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Student Hotspotting: An Opportunity for Student Nurses to Work With High-Utilizers on Interprofessional Teams

Colin McNamara, BSN, RN¹
Michael Arenson, MS²
Jennifer R. Dyson, MSW³
Madeleine Rutledge, BSN, RN¹
Sindhuja Surapaneni, BS²
¹Nell Hodgson Woodruff School of Nursing, Emory University, Atlanta, GA, USA
²School of Medicine, Emory University, Atlanta, GA, USA
³School of Social Work, Georgia State University, Atlanta, GA, USA

Aim: To engage interprofessional student teams in a 6-month Grady Hospital-based intervention that decreases healthcare costs, improves outcomes for High-Utilizer patients, and provides a better service-learning platform for students.

Background

In 2016, healthcare made up 17.9% of the U.S. GDP, and is expected to rise to 19.7% by 2026 (1, 2). The government will be expected to pay almost half of these costs; that is to say government-sponsored share of health spending is projected to account for 47% of national health expenditures by 2026 (2). Healthcare costs are driven largely by a group of high-need, high-cost patients called High-Utilizers who constitute 5% of the population but account for about 50% of health care expenditures (3). The need for intensive healthcare resources for high-utilizers is often short, as fewer than half remain in the top 5% for more than seven months (4).

Hotspotting is an intervention that addresses many needs of High-Utilizers and significantly reduces both hospitalizations and overall mortality (5). From the Atlanta-based program, we present a robust and reproducible intervention called Healthcare Hotspotting to engage interdisciplinary graduate and professional students in delivering integrated, person-centered care for patients with complex health and social needs. Interprofessional education for healthcare workers has been cited by many entities including the National League for Nursing, National Academy of Medicine (formerly IOM), and World Health Organization as pivotal to creating safe, affordable, and enjoyable healthcare facilities (6).

Methods and Measures

One team of 3-5 interprofessional students coordinates care for up to five High-Utilizers during the six month intervention. Given the limited sample size of patients per team, most analysis will be concentrated on using descriptive statistics. With more data available over time, we will iteratively expand our data metrics. Metrics will measure Patient Outcomes, Student Learning, and Costs to Grady. Values at 6 and 12 months will be compared to the baseline values

Inclusion criteria for patients includes: at least 3 inpatient admissions in the last year, 2 or more decompensated chronic diseases (may include mental health diagnoses), and age 18 or older.

Exclusion criteria for patients includes: life expectancy < 6 months, no reliable way to communicate with the patient (no phone, no email, etc.), and history of abuse towards care teams.

Intervention
The Atlanta-based interprofessional student hotspotting learning collaborative was brought to Atlanta in 2017 through the partnership of student leaders from three schools: Emory School of Nursing, Emory School of Medicine, and Georgia State University School of Social Work. Atlanta's student hotspotting team is part of an annual program established in 2015 that trains interdisciplinary teams of professional students from schools around the country. The national program is arranged by the Camden Coalition of Healthcare Providers, and hosted by the Association of American Medical Colleges, Primary Care Progress, National Academies of Practice, Council on Social Work Education, and American Association of Colleges of Nursing. The national hotspotting program has participants from over twenty different universities, and includes students studying nursing, medicine, social work, public health, law, and pharmacy. During the 2017-2018 school year, a pilot interprofessional student hotspotting team in Atlanta set roots.

One of the main tenants of the program is that students learn by doing. In their respective communities, student hotspotters provide support to high-utilizers in navigating personal and systemic barriers that contribute to over-utilization. Hotspotters do not provide medical care or advice. By working alongside patients to navigate roadblocks to efficient and effective outpatient management, student hotspotters learn not only about the unique challenges experienced by these patients but also the efforts required to address them. In doing so, student hotspotters gain valuable training that enables them to be more compassionate, collaborative, effective, and comprehensive healthcare professionals.

In addition to learning by working with high-utilizers, student hotspotters will also participate in a national curriculum arranged by the Camden Coalition of Healthcare Providers. The curriculum includes video training modules, with topics including motivational interviewing, trauma informed care, and harm reduction. In addition to the training modules, students will also participate in case conferences with other interprofessional student hotspotters completing the intervention in other cities.

Results

The 2017-2018 Atlanta pilot team consisted of students and faculty mentors from the Schools of Nursing, Medicine, and Social Work from Emory and Georgia State Universities. During the pilot year, the Atlanta hotspotting team established administrative structures at Emory University School of Nursing, Emory University School of Medicine, Georgia State University School of Social Work, and Grady Memorial Hospital.

Establishing the structure within the schools included finding faculty mentors, meeting with faculty governing interprofessional education (IPE), designing recruitment strategies for interested students, receiving IRB exemption status, and receiving safety clearance as well as extension of student liability insurance. Within their respective schools, student hotspotters also outreached to peers to build interest in the program. Outside of their schools, student hotspotters have contacted law, business, pharmacy, and public health students and faculty from universities in the Atlanta area to expand the interprofessional nature of future teams.

At Grady Memorial Hospital, establishing the program included partnering with the Director of Population Health, receiving entry to the Chronic Care Clinic, and meeting with Chronic Care Clinic staff to articulate an interventional framework that is mutually beneficial for high-utilizers, clinic staff, and student hotspotters.

The pilot team also consulted with the Georgia Clinical and Translational Science Alliance Biostatistics, Epidemiology, and Research Design service to create data capture and evaluation techniques.

Next Steps

One immediate goal of the Atlanta hotspotting team is to establish three interprofessional student hotspotting teams for 2018-2019 school year. The three teams will coordinate care for 15 High-Utilizers
through regular home visits, close relationships, guidance through hospitals, state and non-profit agencies. We also hope in the next year to increase social work, law, and pharmacy student presence by connecting to faculty and student leaders at respective schools in the Atlanta area.

An eventual goal of the Atlanta interprofessional student hotspotting learning collaborative is to incorporate the program into curricula within health professions schools. Schools of nursing, medicine, and social work all expect students to engage in interprofessional education and hands-on community service. We believe our program can meet curricular requirements for students to receive credit for participation, and have begun conversations with administrators at each of the schools about participation for academic credit.

Funding

1. Emory University Nell Hodgson Woodruff School of Nursing Dean’s Fund
2. Emory University Primary Care Consortium
3. Emory-Georgia Tech Healthcare Innovation Program/Georgia CTSA Seed Grant

Title:
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Abstract Summary:
Healthcare costs are driven largely by a group of high-utilizers who constitute 5% of the population but account for about 50% of expenditures. A Grady Hospital-based intervention was created to engage Atlanta’s high-utilizers with teams of interprofessional students in addressing non-medical concerns that contribute to frequent utilization.
Content Outline:

1. **Aim**
2. **Background**
   1. National healthcare costs and expected trends
   2. High-utilizers drive national healthcare costs
   3. Hotspotting is an intervention to engage high-utilizers in outpatient management
   4. The Atlanta-based program can serve as a model for engaging interprofessional students in hotspotting.
   5. Schools and healthcare institutions have an interest in expanding interprofessional education.
3. **Methods and Measures**
   1. Hotspotting teams are composed of 3-5 interprofessional students, and will coordinate care for up to 5 high-utilizers.
   2. Descriptive statistics will be collected regarding patient outcomes, student learning, and costs to Grady.
   3. Inclusion and exclusion criteria for high-utilizers
4. **Intervention**
   1. The Atlanta hotspotting team is currently composed of Emory and Georgia State University nursing, medicine, and social work students.
   2. The Atlanta hotspotting team is an extension of the Camden Coalition's Interprofessional Student Hotspotting Learning Collaborative.
   3. Student hotspotters learn by doing.
   4. By learning primarily from patients, student hotspotters can become more compassionate, collaborative, effective, and comprehensive healthcare professionals
   5. Student hotspotters will become trained in working with high-utilizers by participating in the Camden Coalition's national curriculum.
5. **Results**
   1. Composition of Atlanta's pilot hotspotting team.
   2. Institutional accomplishments on the Atlanta hotspotting team (at Emory's Nursing and Medical Schools and Georgia State University School of Social Work)
   3. Accomplishments at Grady Hospital
   4. Consultation with the Georgia Clinical and Translational Science Alliance Biostatistics, Epidemiology, and Research Design service to create data capture and evaluation techniques
6. **Next Steps**
   1. Expansion of teams
   2. Increase interprofessional participation to include pharmacy, law, business students and more social work students.
   3. Curricular integration.
7. **Funding**

First Primary Presenting Author

**Primary Presenting Author**
Colin McNamara, BSN, RN
Emory University
Nell Hodgson Woodruff School of Nursing
FNP Student
Atlanta GA
USA

**Professional Experience:** 2016-present: BSN + MSN (FNP) Student, Nell Hodgson Woodruff School of Nursing at Emory University 2016-present: Research Assistant on vaginal microbiome study, Dr. Deborah Bruner, Nell Hodgson Woodruff School of Nursing at Emory University 2012-2016: Undergraduate Student, Biology, University of Chicago 2012-2015: Patient Advocate and Program Coordinator, Health
Leads Chicago

**Author Summary:** Colin received a bachelor's degree in Biology from the University of Chicago, and is now studying to be a FNP at Emory University. He intends to work in primary care at an urban FQHC in fulfillment of his Nurse Corps Scholarship obligation. Colin is a founding member of an interprofessional team engaging high-utilizers in primary care. He is also a research assistant for Dr. Deborah Bruner, assessing the effect of radiation on the vaginal microbiome.

Second Author
Michael Arenson, MS
Emory University
School of Medicine
Medical Student
Atlanta GA
USA

**Professional Experience:** MD/MSCR Student, Class of 2019. Michael is a student team member of the Atlanta hotspotting learning collaborative. He is not a nurse but is interested in enhancing interprofessional education.

**Author Summary:** Michael Arenson is currently an MD/MSCR student who hopes to become an academic pediatrician, with a research focus on the prevention, screening, and treatment of Adverse Childhood Experiences (ACE).

Third Author
Jennifer R. Dyson, MSW
Georgia State University
School of Social Work
MSW Graduate
Atlanta GA
USA

**Professional Experience:** GSU MSW, Class of 2018. Jennifer is a student team member of the Atlanta hotspotting learning collaborative. She is not a nurse but is interested in enhancing interprofessional education.

**Author Summary:** Jennifer Dyson is a recent graduate of Georgia State University. Her interest in the social work field began after being an oncology patient and caregiver. She is passionate about supporting those who are often at a disadvantage and marginalized in regards to receiving health-care services.

Fourth Author
Madeleine Rutledge, BSN, RN
Emory University
Nell Hodgson Woodruff School of Nursing
MSN Student
Atlanta GA
USA

**Professional Experience:** Maddie will graduate in December 2018 as a Adult-Gerontology Acute Care Nurse Practitioner, and intends to work in oncology. Prior to nursing school, Maddie worked as a clinical research coordinator at Dana-Farber Cancer Institute, 2012-2016.

**Author Summary:** Maddie Rutledge grew up in Wayland, MA, and attended Connecticut College, where she completed a major in Biological Sciences and a minor in Comparative Politics. She worked as a clinical research coordinator at Dana-Farber Cancer Institute in Boston before returning to Emory University for nursing school. She will graduate in December 2018 as a Adult-Gerontology Acute Care Nurse Practitioner, and intends to work in oncology.
Fifth Author
Sindhuja Surapaneni, BS
Emory University
School of Medicine
Medical Student
Atlanta GA
USA

Professional Experience: MD Student, Class of 2019. Sindhu is a student team member of the Atlanta hotspoting learning collaborative. She is not a nurse but is interested in enhancing interprofessional education.

Author Summary: Sindhuja Surapaneni is a fourth year medical student at Emory University. Her interests have been focused in understanding the social and psychological demographics and how they affect patients’ prognosis in organic medical conditions.