

wednesday webinar

PRESENTED BY PALMETTO CARE CONNECTIONS

Lessons Learned: Implementing Remote Wound Monitoring to Enhance Surgical Care

March 23, 1pm-2pm EST



Presenter:

Heather Evans, MD, MS

Vice Chair of Clinical Research and Applied Informatics,

Professor of Surgery

Medical University of South Carolina

*This webinar is being recorded.
The webinar recording and presentation
will be available after the webinar.*

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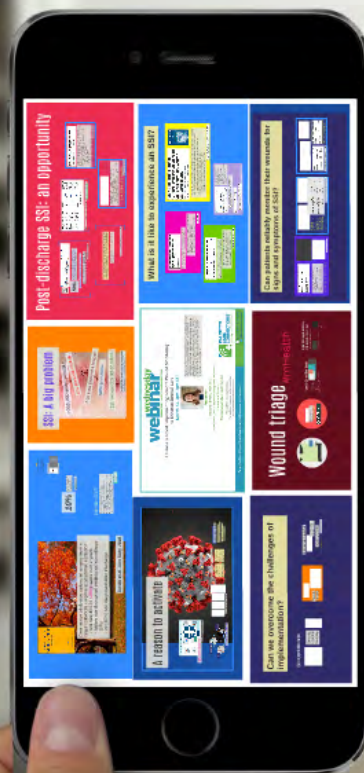


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Lessons Learned: Implementing Remote Wound Monitoring to Enhance Surgical Care

Webinar Wednesday
March 23, 2022

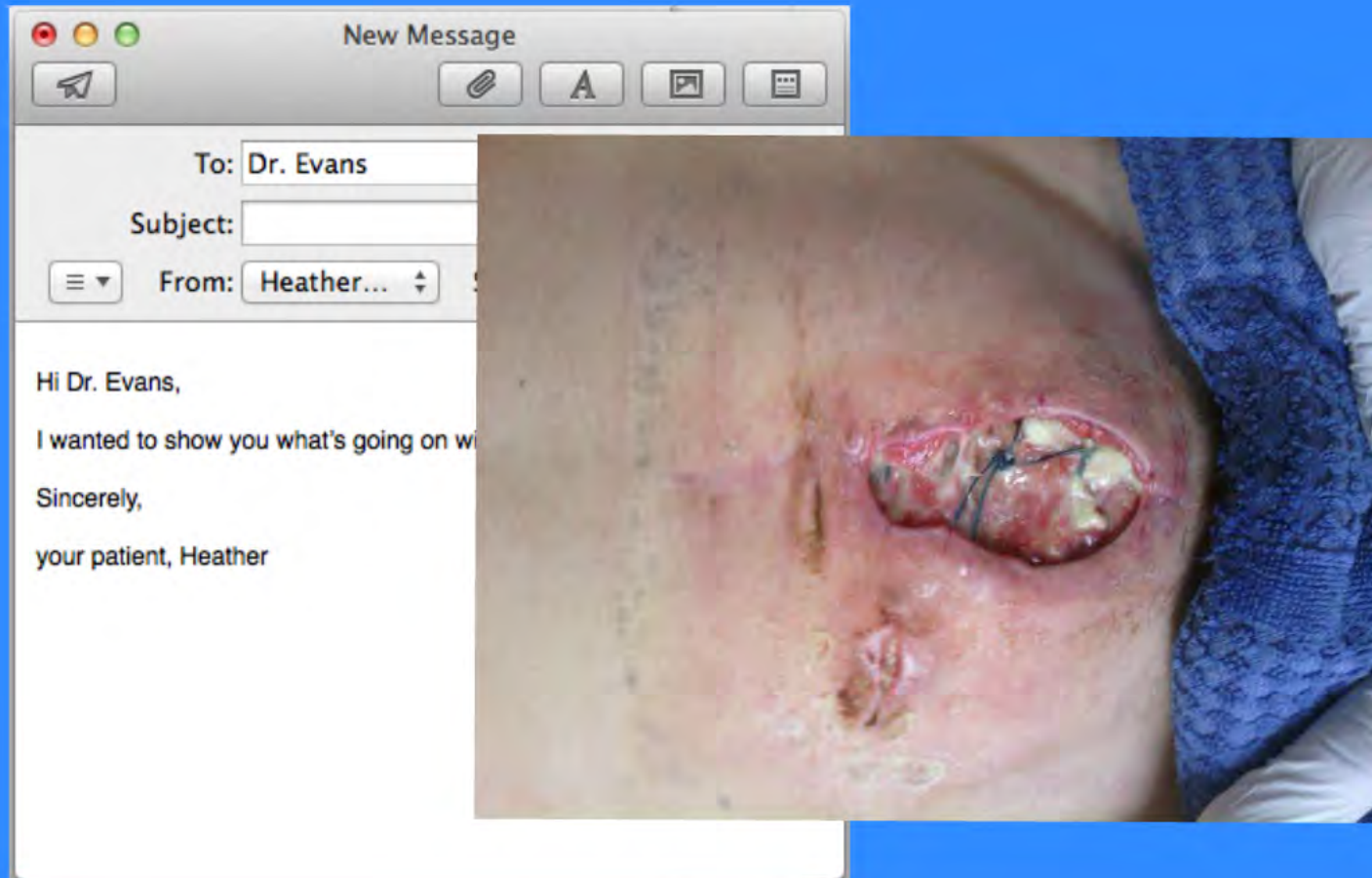


Heather L. Evans, MD, MS
Vice Chair of Clinical Research &
Applied Informatics
Department of Surgery
Medical University of South Carolina

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 evanshe@musc.edu

Consider factors associated with program satisfaction, convenience and sustainability



OVERVIEW

Discuss the problem of surgical site infection and the unmet needs of surgical patients after hospital discharge

Review several solutions for post-discharge wound monitoring with telehealth

Explore the challenges of implementation of a remote patient monitoring program

Consider factors associated with program satisfaction, convenience and sustainability

SSI: A big problem

>300,000 seen annually

2-11 times risk of death

7-10 extra d



2-11 times risk of

7-10 extra days in the hospital

\$20K per infection

Est. annual cost \$3-10 billion

Anderson et al Infect Control Hosp Epi 2008
Zimlichman et al JAMA Intern Med 2013

10%

National rate of SSI following elective colon surgery, according to the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP)

**some discrepancy when compared to NHSN data*



- Case series of elective colorectal surgery from a single colorectal surgeon at academic institution
- SSI rate 45/176 (25%) cases over 2 years
 - higher rate than usual institutional surveillance (9%)
 - 22 (45%) SSI diagnosed after discharge

Smith et al. Ann Surg 2004

10

True Rate

RCT of evidence-based
• Rates of superficial
RCT of silver nylan in
• 33% (control) vs.
RCT of ertapenem ver
• 26.2% (cefotetan)
RCT of wound protect
• 184 patients exp
• 91/369 (24.7%) i

True Rate of SSI??

RCT of evidence-based bundle for preventing SSI

- Rates of superficial/deep SSI 45% vs. 24% (control)

RCT of silver nylon in preventing SSI following colorectal surgery

- 33% (control) vs. 13%

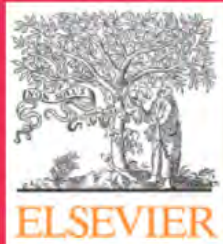
RCT of ertapenem versus cefotetan prophylaxis in elective colorectal surgery

- 26.2% (cefotetan) vs. 17.1% (ertapenem) SSI

RCT of wound protector in emergent and elective laparotomy

- 184 patients experienced surgical site infection within 30 days of surgery
- 91/369 (24.7%) in device group vs. 93/366 (25.4%) control group

Anthony et al. Arch Surg 2011
Kreiger et al. Dis Colon Rectum 2011
Itani et al. NEJM 2006
Pinkney et al. BMJ 2013



Discharge after discharge: predicting surgical site infections after patients leave hospital

N. Daneman^{a,b,d,*}, H. Lu^d, D.A. Redelmeier^{a,c,d}

^aSunnybrook Health Sciences Centre, 2075 Bayview Avenue, Toronto, Ontario M4N 3M5, Canada

^bDivision of Infectious Diseases, Department of Medicine, University of Toronto, Toronto, Ontario, Canada

^cDivision of General Internal Medicine, Department of Medicine, University of Toronto, Toronto, Ontario, Canada

^dInstitute for Clinical Evaluative Sciences, Toronto, Ontario, Canada

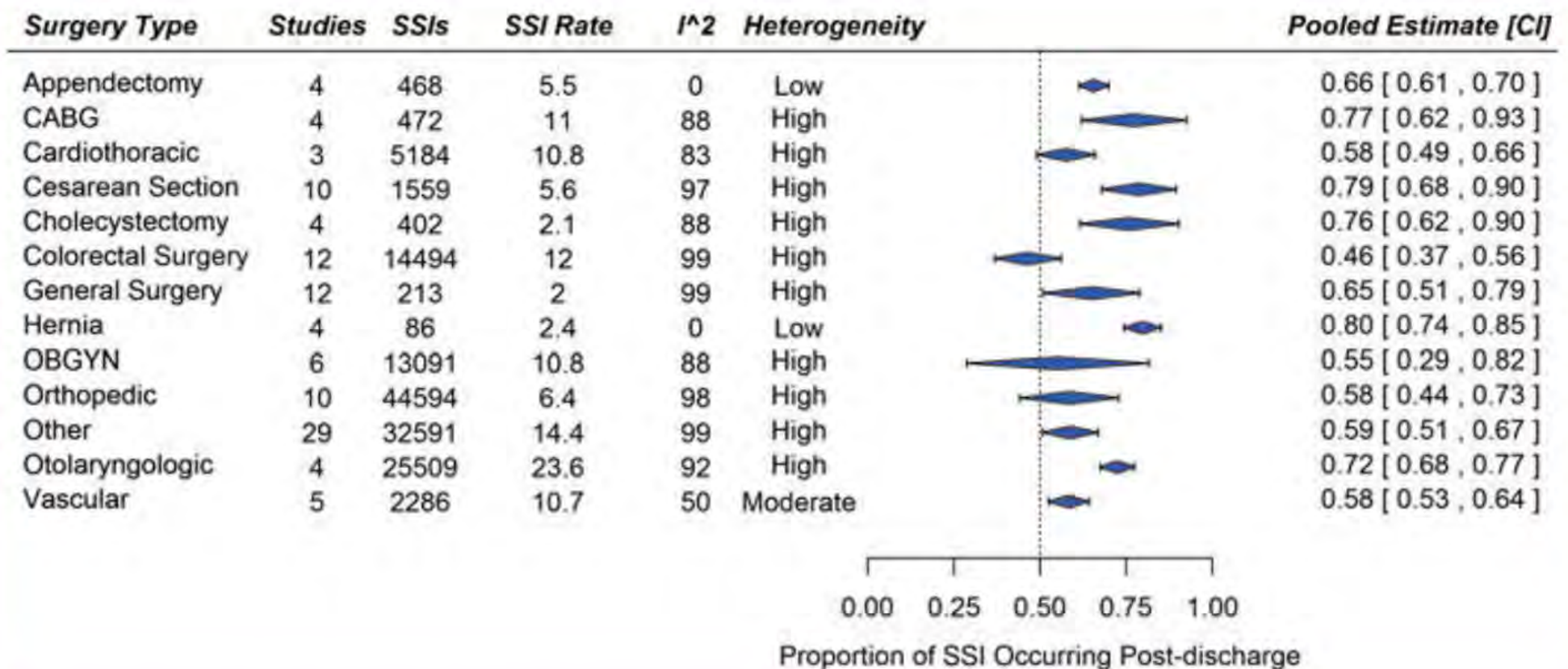
58%

*of all SSIs occurred AFTER hospital discharge
AND Post-discharge SSIs complicated more than
one in 12 elective surgical procedures overall*

26% of post-discharge SSIs were diagnosed in the ER

*Many of the return emergency department visits
occurred at a different hospital (3575/11253, 32%)*

Daneman et al. J Hosp Infect 2010



Rate of SSI 9.5%, with 60.1% discovered post-discharge

Woelber et al, Surg Infect 2016

Original Investigation

Underlying Reasons Associated With Hospital Readmission Following Surgery in the United States

Ryan P. Merkow, MD, MS; Mila H. Ju, MD, MS; Jeanette W. Chung, PhD; Bruce L. Hall, MD, PhD, MBA; Mark E. Cohen, PhD; Mark V. Williams, MD; Thomas C. Tsai, MD, MPH; Clifford Y. Ko, MD, MS, MSHS; Karl Y. Bilimoria, MD, MS

- Unplanned readmission rate for the 498,875 operations was 5.7%
- Readmission rate ranged from 3.8% for hysterectomy to 14.9% for lower extremity vascular bypass
- Most common reason for unplanned readmission SSI (19.5%)
 - colectomy or proctectomy (25.8%)
 - ventral hernia repair (26.5%)
 - hysterectomy (28.8%)
 - arthroplasty (18.8%)
 - lower extremity vascular bypass (36.4%).

Merkow et al JAMA 2015

Outpatient follow-up versus 30-day readmission among general and vascular surgery patients: A case for redesigning transitional care

- 84% general 75% vascular surgery patients had follow-up visit before readmission or within 30 days of discharge
 - GS **not** readmitted: 88% had follow-up visit, most at 2 weeks post-discharge (median, 11 days after discharge)
 - Readmitted GS: 49% had follow-up visit, most at 1 week (median, 8 days)
- Most patients readmitted after follow-up within 24 hours of visit

Ideal timing of follow up visit should be re-evaluated

Saunders et al Surgery 2014

“No standardized or reliable method for post-discharge surveillance has been established”

Joint SHEA/IDSA Practice Recommendations
October 2008

Anderson et al. Infect Control Hosp Epidemiol 2008



Discharge after discharge: predicting surgical site infections after patients leave hospital

N. Daneman^{a,b,c,*}, H. Lu^d, D.A. Fedelmeier^{a,c,d}

*Example of Health Insurance Law in 2010: Republican American Insurance Coalition (RAIC) v. U.S. HHS, 646 F.2d 1146 (CA-10, 2011).

² Institute for Clinical Immunology and Infectious Diseases, University of Toronto, Canada

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AND Post-discharge SSIs complicated more than
one in 12 elective surgical procedures overall

26% of post-discharge SSIs were diagnosed in the ER

Many of the return emergency department visits occurred at a different hospital (3575/11253, 32%)

Daneman et al. J Hosp Internt 2017

Surgery Type	Studies	SSIs	SSI Rate	P-2	Heterogeneity	Pooled Estimate (CI)
Appendectomy	4	468	5.5	C	Low	0.68 (0.41, 0.95)
CAROT	3	11	11	C	High	0.77 (0.62, 0.93)
Danethiostoma	3	5184	0.84	B3	High	0.58 (0.46, 0.70)
Cesarean Section	10	1059	5.0	B7	High	0.70 (0.50, 0.90)
Cholecystectomy	4	4052	2.1	B6	High	0.76 (0.52, 1.00)
Cervicofundus Surgery	2	14404	12	B9	High	0.65 (0.32, 0.98)
General Surgery	12	213	2	B6	High	0.65 (0.37, 0.93)
Hernia	4	85	2.4	C	Low	0.60 (0.34, 0.86)
ESOPHAG	6	13201	0.9	B8	High	0.55 (0.29, 0.82)
Otolaryngic	10	44784	0.4	B3	High	0.68 (0.44, 0.92)
Other	20	20593	14.4	B6	High	0.59 (0.37, 0.87)
Intestoprostic	4	2295	29.6	B9	High	0.57 (0.36, 0.77)
Vascular	5	2280	10.7	B3	Moderate	0.55 (0.33, 0.84)

0.00 0.25 0.50 0.75 1.00

Proportion of SSI Occurring Post-discharge

Rate of SSI 9.5%, with 60.1% discovered post-discharge.

Worster et al. *Surg Infect* 2016

Original investigation

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[illegible]

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Markov et al JAMA 2015

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Saunders et al Surgery 2014

What is it like to experience an SSI?

What is it like to experience an SSI?

Patients' experiences of acquiring a deep surgical site infection: An interview study

Ulrika Eriksson, Andersson, RN, PhD^{1,2}, Ingrid Bengt, RN, PhD^{1,2}, Jan Karlsson, RN, PhD^{1,2}, Siri-Wendie Palmblad, RN, PhD^{1,2}
¹Carinsorg and ²Delivry, Sweden

Qualitative study in Sweden with open-ended face-to-face interviews with 14 patients who developed deep SSI

- Patients reported pain, isolation, insecurity, worry
- Difficulty, delay in obtaining diagnosis
- Feeling of not being taken seriously
- Imperative of early diagnosis and intervention

European Journal of Infectious Diseases

Impact of Incisional Surgical Site Infections on Quality of Life and Patient Satisfaction after General Surgery: A Case Controlled Study

Alexander Hart, Chris Finkert, Karl Clifford, and John Campbell Woodfield^{1,2,3}

Published Online: 24 Nov 2021 | <https://doi.org/10.1089/sur.2021.033>



- A majority (87%) of SSIs were diagnosed after discharge from hospital
- SSI was associated with lower post-operative quality of life scores
 - less vitality, increased pain, reduction in physical activities
- Patients with SSI reported lower satisfaction
 - quality of information received ($p = 0.005$)
 - overall experience with surgery ($p < 0.001$)

Surgical Infections. Dec 2021. 1039-1046.

Patient narratives of surgical site infection: implications for practice

J. Tanner^{a,*}, W. Padley^a, S. Davey^b, K. Murphy^c, B. Brown^a

^aFaculty of Health and Life Science, De Montfort University, Leicester, UK
^bDepartment of Nursing, University Hospitals of Leicester NHS Trust, Leicester, UK
^cThe Patients Association, Harrow, UK

In-home open-ended interviews with 17 patients with superficial or deep SSI after surgery in 3 UK hospitals

- Failure to recognize SSI, poorly informed
- Minimizing experience of SSI by staff
- Self-blame, "bad luck" attribution
- Severe financial impact of SSI on patient

Journal of Hospital Infection 83 (2013) 41–45

Patient Perspectives on Post-Discharge Surgical Site Infections: Towards a Patient-Centered Mobile Health Solution

Patricia C. George^{1,2}, Andrew Morgan³, Sarah H. Day⁴, Cheryl A. L. Armstrong⁵, Maria B. Stewart⁶, Steve J. Lennett⁷, William M. Lober⁸, Heather L. Crane⁹

¹Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ²Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ³Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ⁴Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ⁵Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ⁶Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ⁷Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ⁸Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA; ⁹Department of Health and Human Services, University of Colorado, Aurora, Colorado, USA

"It took a long time to heal, and it cost a lot... I thought it was normal... I didn't know that other people didn't have it, didn't have a clue. I didn't know till today (follow-up appointment) I had an infection." (P2)

"One of the things that I didn't know about was that I had an infection... I didn't know that other people didn't have it, didn't have a clue. I didn't know till today (follow-up appointment) I had an infection." (P2)

"I received news that they had put me back in hospital... I was in the hospital for a few days. Let's just say it was not good... I felt like I was in a bad place... I didn't know till today (follow-up appointment) I had an infection." (P2)

13 SSI patients interviewed

Summary findings:

- Inadequate discharge teaching re-wound monitoring
- Self-efficacy for home wound monitoring is important
- Need for accessible communication with providers about wound problems

Journal of Hospital Infection 83 (2013) 41–45

Can patients reliably monitor their wounds for

Patients' experiences of acquiring a deep surgical site infection: An interview study

Annette Erichsen Andersson, RN, MSc,^{a,b} Ingrid Bergh, RN, PhD,^{a,c} Jon Karlsson, MD, PhD,^{d,e} and Kerstin Nilsson, RN, PhD^{a,c}
Göteborg and Skövde, Sweden

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American Journal of Infection Control
November 2010

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RESEARCH ARTICLE

Patient Perspectives on Post-Discharge Surgical Site Infections: Towards a Patient-Centered Mobile Health Solution

Patrick C. Sanger^{1*}, Andrea Hartzler², Sarah M. Han³, Cheryl A. L. Armstrong³, Mark R. Stewart⁴, Ross J. Lordon¹, William B. Lober⁴, Heather L. Evans³

1. Department of Biomedical Informatics & Medical Education, University of Washington, Seattle, Washington, United States of America, 2. Group Health Research Institute, Group Health Cooperative, Seattle, Washington, United States of America, 3. Department of Surgery, University of Washington, Seattle, Washington, United States of America, 4. Department of Biobehavioral Nursing and Health Systems, University of Washington, Seattle, Washington, United States of America

13 SSI patients interviewed
3 summary findings:

- inadequate discharge teaching re: wound monitoring
- self-efficacy for home wound monitoring is important
- desire for accessible communication with providers about wound concerns

“It took a long time to heal, and it oozed a lot... I thought it was normal... I didn’t know that other people didn’t have it, didn’t have a clue. I didn’t know till today [follow-up appointment] I had an infection.” (P2)

“Noticed it [infection] on Sunday, waited because I didn’t want to have to go to the ER until I could talk to a nurse ... I called the number and then I got put on hold and then run through like three different people before I finally got to a nurse.” (P6)

“I contacted them and they said well, you have an appointment here in a few days. Let’s just wait it out and see... I felt a little put off. Like their sense of urgency for me wasn’t really there.” (P13)

Impact of Incisional Surgical Site Infections on Quality of Life and Patient Satisfaction after General Surgery: A Case Controlled Study

Alexander Hart, Chris Furkert, Kari Clifford, and John Campbell Woodfield ✉

Published Online: 24 Nov 2021 | <https://doi.org/10.1089/sur.2021.033>



- A majority (87%) of SSIs were diagnosed after discharge from hospital
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 - less vitality, increased pain, reduction in physical activities
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 - quality of information received ($p = 0.005$)
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Surgical Infections. Dec 2021. 1039-1046.

- Journal of Hospital Infection 83 (2013) 41–45

CONCEPTS

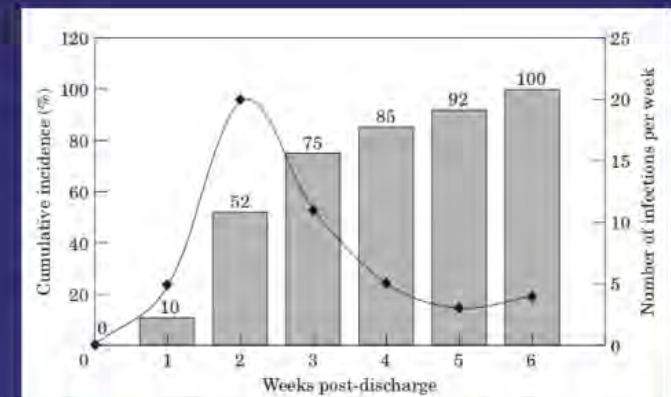
"I convinced them that they could make *you* have an opportunity here in a few days. Let's just wait a bit and see... I felt a little put off. I like their sense of urgency for our cause's really there," PPI's

Poor agreement between the patient's self-assessment and the ICNs diagnosis

Post-discharge surveillance: can patients reliably diagnose surgical wound infections?

M. Whitby*, M-L. McLaws†, B. Collopy‡, D. F. L. Looke*, S. Doidge*, B. Henderson*, L. Selvey§, G. Gardner¶, J. Stackelroth* and A. Sartor*

*Infection Management Services, Princess Alexandra Hospital, Brisbane; †School of Public Health and Community Medicine, University of New South Wales, Sydney; ‡CQM Consultants, Melbourne; §Communicable Diseases Unit, Queensland Health, Brisbane; ¶School of Nursing, University of Canberra, Canberra, Australia



290 patients followed with wound photos and ICN assessment for 6 wks postop

Table II Diagnosis of surgical-site infection (SSI) by healthcare professionals

Assessor group	Infections/total	Percent SSI rate (95% CI)
Infection control nurse	48/290	16.6 (12.5–21.3)
General practitioner	42/290	14.5 (10.6–19.1)
ID physician/microbiologist	90/290	31.0 (25.8–36.7)
Surgeon	106/290	36.6 (31.0–42.4)

Table III Correlation of diagnosis with 'Gold Standard' (infection control nurse diagnosis)

Methods of diagnosis	Correlation (r)	95% CI
Patient recall	0.37	0.28–0.46
General practitioner antibiotic prescription	0.76	0.66–0.87
Surgeon	0.39	0.29–0.50
ID physician/microbiologist	0.38	0.27–0.50

Journal of Hospital Infection (2002) **52**: 155–160
doi:10.1053/jhin.2002.1275, available online at <http://www.idealibrary.com> on IDEAL®

Poor agreement between the patient's self-assessment and the ICNs diagnosis

Post-discharge surgical site surveillance: does patient education improve reliability of diagnosis?

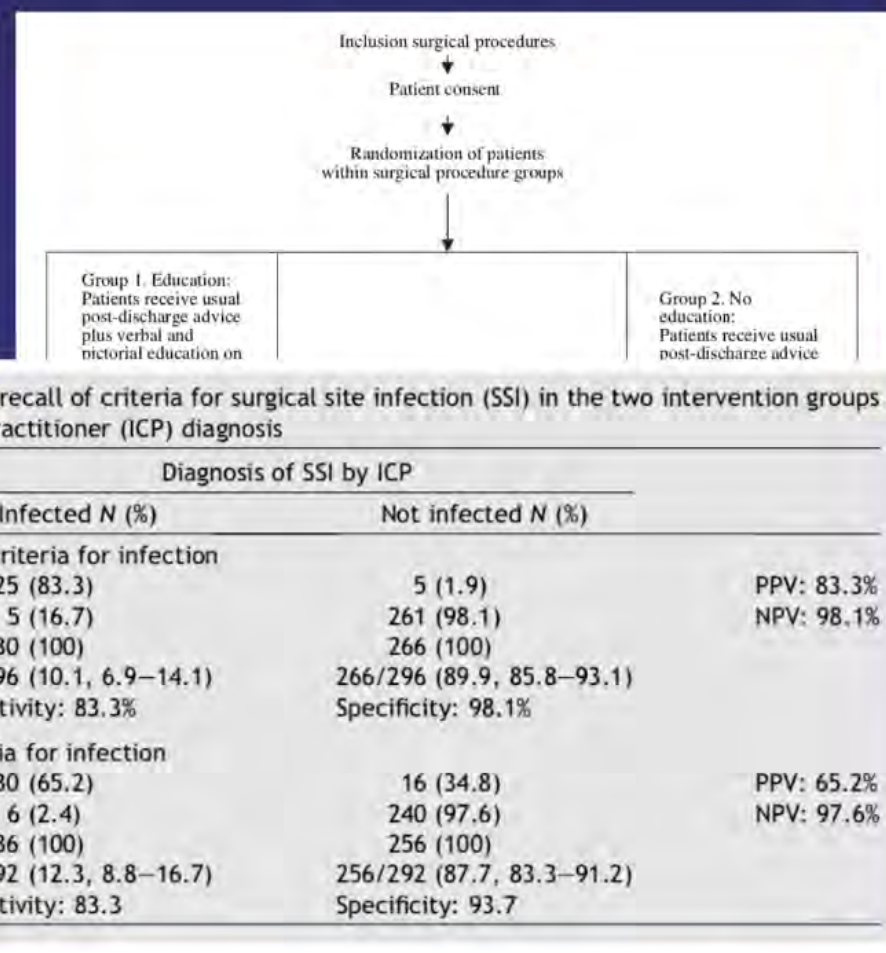
M. Whitby^{a,*}, M.-L. McLaws^b, S. Doidge^a, B. Collopy^c

^a Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP), Princess Alexandra Hospital, Brisbane, Qld, 4102, Australia

^b School of Public Health & Community Medicine, Sydney, NSW, 2052, Australia

^c CQM Consultants, Melbourne, Vic, 3001, Australia

Pre-discharge
education causes
patients to
overdiagnose
clinical features of
wound infection and
**fails to improve the
validity of diagnosis**



Surgical site infection: comparing surgeon versus patient self-report

Julius Cuong Pham, MD, PhD,^{a,*} Melinda J. Ashton, MD,^b
Chieko Kimata, PhD, MPH, MBA,^b Della M. Lin, MD, MS,^c
and Beau K. Nakamoto, MD^{d,e}

^a Department of Anesthesia and Critical Care Medicine, Armstrong Institute for Patient Safety and Quality, Johns Hopkins University School of Medicine, Baltimore, Maryland

^b Department of Patient Safety and Quality, Hawaii Pacific Health, Honolulu, Hawaii

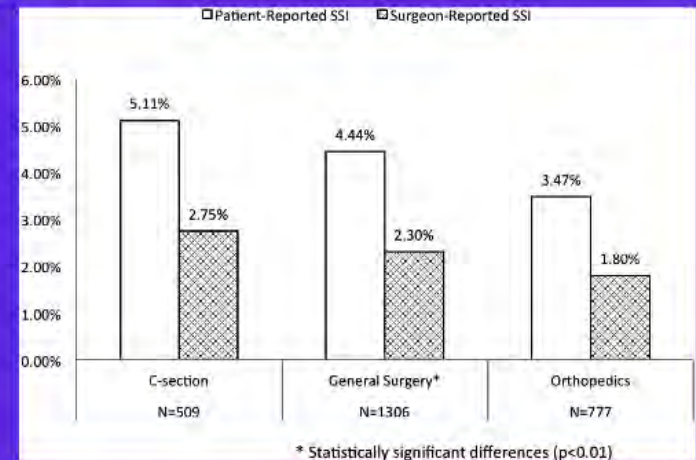
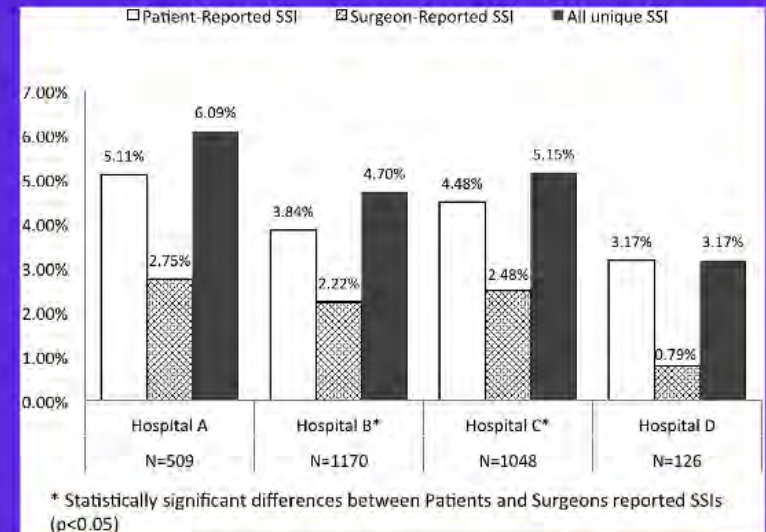
^c Hawaii Safer Care SUSP, Honolulu, Hawaii

^d Department of Patient Safety and Quality, Straub Clinic and Hospital, Honolulu, Hawaii

^e Department of Neurology, Straub Clinic and Hospital, Honolulu, Hawaii

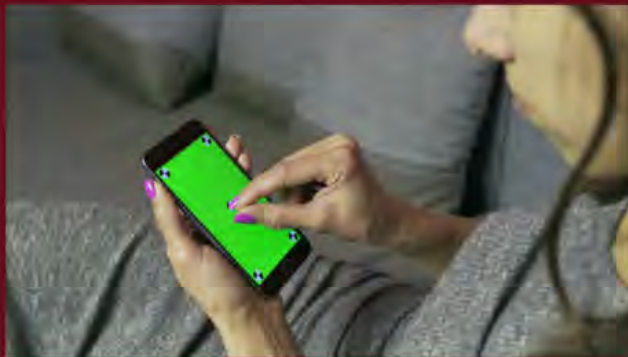
- Retrospective surveillance program with monthly review
- CDC/NSQIP definitions
- 96% concordance between surgeons and patients
- Cases with discordance: superficial SSI, BMI >30, c-section

10 years later, patients still recall more infections



Using PGHD in post-discharge post-operative care is hard

Patient-centered care in a Provider-centered world. **sanger et al 2015**



engagement level modified by patient preference
prescribe? lack of use may be appropriate for most
caregivers have smartphones too, can be partners



the clinic wasn't built with apps in mind
need to plan how remote engagement happens
multiple engagement pathways need linkage

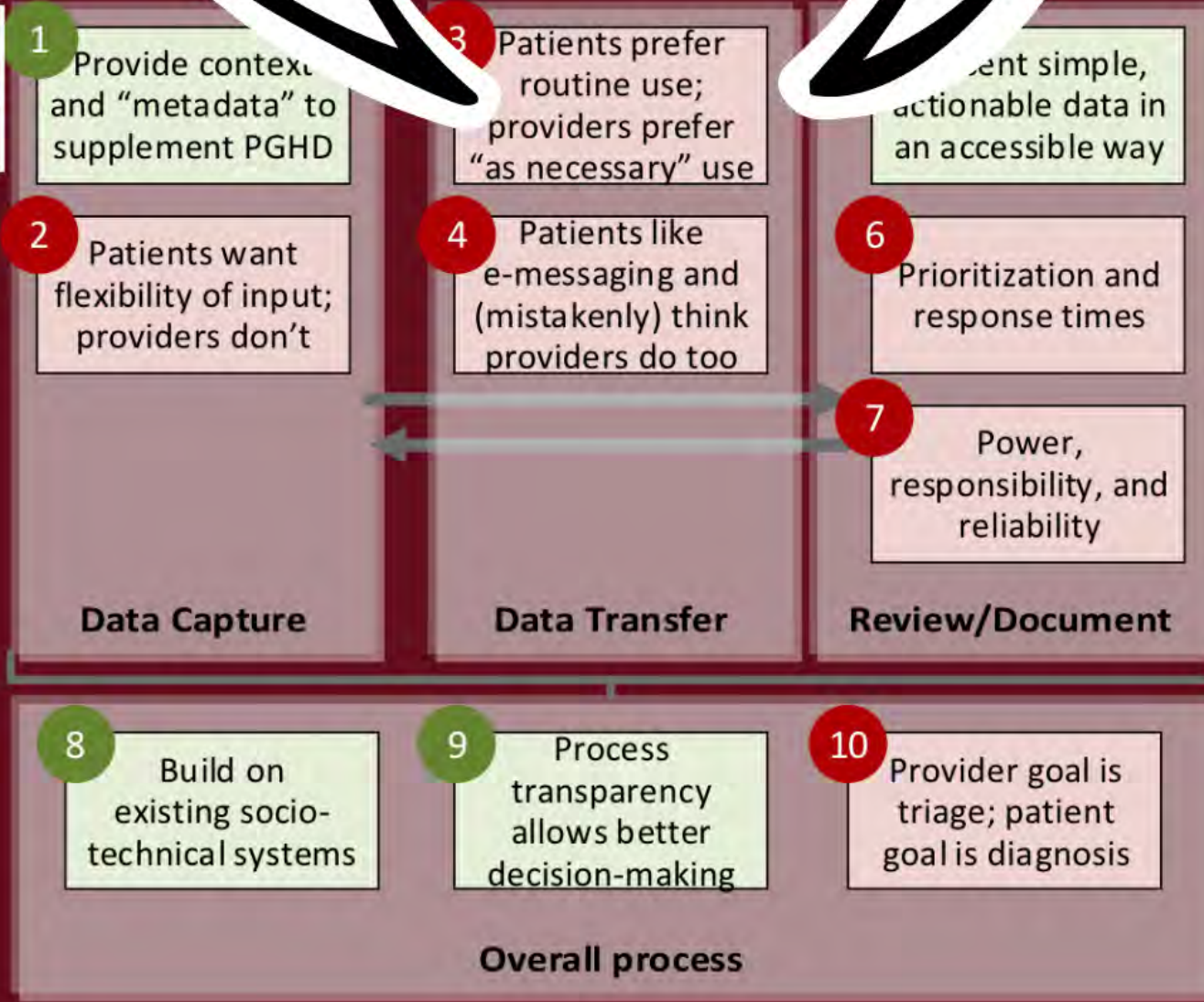


PGHD datastreams don't fit existing workflow
need local technology champions/partners
who also understand the clinical problem



A patient-centered system in a provider-centered world: challenges of incorporating post-discharge wound data into practice

Sanger PC, et al. J Am Med Inform Assoc 2016;23:514-525. doi:10.1093/jamia/ocv183, Research and Applications



Text messaging is a great example, because I don't want to interrupt someone if they're in the middle of something

I've had patients text me. I think it's totally disruptive. It's impossible to communicate in an adequate fashion for both them and for me. I don't want that kind of access with patients.

n in a provider-
es of incorporating
ta into practice

3/jamia/ocv183, Research and Applications

1

Provide context and "metadata" to supplement PGHD

2

Patients want flexibility of input; providers don't

3

Patients prefer routine use; providers prefer "as necessary" use

4

Patients like e-messaging and (mistakenly) think providers do too

6

Present simple, actionable data in an accessible way

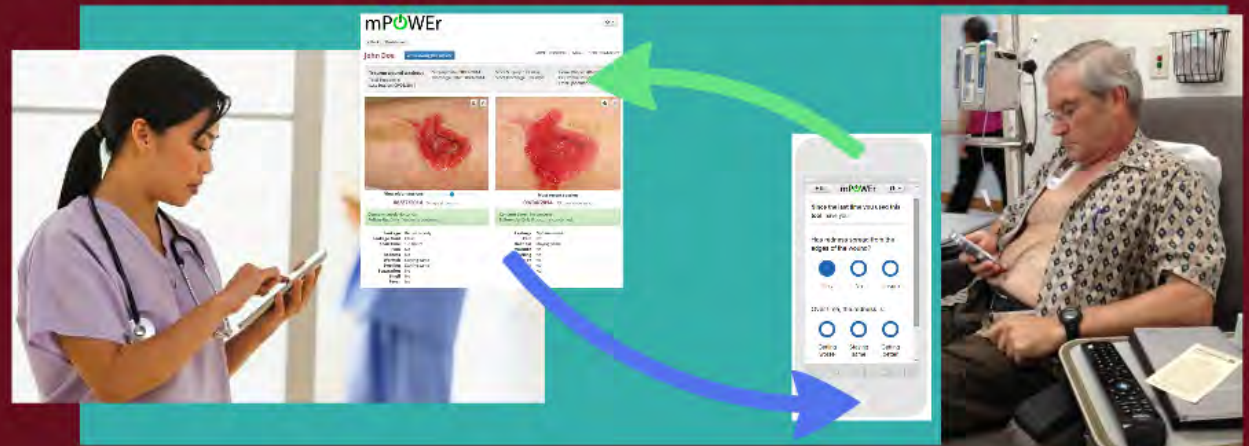
Prioritization and response times

7

Power, responsibility, and reliability

Remote Wound Monitoring

- patient generates
 - survey responses
 - images
 - biometric data
- enhances decision making, documentation
- feedback loop required



JAMA Surgery | Original Investigation

Effect of Home Monitoring via Mobile App on the Number of In-Person Visits Following Ambulatory Surgery A Randomized Clinical Trial

Kathleen A. Armstrong, MD, MSc; Peter C. Coyte, PhD, MA; Mitchell Brown, MD, MEd;
Brett Beber, MD; John L. Semple, MD, MSc

JAMA Surg. 2017;152(7):622-627.

8 month RCT of mHealth app for post-op follow up vs usual care after ambulatory breast reconstruction surgery

Primary end point: number of in-person follow-up visits during the first 30 days after the operation

Secondary end points: number of contacts to health care professionals, patient-reported convenience and satisfaction scores, and rates of complications



0.40 times fewer in-person visits (95% CI, 0.24-0.66; $P < .001$)

no difference in satisfaction scores (IRR, 0.95; 95% CI, 0.76-1.20; $P = .70$)

higher convenience scores (IRR, 1.39; 95% CI, 1.09-1.77; $P = .008$)

QoC Health

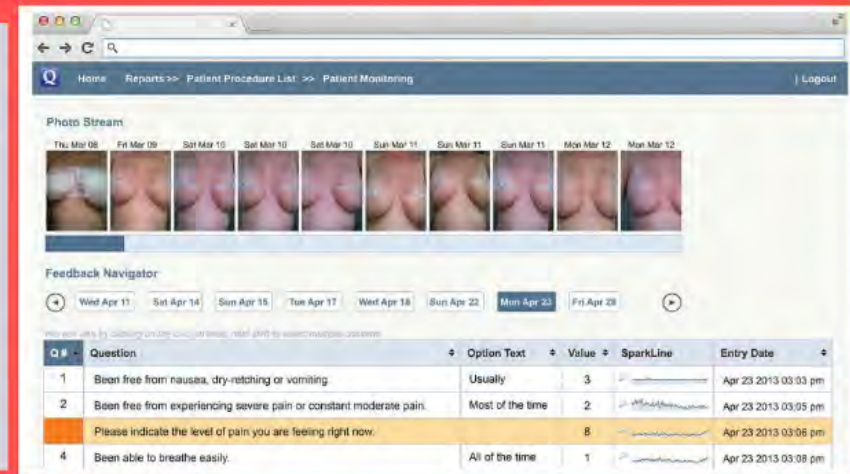
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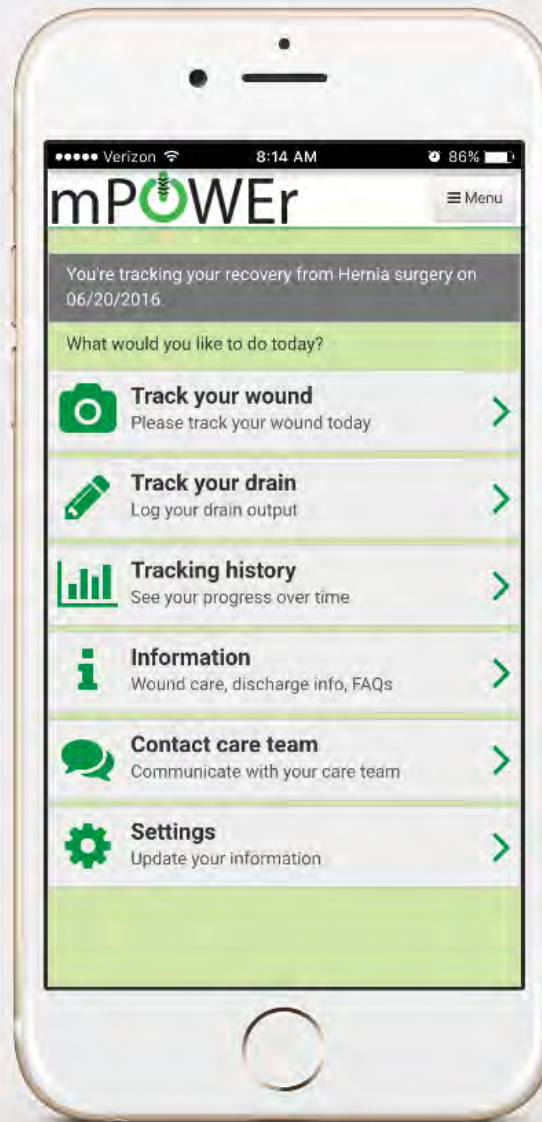
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What contributed to sustainability failure?

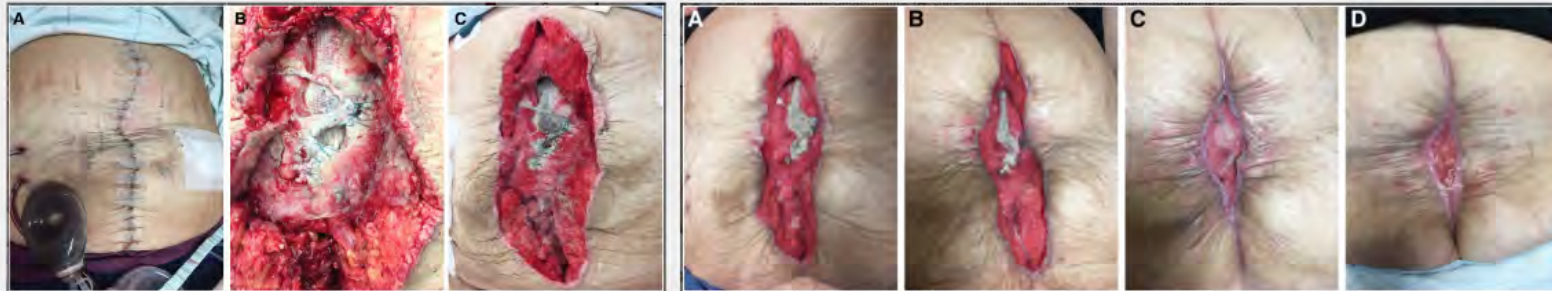
- Intend: reduce communication burden on providers, don't change workflow
Reality: lack of preparation for understanding of impact on provider workflow
- Intend: provide just-in-time education for patients at pre-op visit
Reality: patients overloaded with clinical education, no time for app teaching
- Intend: replace telephone calls with patient generated health data exchange
Reality: patients wanted acknowledgment of data review, closed loop communication



mPOWER

Use of the Mobile Post-Operative Wound Evaluator in the Management of Deep Surgical Site Infection after Abdominal Wall Reconstruction

Ravi F. Sood,¹ Andrew S. Wright,¹ Heidi Nilsen, JoAnne D. Whitney,²
William B. Lober,²⁻⁴ and Heather L. Evans¹



- active surveillance after hospital discharge, rapid identification of SSI
- remote evaluation of wound healing during antimicrobial treatment
- reassurance to patient and avoidance of return visits



Implementation of an mHealth Post-operative Wound Monitoring Program



Shah-Jahan Dodwad MS⁴, Ben Hart MS⁴, Ross J. Lordon MS, Cassie Anderson CST, Brian Do BS, Julie Cooper MPA, Connie Miksch LPN, JoAnne D. Whitney PhD RN, William B. Lober MD MS, Heather L. Evans MD MS, and Paul Szotek MD

Introduction

Methods

Results

Conclusions

References

	CRS	NWH	IHC	P value
Number of Sessions [total (mean \pm SD)]	244 (11.62 \pm 17.38)	79 (4.16 \pm 2.91)	329 (11.34 \pm 9.50)	NS
Number of Photos [total (mean \pm SD)]	406 (19.33 \pm 33.71)	128 (6.74 \pm 5.01)	421 (14.52 \pm 13.28)	NS
Photos per Session (mean \pm SD)	1.48 \pm 1.78	1.92 \pm 1.26	1.38 \pm 0.79	NS
Duration of Use (mean days \pm SD)	32.6 \pm 19.5	28.5 \pm 25.9	24.7 \pm 19.5	NS

- Of 104 patients registered across 3 clinics, **70 (67.3%)** used mPOWER [CRS=21 (39.6%), NWH=20 (100%), IHC=29 (93.5%)].
- Users submitted an average of 1.56 ± 1.29 images per session
- Mean duration of mPOWER use was 28.13 ± 22.75 days after hospital discharge

What contributed to sustainability failure?

Intent: reduce communication burden on providers, don't change workflow

Reality: lack of preparation for/understanding of impact on provider workflow

Intent: provide just-in-time education for patients at pre-op visit

Reality: patients overloaded with clinical education, no time for app teaching

Intent: replace telephone calls with patient generated health data exchange

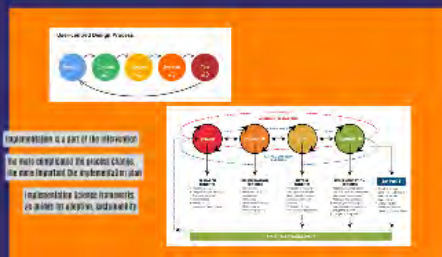
Reality: patients wanted acknowledgement of data review, closed loop communication

Can we overcome the challenges of implementation?

EMR integration helps



Security
Usability
Scalability



Who is going to manage the process change?

Operationalizing mHealth to improve patient care: a qualitative implementation science evaluation of the mHealth testing intervention in Canada and Kenya

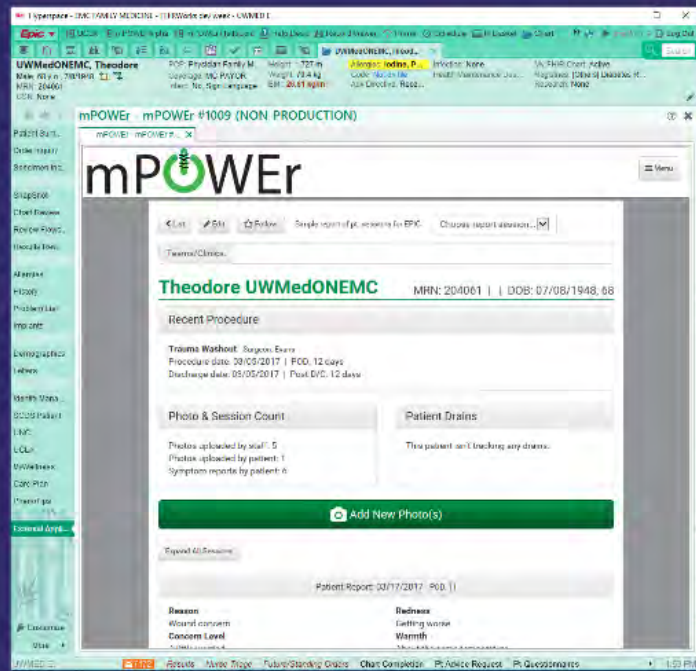
moving from mHealth pilots to scale is a difficult, context-specific process

"I am a clinician, I have 30% time for research, I simply don't have the time to chase up the heads of hospitals to negotiate scale-up."

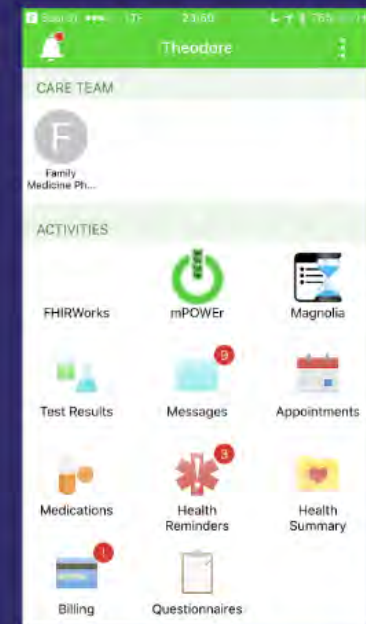
Implementing mHealth in low-income countries

Research in context: mHealth in low-income countries

EMR integration helps



Security
Usability
Scability



Who is going to manage the process change?

RESEARCH

Open Access

Operationalizing mHealth to improve patient care: a qualitative implementation science evaluation of the WelTel texting intervention in Canada and Kenya

Kevin Louis Bardosh^{1*}, Melanie Murray^{2,3,4}, Antony M. Khaemba⁵, Kirsten Smillie² and Richard Lester²



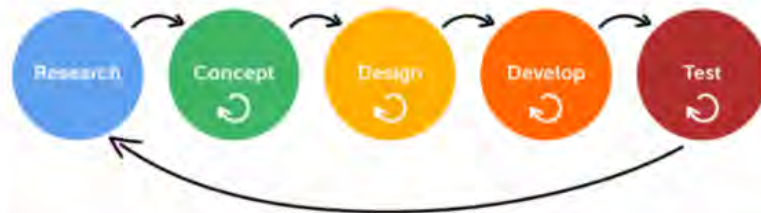
moving from mHealth pilots to scale is a difficult, context-specific process

“I am a clinician, I have 30% time for research. I simply don’t have the time to chase up the heads of hospitals [to negotiate scale-up].”

Developing an mHealth modification of CFIR

Bardosh et al. *Globalization and Health* (2017) 13:87
DOI 10.1186/s12992-017-0311-z

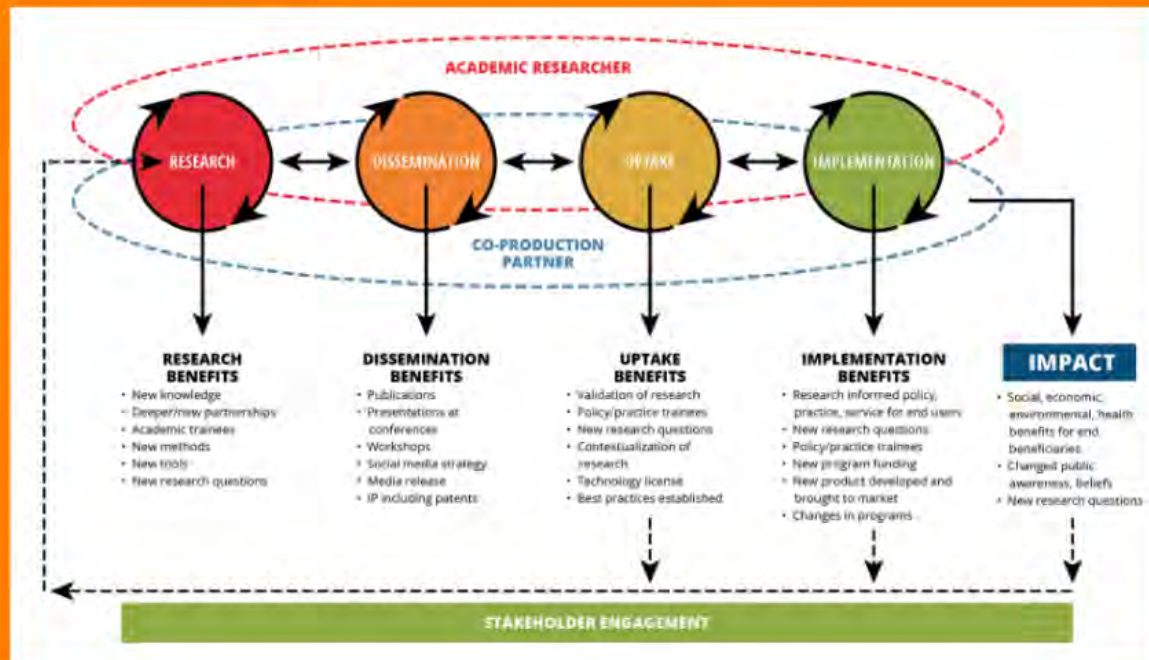
User-centred Design Process



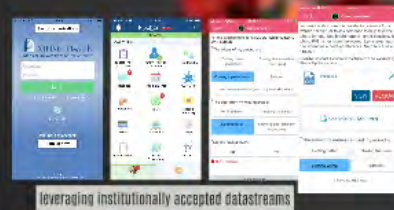
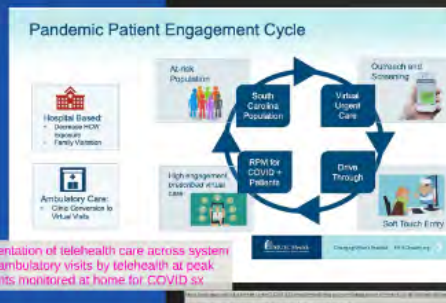
Implementation is a part of the intervention

The more complicated the process change,
the more important the implementation plan

Implementation Science frameworks
as guides for adoption, sustainability



A reason to activate



What did the patients think?

Helpful: "...that there is somebody there."
"Test having to make a trip to a doctor to get it checked"

Improved wound care education

Survey prompts kept me aware of what to look for

Suggest "maybe knocking an email that the photos we were more required"

What did the clinicians think?

Did not significantly affect workflow

Indicating patients about MyChart was a little cumbersome

Communication workflow was sometimes difficult

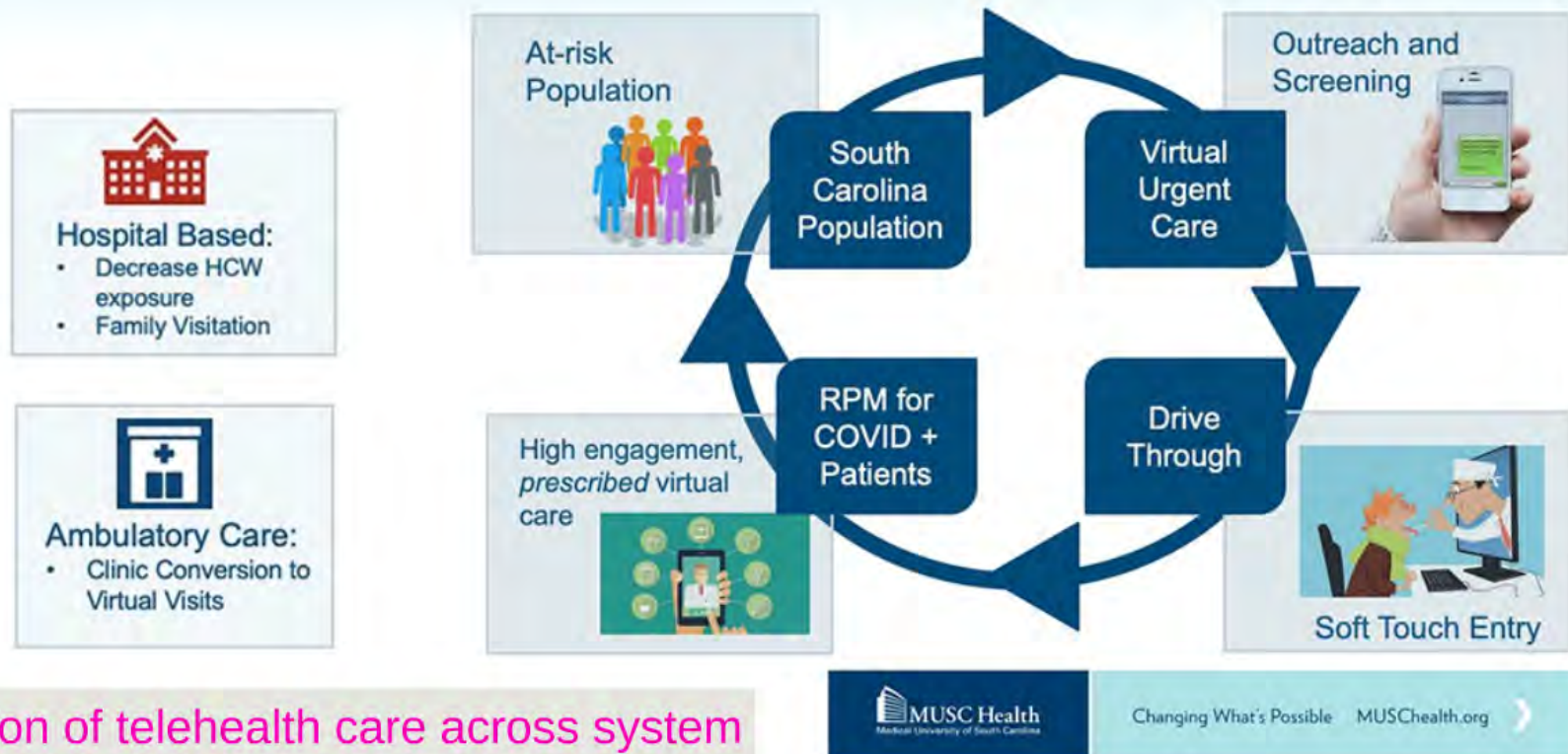
Seemed like double work, patients still contacted for directly clinic needs

Wish it's allowed patients to be more empowered in their care (John, PM)

Lessons learned: Innovation to Implementation

- Focus on an unmet need, gap in usual care
- Build on what already works, use what you have
- Move when and where change is acceptable
- Iterative development never ends

Pandemic Patient Engagement Cycle



Rapid implementation of telehealth care across system

- 70% of all ambulatory visits by telehealth at peak
- >900 patients monitored at home for COVID sx

<https://web.musc.edu/about/news-center/2020/10/20/remote-monitoring-program-brings-peace-of-mind-to-covid-patients-at-home>

<https://web.musc.edu/about/news-center/2020/09/10/telehealth-covid19-response>

TELEHEALTH NURSE

PATIENT

PHYSICIAN

Post-operative remote wound triage at scale



Switch organizations

MUSC Health
Medical University of South Carolina

Username
Password

Log in

Forgot Password or Username?

Use Touch ID

Don't have an account?
Sign up now

MyChart® Epic Systems Corporation, © 1992 - 2021

MyChart powered by Epic

Heather

ACTIVITIES

Request Proxy for a Minor 1 Grant Proxy to an Adult Test Results

Messages 1 Appointments COVID-19

Medications To Do 3 Health Summary

Billing Estimates Letters

Questionnaires Share Everywhere E-Visit

Me 4 Miles

Back Questionnaires

For the questionnaire series **MUSC RSCH HM SURG QNR SERIES**

*The edges of my wound are

Getting more separated Staying the same distance apart

Coming together more Unsure

I have no separated edges on my wound surface

*The odor from my wound area is

Getting better Staying the same

Getting worse I have no odor from my wound area

*Do you have a fever?

Yes No

1 This is required

CONTINUE

Back Questionnaires

You may wish to use the rear-facing camera for a wound "selfie", or to ask someone to help take the photo for you. Use bright natural light if possible. Take photo 6-8 inches from the wound. Lay a ruler next to the wound as a point of reference. No ruler? Use a finger.

Please upload a current picture of the wound. ⓘ
Please flip the camera.

image.jpg

VIEW REMOVE

ADD ANOTHER DOCUMENT

*The amount of redness around my wound is:

Getting better Staying the same

Getting worse Unsure

I have no redness

leveraging institutionally accepted datastreams

What did the patients think?

Helpful: "...that there is somebody there."
"not having to make a trip to a doctor
to get it checked"

Improved wound care education

Survey prompts kept me aware of what to
look for

Suggest "maybe receiving an email that the
photos we sent were received."

What did the clinicians think?

Did not significantly affect workflow

Educating patients about MyChart was a
little cumbersome

Communication workflow was sometimes
difficult

Seemed like double work, patients still
contacted us directly (clinic nurse)

I think it's allowed patients to be more
empowered in their care (clinic PA)

Lessons learned: innovation to implementation

Focus on an unmet need, gap in usual care

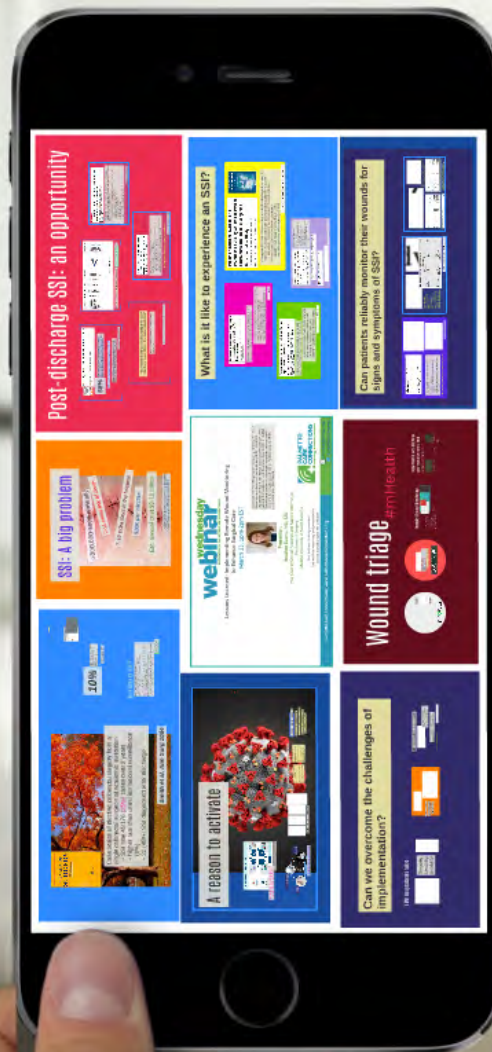
Build on what already works, use what you have

Move when and where change is acceptable

Iterative development never ends

Lessons Learned: Implementing Remote Wound Monitoring to Enhance Surgical Care

Webinar Wednesday
March 23, 2022



Heather L. Evans, MD, MS
Vice Chair of Clinical Research &
Applied Informatics
Department of Surgery
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