome Measure	Definition
Pre and Post hospitalization rates	Comparison of average number of hospitalizations and ED visits per year before and after intervention
Pre and Post monthly charges	Comparison of average monthly inpatient and outpatient charges before and after intervention (does not include outside hospital or outside facility)

Results

- Recruitment is ongoing, but preliminary results for patients enrolled in 2016 are available.
- Of the seven enrolled patients, pre-intervention average monthly inpatient charges ranged from \$2,235 to \$19,662 monthly. Pre-intervention average monthly outpatient charges ranged from \$0 to \$6,457.
- Post-intervention, average monthly inpatient cost decreased in five of seven patients. For these patients, average monthly inpatient charges ranged from \$0 to \$50,267 and outpatient charges ranged from \$85 to \$5,290. Three of seven patients have not had any additional hospitalizations post-intervention. Five of seven patients had a decrease in average hospitalization rate.
- Results last updated February 2017

Patient	Time enrolled	Average hospitalizations per year		Average monthly inpatient charges (\$)		Average monthly outpatient charges (\$)	
		Pre	Post	Pre	Post	Pre	Post
1	Feb 2016-present	2.6	0	8,234	0	2,363	1,493
2	Jan 2016-p	3.7	4.4	18,191	50,267	629	85
3	April 2016-p	3.8	1.5	19,051	1,553	0	437
4	Feb 2016-p	7.7	2.4	19,662	4,441	6,457	5,290
5	April 2016-p	2.3	0	2,235	0	351	5,096
6	Oct 2015-p	10.8	13.7	18,085	25,640	908	2,610
7	May 2016-p	1.4	0	5,048	0	5,292	5,206

Key Lessons for Dissemination

To support other programs who wish to adapt this model at their home institutions, we summarize these key lessons for implementation:

- Identifying and Connecting with Patients**
 - During the course of our program, we trialed models including inpatient, outpatient, and a mixed patient populations, balancing SU needs with logistical necessities. It was easiest for us to successfully make contact with hospitalized patients, thus we favor an inpatient population model. If we were unable to connect with hospitalized patients before discharge, we established initial contact with patients over the phone.
 - We initially experienced challenges identifying hospitalized patients and assigning available team members in real time. A team member with protected time to identify patients is ideal.
- IP Education and Collaboration**
 - The divergent schedules of IP students presented challenges in finding a consistent time to meet as a large team. We propose identifying a weekly IP half day set aside by all schools for IP activities.
 - Successful implementation of IP initiatives requires institutional buy-in and administrative support. Our enthusiastic and supportive IP faculty champions have been essential to the TIPP's success.
- Students as significant contributors to care**
 - We believe this program is mutually beneficial to student and patient and demonstrates the students' potential to directly improve patient care.
 - Students are low cost contributors to care. TIPP's cost of implementation consists solely of faculty time contributed to meeting with students.
- Sustainability**
 - TIPP is currently run by faculty and student volunteers. As we continue to grow, incorporating students from other professional schools, and as UNC transitions to a Next Generation Accountable Care Organization, institutional buy-in will be key to future sustainability.

Conclusion

- As high value care becomes an increasing focus, addressing these SU patients is an important strategy to improve the quality and efficiency of health care.
- TIPP is a student-driven organization aiming to improve the quality and efficiency of SU patient care and promote IP education.
- Students work in IP teams to address SU patients' risk factors for rehospitalization.
- IP educational opportunities are an important way to develop quality interdisciplinary care givers in the future.
- Results from patients recruited last year demonstrate that five of seven enrolled patients had a decrease in average monthly inpatient cost and average hospitalization rate after enrollment in the TIPP program.
- Patient recruitment is ongoing and as we continue to refine our processes, we hope to include additional IP students from the schools of pharmacy and physician assistants.
- Students are an abundant, untapped resource in academic medical centers and a potentially significant contributor to improve the quality and efficiency of patient care.

- United States Government Accountability Office. *A Small Share of Enrollees Consistently Accounted for a Large Share of Expenditures*. Washington, D.C.; 2014. <http://www.gao.gov/assets/680/670112.pdf>.
- Camden Coalition of Healthcare Providers. Interprofessional Student Hotspotting Learning Collaborative - Camden Coalition of Healthcare Providers. <https://www.camdenhealth.org/programs/student-hotspotting/>. Published 2017. Accessed January 9, 2017
- Epstein, N. E. (2014). Multidisciplinary in-hospital teams improve patient outcomes: A review. *Surgical neurology international*, 5(Suppl 7), S295.