Jan 29th, 12:00 PM

2010 K12 Awardees: Overview of Research Projects

Sarah L. Cutrona  
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Electronic Transmission of Health Information across Networks

Sarah L. Cutrona, MD, MPH
Assistant Professor of Medicine
Division of General Medicine/Primary Care
Meyers Primary Care Institute
E-Communication across Networks
E-Communication across Networks

A. Social Networks

B. Healthcare Networks
E-Communication across Networks

A. Social Networks
   1. Internet, email & social media
   2. Health Literacy/Language choices
   3. Peers (peer referrals, seeking health info on behalf of others)

B. Healthcare Networks
E-Communication across Networks

A. Social Networks

B. Healthcare Networks
A. Social Networks

B. Healthcare Networks

1. Pulling in the patient
   - E-portal Use
   - Patient updating own EHR

2. Syncing In/Outpatient networks
Social Networks

Social networks are the collections of social ties among friends* or family.

* From the book Networks, Crowds, and Markets: Reasoning about a Highly Connected World.
Percentage of Adults Aged 50–75 Years Who Reported Being Up-to-Date* with Colorectal Test Screening, by State
Behavioral Risk Factor Surveillance System, United States, 2010

*“Up-to-date” = FOBT within 1 yr, a sig w/in 5 yr + FOBT w/in 3 yrs, or a colo wi/in 10 yrs.

CRC screening prevalence, adults 50 and older, BRFSS 2006, 2008

• Massachusetts ranks 4\textsuperscript{th} nationally
  All races: 69.6%
  White 70.6% (rank 6\textsuperscript{th})
  African-American 63.3% (rank 10\textsuperscript{th})
  Hispanic 57.5% (rank 9\textsuperscript{th})
CRC screening prevalence, adults 50 and older; BRFSS 2012

- Massachusetts ranks FIRST nationally
  All races: 76.3% Up to date
  - White
  - African-American
  - Hispanic
- 65.1% of all Americans up to date

Vital Signs: Colorectal Cancer Screening Test Use — United States, 2012

Weekly

November 8, 2013 / 62(44);881-888

On November 5, 2013, this report was posted as an MMWR Early Release on the MMWR website http://
To improve rates of CRC screening, the CDC describes roles for:

- The Federal Government
- State and Local Public Health
- Doctors, nurses and health systems

To improve rates of CRC screening, the CDC describes roles for:

**Everyone:**
- Learn options, get the test that’s right for you
- Know your family history and personal risks
- Contact your local health dept to learn how to get tested
- Encourage friends and family members to be tested for CRC.

Campaigns: Use of Peer support

• Bowel UK
  “Be Behind it” campaign
I got screened.
Now, I’m talking about it.

Wendy Richardson
Gearhart resident

I got screened.
Now, I’m talking about it.

Mark Gustafson
Astoria resident

I got screened.
Now, I’m talking about it.

Sen. Bob Boyer
Portland resident
Willingness to use email & social media to discuss CRC screening

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults. JMIIR Research Protocols 2013; Nov 28; 2(2) e52.
“Email use continues to be the bedrock of online communications for older adults..

Among all adult internet users, 91% use email, with 59% doing so on a typical day.

As of August 2011, 86% of internet users ages 65 and older use email, with 48% doing so on a typical day.

Source: Pew Internet & American Life Project Surveys, April 2000-April 2012.
More: http://pewinternet.org/Trend-Data/Internet-Adoption.aspx

Older-adults-and-internet-use/Main-Report/Internet-adoption.aspx
As of February 2012, 66% of online adults use social networking sites.

<table>
<thead>
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<th>Gender</th>
<th>66%</th>
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<td>Men</td>
<td>61</td>
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<tr>
<td>Women</td>
<td>71*</td>
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<td>30-49</td>
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<tr>
<td>50-64</td>
<td>50*</td>
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<tr>
<td>65+</td>
<td>34</td>
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<th>Race/Ethnicity</th>
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<td>64</td>
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<tr>
<td>Black, non-Hispanic</td>
<td>68</td>
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<tr>
<td>Hispanic (English- and Spanish-speaking)</td>
<td>72</td>
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<table>
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<th>Household Income</th>
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<tbody>
<tr>
<td>Less than $30,000</td>
<td>71*</td>
</tr>
<tr>
<td>$30,000-$49,999</td>
<td>69</td>
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<tr>
<td>$50,000-$74,999</td>
<td>60</td>
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<tr>
<td>$75,000+</td>
<td>69*</td>
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<table>
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<th>Education level</th>
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<td>Less than high school</td>
<td>63</td>
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<tr>
<td>High school grad</td>
<td>62</td>
</tr>
<tr>
<td>Some college</td>
<td>71*</td>
</tr>
<tr>
<td>College+</td>
<td>67</td>
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<table>
<thead>
<tr>
<th>Geographic location</th>
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<tbody>
<tr>
<td>Urban</td>
<td>69</td>
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<tr>
<td>Suburban</td>
<td>65</td>
</tr>
<tr>
<td>Rural</td>
<td>64</td>
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</table>

Note: * indicates statistically significant difference between rows. Extra asterisks mean differences with all rows with lower figures.

Source: The Pew Research Center's Internet & American Life Project, January 20 – February 19, 2012 Winter Tracking Survey. n=1,729 adult internet users ages 18 and older, including 901 cell phone interviews. Interviews were conducted in English and Spanish.
Age distribution on social networks & online communities

Average based on the 24 sites included in this survey.

- 0-17: 5%
- 18-24: 16%
- 25-34: 26%
- 35-44: 25%
- 45-54: 19%
- 55-64: 6%
- 65+: 2%

Data source: DoubleClick Ad Planner (Google), U.S. demographics, June 2012. www.pingdom.com
Social networking site use by age group, 2005-2012

Note: Total n for internet users age 65+ in 2005 was < 100, so results for that group are not included.

Social networking site use by age group, 2005-2012

Note: Total n for internet users age 65+ in 2005 was < 100, so results for that group are not included.

Social Networking for Health

17.0% of internet users have visited a social networking site such as Facebook or LinkedIn “to read and share about medical topics”
- 12.9% of internet users 50-64
- 7.6% of internet users aged 65 to 74

“I got mine, have you gotten yours?”

Will people share colorectal cancer screening experiences by email or social media in order to promote screening in friends and family?
Methods: In-person Interviews 2011-2012

- 438 insured adults ages 42-73
- MA (Reliant Medical Group/Fallon) 46%, Kaisers Georgia & Hawaii
- Part of CRN-funded Oral Health Literacy Study
  - PI: Kathy Mazor
- Sociodemographic Data
- Health literacy levels, numeracy

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults. *JMIR Research Protocols* 2013; Nov 28; 2(2) e52.
Methods: In-person interview

What are people already doing?

• Current + past use: email & e-communication (texting, facebook, twitter, IM, online/video chat, LinkedIn, other)
• Discussion of health topics via these modes
Interviews Assessed:

1. Willingness to encourage CRC screening among friends/family by sharing own screening experiences

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults. 
*JMIR Research Protocols 2013; Nov 28; 2(2) e52.*
Interviews Assessed:

1. Willingness to encourage CRC screening among friends/family by sharing own screening experiences

2. Preferred Mode of message transmission

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3. Estimated Impact of message on recipient

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4. Projected # of message recipients (per sender)

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Interviews Assessed:

1. Willingness to encourage CRC screening among friends/family by sharing own screening experiences

2. Preferred Mode of message transmission

3. Estimated Impact of message on recipient

1. Projected # of message recipients (per sender) Reach

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults. JMIR Research Protocols 2013; Nov 28; 2(2) e52.
Results

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults.
*JMIR Research Protocols 2013; Nov 28; 2(2) e52.*
### Characteristics (n=438)

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<th>Characteristic</th>
<th>N</th>
<th>%</th>
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<td>Black/African American</td>
<td>64</td>
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<tr>
<td>Asian/Pacific Islander/Native Hawaiian</td>
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<td>11.6</td>
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<td>White/Caucasian</td>
<td>281</td>
<td>64.2</td>
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<td>Other or Unknown/Not Reported</td>
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<td>8.9</td>
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<td><strong>Education</strong></td>
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<td>Up to High School Graduate</td>
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<td>Any College – Graduate Degree</td>
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<td>75.6</td>
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<tr>
<td><strong>Age</strong></td>
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<td>40-49</td>
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<td>11.9</td>
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<td>50-59</td>
<td>157</td>
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<td>60 and Older</td>
<td>229</td>
<td>52.3</td>
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<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Female</td>
<td>247</td>
<td>56.4</td>
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<td><strong>Self-reported Health Status</strong></td>
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<tr>
<td>Excellent/Very Good</td>
<td>240</td>
<td>54.8</td>
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<tr>
<td>Good/Fair/Poor</td>
<td>197</td>
<td>45.0</td>
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<tr>
<td><strong>Ever had colonoscopy</strong></td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>318</td>
<td>72.6</td>
</tr>
</tbody>
</table>

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults.  
*JMIR Research Protocols 2013; Nov 28; 2(2) e52.*
<table>
<thead>
<tr>
<th></th>
<th>Used email in past week</th>
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<tr>
<td><strong>Yes</strong></td>
<td>370</td>
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<td>84.5%</td>
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<table>
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<th>Used e-communication* in past week</th>
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<tr>
<td><strong>Yes</strong></td>
<td>245</td>
<td></td>
<td>55.9%</td>
</tr>
</tbody>
</table>

*Texting, facebook, Twitter, instant messaging, online/video chat, LinkedIn or other

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults.
JMIR Research Protocols 2013; Nov 28; 2(2) e52.
Use of E-mail  
n=438

- 33.8% had used email to discuss routine health topics
- 12.6% used email to discuss CRC screening

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults.  
*JMIR Research Protocols* 2013; Nov 28; 2(2) e52.
Among email users (n= 380)
Health-related Reasons for Use, by Age Group

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults. JMIR Research Protocols 2013; Nov 28; 2(2) e52.
Use of E-communication & Social Media*

• 56.4% ever used

• 11.6% discussed routine health topics

• 2.3% ever used to discuss CRC screening

*Texting, facebook, Twitter, instant messaging, online/video chat, LinkedIn or other

Cutrona et al. Willingness to use email & social media to discuss cancer screening among insured adults. JMIR Research Protocols 2013; Nov 28; 2(2) e52.
Among E-communication Users (N=247)
Health-related Reasons for Use

- to discuss routine health topics
- to discuss CRC screening
- to discuss mammography

P<0.01 for difference between age groups for discussing routine health topics. All others N
MODE: How willing would you be to share your colon cancer screening experience with others?

- By Email
- By E-communication

IN CONVERSATION

Non Users2
Non Users
Not willing
Might be
Very willing
Due to communication with friends or family...

**Perceived Impact**

- 24% have ever scheduled a cancer screening
- 6.2% have ever avoided a cancer screening
Perceived Impact

- **21.7%** believe friends/family completed cancer screening
- **2.1%** believe friends/family avoided cancer screening

Due to communication with you...
Reach
Reach

255 respondents reported willingness to send out a total of 4,107 emails
<table>
<thead>
<tr>
<th>Immediate Family</th>
<th>In-Laws</th>
<th>Extended Family</th>
<th>Close Friends</th>
<th>Acquaintances</th>
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</table>
Willingness & Mode

Email

- 1/3 discussed routine health
- >10% discussed CRC screening
- 68.7% would consider discussing CRC screening

*Texting, facebook, instant messaging/online chat, video chat, twitter, LinkedIn
Willingness & Mode

**Email**
- 1/3 discussed routine health
- >10% discussed CRC screening
- 68.7% would consider discussing CRC screening

**E-Communication**
- >10% discussed routine health
- <5% discussed CRC screening
- 30.1% would consider discussing CRC screening

*Texting, facebook, instant messaging/online chat, video chat, twitter, LinkedIn*
Willingness & Mode

Email

- 68.7% would consider discussing CRC screening

E-Communication

- >30.1% would consider discussing CRC screening

Impact & Reach

- 24% have scheduled cancer screening due to influence of friend/family

- Estimated would send avg of 16 emails/person
What would people write?

There are a few ways to get screened for colon cancer. I just got a colonoscopy (which is one way to get screened). If you want I’d be happy to talk to you about what my experience was like.
“The prep took longer than expected, (you know that I’m full of it! 😊) but the test itself was easy”
“The prep took longer than expected, (you know that I’m full of it! 😊) but the test itself was easy”

It’s time to clear the chutes!
What would people write?

Cutrona SL et al. Email to promote colorectal cancer screening within social networks: Acceptability and content. Under Review.

How do they describe their health information network?
• 1/3 of group had used email to discuss routine health topics such as cancer screening or vaccines.
E-Communication across Networks

A. Social Networks

B. Healthcare Networks

1. Pulling in the patient
   • E-portal Use
   • Patient updating own EHR

2. Syncing In/Outpatient networks
System Alignment for VaccinE Delivery (SAVED)
Improving rates of flu & pneumococcal vaccination via EHR-based patient outreach, improved EHR accuracy & physician alerts

Funding agency: Pfizer
Independent Grants for Learning & Change
PI: Cutrona

$635,000
1/1/2014-7/1/2016

Reliant Medical Group / Meyers Primary Care Institute
Key Objectives.
I. To improve rates of influenza and pneumococcal vaccination in eligible patient populations via:
   a. **Patient-level messages** targeted at unvaccinated patients.
   b. **Provider- and staff-level educational interventions** and system support
II. To improve the capture of vaccinations administered to Reliant Medical Group (RMG) patients in the community, hospitals and nursing facilities via **system-level electronic Health Information Exchange (HIE)**.
E-portal Outreach & Patient-Enabled EHR-updating

Welcome

- Communicate with your doctor and healthcare team
- View current lab results & health trends
- Request prescription renewals
- View your recent and upcoming appointment information
- Download the iPhone or Droid MyChart app and manage your health on the go. Taking care of yourself has never been so easy!

MyChart is Your Secure, Online Health Connection

We know that your health is important to you around the clock – not just during office hours. That’s why Reliant Medical Group offers MyChart. With this Internet connection to your doctor’s office and to parts of your actual medical record, you can schedule appointments, request prescription renewals, review portions of your health history, and more – online, any time!

To learn how to register to use MyChart, [click here](#).

Urgent Medical Matters

Please do not use MyChart to send any messages requiring urgent attention (i.e. in less than 2 business days). For urgent medical matters, please contact your doctor’s office by phone. In emergency situations, call 911.

Tips

Having Trouble using Mychart with AOL, [click here](#).

Learn More...

- FAQ
- Privacy Policy
- Terms and Conditions
- Trouble logging in:

View my immunizations.

Your MyChart Home.

If you do not see a Lab Result that you are expecting, please call your provider’s office to discuss.

Latest News

Upcoming Events at Reliant Medical Group
[Click here to view our Calendar of Events.](#)
System Alignment for VaccinE Delivery: SAVED

**Year 1 Randomized Controlled Trial**

- **Electronic Patient Portal Users**
  - Randomized
  - E-portal Message
    - IVR Call: 5,000 Patients
    - No IVR Call: 5,000 Patients
  - No E-portal Message
    - IVR Call: 5,000 Patients
    - No IVR Call: 5,000 Patients

- **Non E-portal Users**
  - Randomized
  - IVR Call: 5,000 Patients
  - No IVR Call: 5,000 Patients

**Year 2 Cost-conscious Targeted Intervention**

- **Electronic Patient Portal Users**
  - (ALL get e-message; Some get IVR)
  - E-portal Message
    - Targeted Recipients
      - No IVR Call
      - IVR Call
      - IVR Call
      - 15,000 Patients Called

- **Non E-portal Users**
  - (Targeted IVR messages)
  - No IVR Call
Thank you.
Career Development for an Academic Acute Care Surgeon and Acute Care Surgery Practice Patterns: A Tale of Two Complexities

Heena P. Santry, MD MS
UMass Clinical Research Scholar 2010–2015
CTSA Seminar January 29, 2014
About Me

8 years of post-graduate clinical training

+  

2 years of research fellowship training

=  

Academic Career in Acute Care Surgery (ACS)
Why does ACS exist as a Subspecialty?

Background & Significance
Lack of Access to EGS Care
Re-invention of Trauma Surgery

The Journal of TRAUMA® Injury, Infection, and Critical Care

Trauma/Critical Care Surgeon: A Specialist Gasping for Air

Jorge L. Rodriguez, MD, A. Britton Christmas, MD, Glenn A. Franklin, MD, Frank B. Miller, MD, and J. David Richardson, MD

Redefining the Future of Trauma Surgery as a Comprehensive Trauma and Emergency General Surgery Service

Patrick K Kim, MD, G Paul Dabrowski, MD, FACS, Patrick M Reilly, MD, FACS, Susan Auerbach, MHA, RHIA, Donald R Kauder, MD, FACS, C William Schwab, MD, FACS
1966 IOM Report
“Accidental Death and Disability: The Neglected Disease of Modern Society”
In theory, ACS brings together the most skilled and available surgeons with dedicated resources to improve the care of EGS patients.

- Trauma patients
  - Require emergency surgical evaluation due to injury
    - Accidental
    - Intentional

- EGS patients
  - Require emergency surgical evaluation due to
    - Act of God
    - Act of Nature
    - Behavioral malfeasance
    - Physiologic malfeasance

In theory, ACS brings together the most skilled and available surgeons with dedicated resources to improve the care of EGS patients.
But...

10 years after the specialty developed
My Early Aspirations

- Develop reputation as skilled and competent acute care surgeon
  - My training paradigm was totally different than the clinical model at UMassMemorial

- Develop a career focused on research
  - K award by year 3
  - R01 or equivalent by year 5-8
  - T32 eventually
  - Retire as full professor

- Pursue research to understand
  - What is ACS in practice?
  - Has ACS improved patient outcomes?
  - How can ACS be utilized to optimize outcomes?

Surgery remains rooted in the belief that HSR can be done well on the rare nights/weekends you aren’t caring for patients.
UMass Clinical Scholar Award (K12) provides 50–75% protected time over 5 years for mentored research & career development.
UMass Clinical Scholar Award

- Department
  - Pride
  - May improve overall research aspirations of the department
- Division
  - Clinical duties must be spread to my colleagues
  - May improve standing with trauma center research program
- University
  - Integral part of CTSA
  - Risky to support a surgeon

Definitely helps me early in my career but my 5th month on faculty might have been too soon.
My Overall K12 Aims

- Refine education in health services research
- Extra-departmental mentorship
- Execute research to study ACS practice variations and outcomes
- Successful R01 by year 5
Overall Complexities

- Small department with few researchers and fewer research resources
  - “We need people like you to build the department’s research vision.” – Department chair

- Heavy clinical burden
  - “You work 25% of a 120hr work week.” – Division chief

- Divisional & departmental goals are not explicitly in the aims. Protected time was undefined.
K12 Research Aims

- To describe ACS practice patterns and impact of ACS practice variations on outcomes for EGS and trauma

- To determine predictors of EGS outcomes and develop a validated risk stratification score

- To design a National Emergency Surgery Registry
My aims were too ambitious both in terms of time and costs.
So how have I done?

Relative to what I said I would do
Refine Education in HSR

- Unable to audit classes due to clinical load
- Able to take training courses in:
  - Qualitative analysis software
  - GIS mapping software
- Tremendous education through research in progress

Find opportunities to improve knowledge and skills in any way possible, even if not in a traditional classroom.
Extra-departmental Mentorship

Catarina Kiefe, PhD MD, Chair QHS

Epitome of a good mentor
- Motivate
- Empower & encourage
- Nurture self-confidence
- Teach by example
- Offer wise counsel
- Raise performance bar
- Shine in the reflected light

Outstanding editor and editorial counsel

Choose a good mentor and then take advantage of everything that the mentor offers.
Executing Research Aims

- To describe ACS practice patterns and impact of ACS practice variations on outcomes for EGS and trauma.
- To determine predictors of EGS outcomes and develop a validated risk stratification score.
- To design a National Emergency Surgery Registry.

Spend less time criticizing yourself for under-accomplishment and more time writing.
Qualitative Study of ACS practice Patterns

- Variations identified
  - Care structure (e.g. patient cohorting, continuity clinics)
  - Workforce (e.g. critical care certification)
  - Resource allocation (e.g. dedicated EGS OR, in-house call)
  - Communication (e.g. face-to-face morning report)
  - Data collection (e.g. data registries)

- ACS models treat “time sensitive surgical disease”
- “Better outcomes” than the ‘traditional on-call’ models
- “It takes more than a surgeon with a sharp knife and a willing attitude.”
- Worry that ACS will become “wastebasket of [patients and diseases] that no one else is willing to care for”
- “No one-size fits all”
- “Disaster surgery”
Survey of University Hospital EGS Practices (N=321)

- 82% response rate
- EGS Coverage Models
  - 52% ‘traditional on-call’
  - 32% ACS model
  - 15% ‘hybrid’ model
- EGS care variations
  - 66% had in-house attending coverage 24/7
  - Face-to-face signouts 44%
- Patient cohorting
  - 22% EGS patients alone
  - 21% EGS w/ trauma patients
  - 19% EGS w/ elective general surgery patients
  - 33% EGS w/ trauma and elective surgery patients

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<td>Practice Setting</td>
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<td>&gt;500</td>
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*17 missing responses; UHC = University HealthSystems Consortium
Progress on EGS Registry and Risk Stratification Score

- Institutional EGS registry created
  - 2 years to create
  - 6 week pilot data collection with volunteers demonstrated feasibility
- Too few resources for on-going data collection
- Thus, cannot
  - Determine predictors with detailed clinical and socio-demographic data
  - Market nationally
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Revision goes to study section February

Open up the black box of grant review by soliciting help from mentors and friends.
So how have I done?

What else I did
Other Research

- NSTI outcomes
  - 2 manuscripts published

- C diff outcomes
  - 1 manuscript in press
  - 2 manuscripts underway

- Trends in surgical “health shocks”
  - 2 manuscripts underway

- Surgical critical care studies
  - ICU Mortality
  - Tracheostomy disparities

If the research is closely aligned, it counts.
Applying skills and knowledge to clinical systems goals can still improve a research portfolio.

Leadership:
- Research management meetings
- In charge of trauma center verification application
Biweekly meetings to develop and execute departmental vision
- Vice-Chair and Director of Surgical Research
  - Tremendous insight
- Program Director for Surgical Research Scholars Program
  - Modeled after my experience in RWJ-CSP
  - Opportunities for trainees and junior faculty (K-club, journal club)
  - Successful bootcamp applied campus-wide

Becoming a leader, though daunting, is an important part of career development and a good networking opportunity.
Other Interests

- Older patients
  - Studying relationship between outpatient Rx use and ACS outcomes (Medicare)
  - 5 loco-regional/national abstracts
  - 2nd place NESS Resident Competition
- Educating self on metrics for cognitive function and QOL measures
- Planning future R01 with collaborators
- Global surgery
  - UMass collaboration with medical school in rural India for research, education, and outreach
  - Successful QHS, Ob/Gyn, Psychiatry project on maternal fetal health
  - Trauma needs assessment and systems development project
  - Surgical Research Scholar based in India
  - Primary collaborator role
- Forks in the road are opportunities for career development previously not considered.
Summary

- **Benefits**
  - Early opportunity
  - Wealth of resources
    - Classes
    - Mentorship
    - Protected time
  - LRP eligibility

- **Risks**
  - Too soon
  - Protected time is a myth in some specialties
  - Service to division/department can detract from research mission

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