Title
Development and Implementation of an Interdisciplinary Student Hotspotting Project

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DEVELOPMENT AND IMPLEMENTATION
OF AN INTERDISCIPLINARY STUDENT
HOTSPOTTING PROJECT
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ISP PROPOSAL

1 Title. Medical Student Immersion in Programs to Address Super-utilizers in the San Diego Healthcare System

2 Description.
Hotspotting has emerged on the medical scene over the last few years as a method of increasing quality of life and quality of care for a specific subset of patients while simultaneously decreasing costs\(^1\). A small number of patients with chronic medical, substance abuse, and psychiatric conditions utilize resources like EMS transport and emergency rooms at astounding rates.\(^2\) Although super-utilizers represent 5% of the population, they account for 50% of health care expenditures.\(^7\)

I first became interested in the idea of hotspotting when I was scrolling through the MacArthur genius grant winners a few years ago and came across Jeffrey Brenner. He started the Camden Coalition of Healthcare Providers to create a cooperative-care model to identify and address social and medical needs of high-risk patients.\(^9\) At that time I read a few articles about what he was doing and it seemed like it could be a game-changing idea in the field of medicine. During one of our Practice of Medicine sessions last year we read the article by Atul Gawande in the New Yorker on hotspotting\(^1\) and I was again reminded of my interest. When it came time to choose an ISP I asked Dr. Smith if she knew of anyone working in hotspotting in San Diego and she plugged me in with Dr. Dunford and I have started to learn about hotspotting/super-utilizer initiatives in San Diego. My definition of hotspotting is identifying super-utilizers, identifying their needs, and employing multidisciplinary strategies to assess these needs. Sounds simple enough, but the obstacles facing these people are often complex and sometimes seemingly unsurmountable, so the solutions need to be multifaceted and sustainable.

San Diego has several hotspotting initiatives like Resource Access Program (RAP)\(^3\), the Serial Inebriate Program\(^4\), and Project 25\(^10\), among others. These projects aim to target these super-utilizer patients and set them on a different trajectory. Each of these programs focuses on different needs in the users. Project 25 is focused on providing permanent supportive housing, as most of these patients are homeless. The serial inebriate program is focused on substance abuse and offering drug and alcohol rehabilitation instead of jail time.\(^8\) The Resource Access Program is a paramedic-based surveillance and case management system that intercepts high EMS users and seeks to reduce dependence on EMS and acute care services by linking the individual with appropriate resources for their underlying medical, mental health, and social needs.\(^3\)
As medical students, we have regular exposure to these super-utilizer patients with many of them coming onto the inpatient medicine service multiple times within a month. However, my experience to date is that when these “frequent fliers” are out of sight, they are out of mind. This project aims to look at what happens with these patients when they are out of sight and become familiar with the innovative programs available in the City of San Diego to try to decrease inappropriate health care utilization (including paramedics and hospital care) in these super-users.

For my ISP, I plan to participate in and familiarize myself with these initiatives and find ways that other medical students can learn about these programs and consider meaningful ways to become involved. For instance, in Camden, New Jersey (under the guidance of Jeffrey Brenner) they have integrated medical students into their hot-spotting initiatives.1 The AAMC has a ten step guide to hotspotting that I will attempt to replicate with a patient.11 I will meet with people who are tackling this issue from different angles including Dr. Dunford, who is the Medical Director of the city of San Diego and leading many innovative hot-spotting issues in San Diego as well as a physician in the Hillcrest Emergency Department, Anne Jensen and other community paramedics, Marina Baroff from Community Information Exchange, members of the Psychiatric Emergency Response Team (PERT), and others. I plan to look at existing outcomes data from these projects for areas of improvement and create new outcomes data if there is a particular trend that I notice or wish to expound upon.

3 Definition.

I am designing this experience to familiarize myself with the initiatives targeting super utilizers in San Diego. It really upsets me every time we discharge a patient to the street and know that they will be back soon since we are not making a lasting impact in their lives. My main goal for this ISP is to know that ways that people are working to make lasting impacts for these patients and I want to know how medical students can be involved, become educated on the subject, and ideally find a way for them to participate meaningfully in a longitudinal fashion after my ISP has been completed. The scope of the project includes meeting with people involved on many fronts, both in leadership positions and interacting with the clients themselves. I will learn what kind of data they are collecting, interpret data, create a resource for future students who are interested, and ideally identify, define, and describe meaningful roles for other medical students to fill.

4 Plan and Methods.

During the first month of my ISP, I will conduct literature reviews and familiarize myself with hot-spotting programs in various cities that have been successful. I will plan to meet with key stake holders identified by my ISP committee and attend regularly scheduled meetings already being held in San Diego on this topic. I will meet weekly with my ISP Chair to describe the
progress I have made and identify next steps. There will be a longitudinal component where I will participate in any meetings as my fourth year schedule permits. During my second month block spent working full time on the ISP, I will be proposing plans for meaningful roles for medical students in targeting hot-spotting or super-utilizers, which may include sending them on ride-alongs when community paramedics are called to a super-user, meeting them in the emergency room if they arrive in the ED, helping to coordinate better discharge planning if patients are admitted, and identifying psychosocial needs or case managers for patients.

My participation will include:
1. Ride-alongs with paramedics on RAP team
2. ED care of patients brought in by the RAP team and following their medical course with their care team
3. Meetings with community partners including ED physicians, PERT team members, social workers, etc.
4. Meeting with the leaders of the Regional Task Force on the Homeless San Diego and (scheduling permitting) participate in the We All Count homeless census
5. Reading articles and outcomes data for hotspotting projects in San Diego and nationwide
6. Visit SVDP clinics, assess the availability of beds there for the high utilizers
7. Looking at patient’s billing records to see the magnitude of the charges for super-utilizers over a year

5 Synthesis. The synthesis of the project will be attempting to see how super utilizer patients interact with EMS personnel, PERT teams, ED physicians, social workers, case managers, etc and how medical students can become familiar with these programs for their own education, for future referrals or patient management, and ideally to find meaningful roles for medical student participation in these projects.

6 Summary.
Summarization of the ISP will include a write-up for future medical students interested the current hotspotting initiatives in place in SD and detailing how students can become involved and an oral presentation to committee members. I will submit an abstract for consideration for presentation at a national medical student conference, such as Society of Teachers of Family Medicine.

7 Evaluation.
Final evaluation will be with a summary oral presentation to ISP committee as well as other interested parties, including key stake holders from the community that I meet along the way. I plan to write up a summary of the experience so future medical students can identify ways to be involved. The
final write up will include a summary of the current projects going on in San Diego as well as the contacts at those projects. It may also include a proposed manuscript draft addressing the role of medical students in hot-spotting or the need for broader education among students and medical professionals on this topic. I will meet regularly with my ISP committee for updates. This will be weekly during the months I am assigned to work on this for my ISP blocks and monthly during the interim months.

References:

2. Health Care and Public Service Use and Costs Before and After Provision of Housing for Chronically Homeless Persons With Severe Alcohol Problems. JAMA, April 1, 2009—Vol 301, No. 13


10. Saint Vincent De Paul Permanent Supportive Housing Website: http://www.svdpv.org/permanenthousing.html

DEVELOPMENT AND IMPLEMENTATION OF AN INTERDISCIPLINARY STUDENT HOTSPOTTING PROJECT: STUDENT GUIDE

Emily Rand and Andrew Wei

Intro:
The US healthcare system is at a tipping point. Healthcare costs are unsustainably rising, our population is aging, and burnout among our primary care workforce is more and more common. In 2011, Atul Gawande wrote an article in The New Yorker entitled “The Hot Spotters” about Dr. Jeffrey Brenner’s work in Camden, NJ, specifically detailing the idea of hotspotting—an innovative care delivery model that focuses on providing the sickest patients in a community with better care. Brenner discovered that there was a small percentage of people in a city who disproportionately accounted for most of the healthcare costs, i.e., super-utilizers. Despite expensive, frequent treatment (often in emergency departments), the medical system was not able to meet these patients’ needs. All stakeholders in the medical system were losing—providers felt that their care was not making a difference, patients’ needs were not being addressed and the public paid for it. Brenner figured out that by providing targeted interventions in the community to these patients that the healthcare system was not able to traditionally offer, he could ultimately reduce costs and improve quality of care.

Our motivation to start this project was that we had many clinical experiences that showed us that our own current medical system is not equipped to deal with patients with medically and socially complex needs. The idea of hotspotting has been an interest to both of us since reading that article in The New Yorker and our ISPs gave us an opportunity to understand some of the challenges facing medically and socially complex patients. An in-depth analysis several years ago by the San Diego Union-Tribune demonstrated the enormous negative impact that a small number of super-utilizers were creating on our public safety system - http://www.sandiegouniontribune.com/health-care-911. Emily and Andrew both had ISPs related to hotspotting and the opportunity to come together and work on this topic was presented after receiving a competitive grant sponsored by the American Association of Medical Colleges (AAMC), Primary Care Progress and Dr. Brenner’s group, the Camden Coalition.

This guide is a summary of the efforts of the first-ever UCSD student hotspotting team and intends to pass forward the lessons that were learned and help smooth the road for future hotspotting teams. It is very difficult to lay out concrete rules for working with super-utilizer patients, as they all have unique challenges. In fact, this work really centers on the individuality of the patients. They all will have different needs and respond to different approaches, so the challenge and the beauty lies in
their unique stories. We wanted to share some of our successes in hopes that some of our techniques will be applicable to your patients.

**AAMC Hotspotting Grant**

An AAMC Interprofessional Student Hotspotting Learning Collaborative https://www.aamc.org/initiatives/hotspotter/ provided the framework for this project. The grant was made possible by a collaboration between the AAMC, Primary Care Progress (PCP), and the Camden Coalition of Healthcare Providers (CCHP). The grant application challenged students to create an interdisciplinary team of students interested in hotspotting and find advisors that were willing to guide the efforts. We assembled a local team with the support of Dean Kelly and other medical school faculty, which was subsequently accepted as one of 20 medical schools from across the country. The grant involved our team's attendance at a kick-off meeting in Camden, NJ, which is considered to be the birthplace of hotspotting. The meeting involved team building exercises and an emphasis on the importance of patient stories. After the kickoff meeting we started to develop recruitment strategies for super-utilizer patients in collaboration with local healthcare providers, with the goal of enrolling 3-5 patients. We were guided along the way by mentors from CCHP and PCP through a series of webinars, case conferences, and small-group discussions. We successfully enrolled our patients, visited their homes, performed needs assessments, and helped address issues leading to their excessive healthcare utilization. The grant wrapped up with a conference in Camden where we presented a case presentation poster about our patients.

**Project Timeline**

Grant writing and submission: April 2015  
Kick-off meeting in Camden, NJ: July 2015  
Monthly informational webinars with Camden: July 2015-January 2016  
Monthly online case presentations to experts in Camden: August 2015-January 2016  
Weekly to biweekly team meetings (Wednesdays 5-6:30P): July-October 2015  
Development of patient recruitment protocol: July-October 2015  
Recruitment of 1st Patient: August 2015  
Recruitment of 2nd-4th Patients: October 2015  
Hotspotting interventions with patients: August 2015-January 2016  
Wrap-Up meeting in Camden, NJ: January 2016  
Recruitment of students to continue the project: February 2016
Creation of Interdisciplinary Team

The first step was creation of a student team. The knowledge of a medical student alone would not be sufficient to stage effective interventions for these complex patients, so it is crucial to reach out to other capable and caring professionals. We reached out to Skaggs School of Pharmacy and to SDSU MSW program with a description of the project and received many interested responses. All team members should meet before the project starts to determine their interest. It is more productive and enjoyable to work with other people who are passionate about the project. Having a social work student on the team is indispensible. Nursing and pharmacy students also have a very important role. Other teams in Camden found that having a business student interested in health policy and healthcare spending/sustainability was very helpful. Other disciplines we saw at the conference that you may consider include nutritionists, public health students, occupational and physical therapists, law students, etc.

Our Team

Students:
Emily Rand: UCSD SOM MS4
Andrew Wei: UCSD SOM MS4
Oresta Tolmach: UCSD SOM MS2
Eliza Hefazi: Skaggs School of Pharmacy
Kurt Wellman: SDSU School of Social Work
Arielle Shelby: San Diego City College Nursing Program
Advisors:

We were fortunate to have supportive advisors from diverse fields. They have all agreed to continue working with future UCSD Hotspotters.

Leto Contreras, Paramedic, lcontreras@sandiego.gov:
- Leto works as a Resource Access Program (RAP) community paramedic. We could not have done this project without her. She was critical in identifying super utilizers for medical students to work with. She also facilitated access to StreetSense, RAP's real-time EMS database that tracks 911 calls. She was a key member regarding patient care and continues to work with our patients through RAP as we transition out. She is very interested in continuing to work with students.

-Brooke Anarde, MSW, banarde@ucsd.edu:
- Brooke is one of two social workers in the Hillcrest ED. She answered countless questions about social interventions and would alert us when our patients were in the ED. She helped create a protocol for visiting patients in the ED that involves paging/contacting the SW working at the time of the visit. She is incredibly knowledgeable about housing/food/etc. resources in San Diego.

James Dunford, MD, jdunford@sandiego.gov:
- Dr. Dunford is the medical director of the City of San Diego and used to work in the Hillcrest ED as an Emergency Physician. He has helped put San Diego on the map for the hotspotting efforts in the city and has a bird’s eye view of all the various community projects working on homelessness/super-utilizers/etc. He is also the faculty advisor for the Gold Humanism Honor Society and loves working with medical students. He’s excited about continuing the medical student involvement with RAP.

Sunny Smith, MD, sdsmith@ucsd.edu:
- Dr. Smith is the Associate Clinical Professor Department of Family Medicine and Public Health and Co-Medical Director UCSD Student-run Free Clinic Project https://meded.ucsd.edu/freeclinic/facultystaff.php. She provided support, helped with logistical challenges, facilitated connections with other interested students, and continuously encouraged us to think big.

Michael Dunford, michaelevandunford@gmail.com:
- Michael works for 211 San Diego http://www.211sandiego.org/new/, which is a rapidly expanding regional information hub whose mission is to help people by connecting them efficiently to services and provide vital data and trend information for proactive community planning. He helped us many times when we were wondering if a particular service existed in San Diego and whether or not our patient was eligible for those services.

Anne Jensen, Paramedic, Annemarie.jensen@gmail.com:
She is the leader of the RAP paramedics. She developed Street Sense software. We did not have too much direct interaction with her but she is a supporter of the team.
Community Partner Organizations:

-Resource Access Program
  Traditionally, when people call 911 they can only be taken to the hospital. RAP recently got IRB approval to study the safety of community paramedics to divert super-utilizer patients who call 911 to a more appropriate non-hospital resource (urgent care, sobering facility, etc.). The RAP team is willing to have students do ride-alongs with them. http://www.sandiegouniontribune.com/news/2015/sep/25/communityparamedics-frequent-users-street-sense/. The local project is one of twelve research programs participating in the 2-year California Community Paramedicine Pilot Project to determine the safety and effectively of novel community paramedicine programs - http://www.emsa.ca.gov/Community_Paramedicine

-Rodney Hood and Multicultural Health Center, Patient Health Improvement Initiative (PHII)
  -Dr. Rodney Hood started the Multicultural Health Foundation in Southeast San Diego in 2012, with the mission to “to bring health, justice, and wellness to the multicultural communities of San Diego County by focusing resources on the most vulnerable populations with social-clinical interventions, community-based wellness strategies, and research that leads to the elimination of racial and ethnic health disparities.” Their first project was the Patient Health Improvement Initiative (PHII) which is based on Dr. Brenner’s hotspotting model. We were fortunate enough to coordinate a team visit with Dr. Rodney Hood and his team at his office to learn more about PHII. They have a really well thought-out, community-focused and financially sustainable model. It would be valuable for the next team to coordinate a visit. They would be happy to have you (contact information below).
  -http://alliancehealthcarefoundation.org/multicultural-health-foundation/
  - Cherolyn Jackson MA, BA, Program Strategist Consultant for the MHC would be your contact to set up a meeting (empower1@cox.net)

-Project 25
  - Project 25 is a housing-first and hotspotting program that identified 36 of the highest public service utilizers and chronically homeless in San Diego County. Their pilot project spanning 2011-2013 demonstrated an estimated savings of over $3 million to the system. Their success has had tremendous
influence on other hotspotting, housing-first and homeless initiatives in the county. A report of their pilot program’s success has been published (link below). Students would likely be welcomed to ride along with a case manager to see their day-to-day activity if interested (contact information below).
- Marc Stevenson, LCSW, Tenant Services Director, is your contact (marc.stevenson@neighbor.org)

**Patient Recruitment:**

We tried several methods for patient recruitment, and the most effective for us was working with the RAP Paramedics. This process took longer than anticipated. After returning from our Camden meeting in July, we met weekly to biweekly for the next 4 months to brainstorm and troubleshoot our recruitment methods. It was a challenge to screen patients since not all super-utilizers would benefit from working with a student team, so we had to look at hundreds of patient charts/911 records to identify ideal patients. Even after we screened patients many times they were homeless or had no contact information so we could not get a hold of them. The criteria we used to recruit patients was set by the grant and all of our patients easily met the criteria (at least 2 inpatient hospitalizations and/or at least 6 ED visits in last 6 months). Below is a list of all the methods that we tried.

-Visiting homes with RAP Paramedics
  - RAP has a database of all 911 calls (more later) and we used that information to identify potential patients. After we screened patients we went to their homes and knocked on their doors with the RAP paramedics. Patients see paramedics as people that help them when they are in need, so they were very receptive to the visits. We usually opened with something like “We noticed that you recently went to the ED/hospital and wanted to make sure you are still doing okay” or “The paramedics are concerned about how often you go to the hospital and we wanted to see if you needed help with anything.” We asked if they were interested in getting help for their medical or social needs, and most often they responded with an emphatic “yes”.

-Reaching out to other medical students
  - We posted on the UCSD forum and Facebook pages for MS3/MS4 students and asked if they had seen any patients during their clinical experiences that might benefit from our services. We had a few responses, but often the students could not recall the full name or information of patients that they thought would be appropriate.

-Reaching out to family medicine providers
  - Dr. Smith emailed the UCSD family medicine providers to see if they had any patients that could use help with medical/social services. We had several potential candidates but it was difficult to coordinate meeting those patients during a scheduled PCP visit since they are mostly in the morning/afternoon
and we were in clinic. We attempted some cold phone calls to patients with little success. Face-to-face interactions worked much better. We did recruit one of our patients through PCP referral and it was really valuable having the PCP introduce us to the patient. It built immediate patient trust in our team and also established the PCP as a partner with the hotspotting moving forward.

- Acquiring lists of frequent ED visitors
  - Hillcrest ED provided Brooke with a list of the top 50 users, but it was encrypted and we could not take the list from the ED so it was quite laborious to even find out who the patients were.

In the end, the most expeditious way to identify and connect with potential clients provided to be close collaboration with RAP.

**Consenting Patients/Privacy:**

All students and faculty involved need to sign a privacy form to use the Street Sense Database. This will be provided by the RAP Paramedics.

We used an already existing patient consent form for the Community Information Exchange (CIE) [http://ciesandiego.org/](http://ciesandiego.org/) on the RAP paramedic iPads. The CIE is a novel social information exchange whose role was recently assumed by 211 San Diego. It confidentially links social determinants of health of vulnerable patients that reside in the databases of community-based organizations including St. Vincent de Paul Village and PATH Connections Housing. This consent provided us access to client medical records among other things. (We sent a copy of the consent to risk management at UCSD and the VA and no objections were received). We were also individually named as co-investigators on Dr. Dunford’s RAP IRB research study. However, when it came to documenting our encounters with clients, we were unable to obtain UCSD approval to enter our own findings in Street Sense. Instead, Leto Contreras recorded our findings so that other members of the RAP team were aware of our activity.

**Street Sense Database**

RAP paramedics have access to a real-time database of all 911 calls in the City of San Diego. The database has information about who calls, where they call from, when they call, why they call and where they are transported. Students can look through the database and see the most frequent callers over the last week, month, 6 months or year. Using search strategies that analyze the free text and data contained in the EMS electronic health records, Street Sense can separate frequent callers by problem type including homelessness, psychiatric disorders, elderly frequent falls, etc. This helped us identify super-utilizers and find patients who were making calls for reasons we could intervene on. We used information from the database to distinguish between super-users who were only going to the ED for alcohol intoxication/withdrawal versus other medical illnesses. We reviewed in excess of
100 patients for appropriateness and level of utilization and selected twenty potential candidates. As mentioned above, we used other methods to identify potential candidates (reaching out to PCPs via email, working with UCSD ED to create a list of super-users, etc.), but we found that using Street Sense to identify candidates was most successful. Once candidates were selected, the RAP paramedics (Leto) tagged them on Street Sense as “hotspotting” patients. Every time one of those patients activated 911, Leto would get notified (alerts usually occur within several minutes of the patient’s contact with the EMS system) and then she would subsequently inform us. This would allow us to potentially meet and recruit candidates in the ED as well as follow up on the 911 calls/ED visits of our current patients.

**Student Access to Street Sense Database/Community Information Exchange:**

This was an ongoing debate during our project. We had access while we were with the RAP medics. We thought it would be helpful for us to have access from home and requested it a few times. Dr. Dunford attempted to get students access but was unable to by the conclusion of this project. This would be an area of future inquiry. The Community Information Exchange is another database that could potentially be useful for students to view/have access to. It contains demographics and what social resources a particular patient has been connected too. Currently only certain non-profit organizations like 2-1-1 and St. Vincent de Paul Village have write access to the database. Other organizations like UCSD thus far only permit their employees to have read-only privileges. There was discussion about potentially getting students access to this database as well. Dr. Dunford would be the point for discussing that possibility.

**Patients Enrolled**

Our advisors in Camden suggesting recruiting between 3-5 patients and we were able to work with 4 patients. At first it seemed like a small number of patients, but it was very time-consuming and we ended up each spending 5-10 hours a week on the project.

1 referred from patient’s primary care provider  
3 identified via Street Sense:  
   1 recruited from the ED  
   1 recruited from St Vincent de Paul Village  
   1 recruited from their home (low-income housing)

**Scheduling Meetings with Patients:**

We met with patients in various locations.  

-Their home
- First visit accompanied was by Leto to ensure that it was safe, then subsequent visits were with Leto or in groups of students. We cannot stress enough the importance of home visits. You get so much information about ability to complete ADLs, food security, fall risk, medication management, social support networks and possible stressors.

- Outside of SVDP
  - SVDP is a large homeless shelter in downtown San Diego. It is also the home of the UCSD Combined Family Medicine-Psychiatry Residency Program, [http://www.combinedresidency.org](http://www.combinedresidency.org), the only such residency located in a homeless service provider in the country. Several of our patients were in temporary housing there, so we met them in the courtyard.

- Accompany to PCP appointment
  - This can be very helpful to advocate for your patients and to understand the efforts that their PCPs already have in place so as not to duplicate work.

- Visit during inpatient hospitalization
  - Hospitalization is often a time of crisis for patients and it is nice to see a familiar face. It is also a time when people are willing to consider changes that they were not considering in the past.
  - We only have access to VA and UCSD hospitals, and we did not put significant effort into getting access to other hospitals.
  - To visit inpatients, page the first-to-call and explain that you are working on care coordination for this patient and ask if it is okay for you to visit.

- Meet in the Hillcrest/Thornton Emergency Department:
  - We set up a protocol for this. You will need to talk to the social worker on duty and the social worker will ask the patient if they are okay with your visit.

**Needs Assessments:**

We were provided with several standardized needs assessments but found that for us the most effective assessment was just having an open-ended conversation with the patient and keeping the conversation organic. You can start with a question such as, "What are your goals and concerns for your health and overall well-being?" Allowing the patient to speak freely about their story is the first step in building rapport. They are usually acutely aware of their needs. If you are more interested in a standardized format, the backwards-planning boards from Camden and recruitment questionnaire from Rodney Hood are methods to consider and you could request these from the organizations.

**Communicating with Patients**

There was a lot of debate about how to contact our patients. It was decided that Google phone did not have enough privacy. We thought about buying a phone for the group but then it would have to be passed around often. We ultimately just ended up giving the patients our personal cell phone numbers and emails, and they did not abuse the numbers. We never provided medical advice over the phone or
email, it was more for scheduling meetings and checking-in. This is another area for future discussion.

Outcomes

StreetSense provided cost and utilization data on pre-hospital care, stratified by month. We used this as a surrogate for overall cost and utilization and demonstrated a decrease in cost/use when comparing months before and after our involvement with patients. In the future, you may consider getting claims data from the different hospital systems. To obtain this, your patients will need to fill out and submit a claims request. It becomes challenging if your patients utilize more than one health system.

While one goal of hotspotting is to decrease utilization, another is to increase quality of care and patient satisfaction. We had no methods to quantify the satisfaction of the patients we worked with, but they told us countless times that they appreciated us, and one patient wrote a memoir of her life and thanked us personally in the acknowledgements.

Examples of Successful Intervention (With Cost Data)

LE 80-year old transgender male to female (see attached poster)

DT 59-year old male (see attached power point presentation)

Social Service Agencies:

San Diego has a plethora of social service agencies that we were unfamiliar with at the initiation of the project but we learned more about as we worked with our patients. Below are some agencies that we came across many times and were helpful.

-Saint Vincent DePaul (SVDP)
  -This is a homeless non-profit and shelter in downtown San Diego. People can stay for varying amounts of time and there are free meals for the residents and homeless in the community. There is some permanent housing for veterans. There is a clinic in the complex where the homeless can go that provides primary care and psychiatric services. The non-profit also works with residents to acquire income, whether through SSI disability or finding a job. You cannot go up to a patient’s room to find them but you can wait in the courtyard and they can meet you there.

-Potiker Senior Housing:
  -Several of the patients we visited lived in senior housing. These facilities often have social workers, so if you approach them they may be able to tell you about available services for residents.
211 San Diego

- This is a 24 hour website/phone service whose mission is “to help people by connecting them efficiently to services and provide vital data and trend information for proactive community planning.” They can help you enroll your patient in MediCal and give you guidance about many other services. We would just text Michael Dunford for help but you can also just dial 2-1-1 and talk to someone.

Food Stamps/Cal Fresh:

- There is a Department of Health and Human Services near the trolley station in downtown San Diego. It is a 5 minute walk from SVDP and we went to the office with one of our patients. The process requires multiple visits and lots of paperwork but we were able to successfully get food stamps for our patient. This is another service for which 211SD can provide assistance.

Supplemental Security Income (SSI)

- SSI is a federal income supplement program funded by general tax revenues. It is designed to help aged, blind, and disabled people, who have little or no income. It provides cash to meet basic needs for food, clothing, and shelter. Many of our patients were eligible for this.

General Relief (GR):

- GR is a county-funded program that provides temporary cash assistance for eligible county residents who have no other means of support. Patients may be eligible for this as well.

“Obama phones”:

- This was one of our biggest challenges during the project. People with limited income are eligible for free phones, and there are often people walking around with an iPad who give these phones away. However, as far as we could tell there was no way to find our where/when these people would be present. You can also fill out a paper application but it takes a long time to process.

Home health:

- Many of our patients struggled with maintaining activities of daily living (ADLs) and would benefit from home health assistance. Talk to your social work student or Brooke - they may be able to make it happen.

Clothing resources

- SVDP has some free clothing for their residents at the front desk of the clinic. Some thrift stores in SD will give $25 vouchers for homeless people. Ask Leto about which stores.

Challenges

We faced many challenges during this project, most of which were logistical. One of the main ones was finding time in our busy schedules. It is hard, and seemingly impossible at times, to find a meeting time and place for 10 busy professionals. We sent out Google doodles a week in advance. Often, when we were not able to meet as a full team, we made sure at least the core group of people who were involved in the fieldwork met regularly. The most convenient location for our Wednesday 5-6:30PM
meetings proved to be the RAP Community Paramedic offices located just west of Lindbergh Field at the Regional Public Safety Training Institute.

Another issue was our lack of availability during daytime hours. Through Street Sense and working with the community paramedics, we set up a system so that we would be texted when patients on our watch list went to the ED, but that often occurred when we were not available. In addition, many of our patients’ appointments were scheduled when we were busy on rotations.

In order to continue making progress throughout the project, it was very important to have clear roles and next steps for all team members after each meeting. Certain tasks may be delegated based on assumed professional roles, however much of the work depends on team members being flexible in meeting the needs of the patient. For example, the medical students assumed the role of a social worker on our team, and performed the needs assessments. When delegating tasks, it is also useful to distinguish between team members who will be working in the field (home visits, accompanying patients to doctor visits, etc.) from those who will be providing support and advice (ex. avoiding medication interactions for a patient on Coumadin).

Working with medically and socially complex patients can be challenging and disheartening at times. Despite well thought-out plans and interventions to reduce utilization, patients may still access the ED and hospital at high rates. Having a successful hotspotting intervention takes time because the foundation of hotspotting—building a trusting, meaningful relationship and understanding the patient’s story—takes time. Even when we felt like we were not making progress towards our goal of decreasing utilization, we were still developing a relationship. Every patient has a unique driver for high utilization of the health system and that will become more apparent over time.

**Future Directions**
Sustainability was a goal from the beginning of the project. As we move on to residency we reached out to other UCSD SOM students who were interested in hotspotting and gave them a brief presentation of our work. We currently have six students—rising MS2, 3 and 4s—committed to continuing hotspotting at UCSD. They are submitting a proposal to join the third cohort of schools in the Camden Coalition hotspotting collaborative.

For students who may not have the time commitment required to join the grant team but are still interested in hotspotting, developing a hotspotting elective is a future possibility. This could include ride alongs with RAP paramedics, Project 25 case managers, and PHII nurses. It could also include spending a day with the ED social worker and 211SD community navigator. We have developed relationships with all of these organizations as above. The challenge of creating an elective would be finding a committed faculty advisor and coordinator that would serve as a “home” for the elective.
Conclusions

1. We experienced firsthand that hotspotting is an effective method to increase quality of care and decrease healthcare utilization for super-utilizer patients.

2. Working with an interdisciplinary team provides a wide array of perspectives and skills for patient care, and all team members benefit from learning from each other.

3. Intensive relationships with patients who are traditionally considered “difficult” by the healthcare system can provide students with a new perspective on the challenges that those patients face.

4. Knowing a patient’s story is paramount to being able to help them.

5. Many community organizations exist that can tremendously help patients, and it is important for providers to either familiarize themselves with those programs, or work with someone who is familiar with those programs.
HOTSPOTTING REFLECTIONS
Emily Rand

The Life Guest Phenomenon

During my last year of medical school, I have gotten involved in a project focused on hotspotting, which is an innovative care delivery model that focuses on providing the sickest patients in a community with better care. The idea is that we can help these patients get better quality of care at lower costs to the healthcare system if we enact individualized interventions with the patients. My project involved working in an interdisciplinary team to try to develop strategies to better address the medical and social needs of complex patients who were visiting the emergency room often.

The first patient with whom my hotspotting team worked was a 79-year-old transgender woman. She was referred to us by her primary care doctor to see if we could help with her frequent emergency room visits. She was going to the emergency room almost every day for reasons that were usually not emergencies. We met her with her and her doctor at a check-up, then arranged a follow up visit at her apartment. When we arrived at her apartment, I was aghast at her living conditions. As we walked in, it was so filthy that I let inadvertently let out an audible gasp. There were trash bags piled to the ceiling with fruit flies buzzing around. There were half-eaten TV dinners on all flat surfaces. The toilet was black, and I just hoped that was its original color. The bed was piled so high with clothes and other things that there was nowhere to sleep. I was completely overwhelmed. I could not imagine how we were going to get someone to clean and maintain her apartment. We went into the courtyard to talk with her and told her we would do some research about organizations that might be able to help her and return in a few days.

When we came back a few days later with some information about in-home support services, we went back into her apartment. Again I let out an audible gasp, this time for a different reason. The apartment was...clean. She had taken out all the trash, and cleaned the food, and folded the clothes, and it turns out the toilet was in fact white. I was so puzzled by what had happened. What had made this woman, who had clearly been living in disarray for a long time, suddenly change her ways? I had previously assumed that she was physically unable to clean, but that clearly was not the case. I had not given her any help or arranged any services. Then, I had a moment of realization. This situation was not unlike my own apartment when I have dinner guests. I have seen my apartment go from something that could be featured on a hoarding TV show to a sparkling palace in a couple of hours. I asked when the last time someone had visited her apartment, and she said that only paramedics come to her apartment. I realized that what I had done for her was give her a reason to clean.

I saw this phenomenon manifest in a different ways with other patients. One patient was going to the ED for chest pain 20+ times a month. Without fail, on discharge they would tell him to follow up with his primary care doctor for a stress
test, and he never did. We met with him and talked with him about his life and his goals for an hour and suggested that he see one of the primary care doctors at the homeless shelter where he lived. Next thing we knew he was scheduled for a stress test. That same patient did not know how to use a computer and we talked about setting up an email and teaching him how to use it. Before our next meeting, an email from him popped up in my inbox with no subject that contained only the words, “I am working on getting better.” That was one of my favorite emails ever.

I still could not quite figure out what, if anything, I was doing for these patients. Then I came up with a phrase for these interventions. I was being not only their house guest, which inspired them to clean their house, but they were also allowing me to be their life guest, which inspired them to clean up their lives. Don’t get me wrong, sometimes they would need direct help with something like medication management, or filling out a housing application, or applying for health insurance, but many of the times I would make a suggestion and they would do things on their own. By being present and caring and listening to their stories, I was helping them find their personal motivation to make changes in their lives. This is a lesson that I will carry forward with me throughout my career as a primary care physician. Being supportive does not have an ICD-10 code, and does not always feel like something tangible that will change someone’s life, but the simple act of being someone’s life guest can instigate enormous changes.
CASE PRESENTATIONS

UC San Diego Hotspotting

Patient Information

79 year-old transgender male to female who was born in San Francisco and grew up in LA. She served in the US Air Force for four years then got an associate degree in journalism. She worked as a journalist and newspaper editor and has travelled all over Europe. She had gender reassignment surgery late in life at 68 years of age and has been living proudly as a transgender woman since.

Medical History

• Chronic DVT/PE
• Severe AS w/o TIA (on chronic warfarin)
• Urinary retention with chronic indwelling Foley
• Renal lymphoma s/p nephrectomy and chemoradiation

Psychosocial Stressors

• Unemployed
• Limited income
• Loneliness
• Lack of support
• Anxiety
• Poor coping skills
• Limited mobility
• Elderly

Systems-Based Learning

Poor coordination of care – Multiple health systems exist that do not communicate easily. There is a disconnection between medical and social services.

Difficult to connect to social resources – Patients with mobility or cognitive problems are unlikely to access services they may need without assistance.

Undervalue of compassion-based care – High acuity, fast-paced, high-volume, and lab/imaging driven medicine is over-incentivized.

Emergency Services – When patient activates 911, the ED is only destination even when another resource would be more appropriate.

Interventions and Outcomes

Shortness of breath from acute-onset chronic obstructive pulmonary disease

Emergency Services – When patient activates 911, the ED is only destination even when another resource would be more appropriate.

Utilization and Cost Data

VA Emergency Department Walk-In Visits 2015

Ambulance transports to non-VA Emergency Departments 2015

Intervention Timeline

Emergency

08/15

12/15

01/16

07/15

06/16

07/15

08/15

09/15

11/15

11/15

04/16

03/16

03/16

02/16

02/16

12/15

07/15

07/15

06/16

04/16

03/16

01/16

11/15
UCSD Hotspotting Case Presentation

January 7, 2016

UCSD Team

- Emily Rand-School of Medicine
- Andrew Wei-School of Medicine
- Oresta Tolmach-School of Medicine
- Elika Hefazi-School of Pharmacy
- Michael Dunford-211 San Diego
- Dr. Dunford- ED Physician
- Dr. Smith- Family Physician
- Leto Contreras-Community Paramedic
- Brooke Anarde- ED Social Worker
A patient will receive the exact same treatment algorithm based on presenting symptom in the emergency room even when they show up every single day.

Timid patients have trouble accessing social services, and there is limited guidance about where to find these services.

There is a lack of availability of mental health resources in ED, patient has to make separate visit and this is a barrier to access.

Data shows 911 calls over time. 56 calls since May. Almost all 911 calls were for chest pain.
Utilization Data

Costs associated with pre-hospital emergency transport

Summary of Interventions

- Patient Contact
  - First met patient in ED
  - Follow up visits have all been outside his room at the shelter, he has consistently shown up for visits

- Excessive ED visits for chest pain
  - Stress test scheduled
  - Drug eluting stent placed 12/8/15
  - Seems to be significant anxiety component, patient given information about meditation and deep breathing
  - Suggested that he consider seeing a therapist

- No Regular PCP
  - Established with PCP

- Communication Difficulties
  - Set up email
  - Still waiting for phone
Summary of Intervention

- Housing interventions
  - Currently in transitional housing, we are working with Veteran Affairs Supportive Housing to find permanent options

- Enrollment in Resource Access Program Study
  - Community paramedics know patient and have a chance for an intervention/diversion to other resources when patient makes 911 calls

- Financial Interventions
  - We went to HHS and helped him apply for food stamps
  - He has plans to go to General Relief office

- No Winter Clothing
  - Acquired jacket, sweaters and socks from local thrift store that gives vouchers for homeless customers

Lessons Learned about Patient/System

- A patient will receive the exact same treatment algorithm based on presenting symptom in the emergency room even when they show up every single day

- Timid patients have trouble accessing social services, and there is limited guidance about where to find these services

- There is a lack of availability of mental health resources in ED, patient has to make separate visit and this is a barrier to access