



Disseminating Surgical Science: Leveraging the #VisualAbstract

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House Officer, General Surgery, University of Michigan
Creative Director, Annals of Surgery

October 21st, 2017 | AAS Fall Courses | San Diego, California

Disclosures

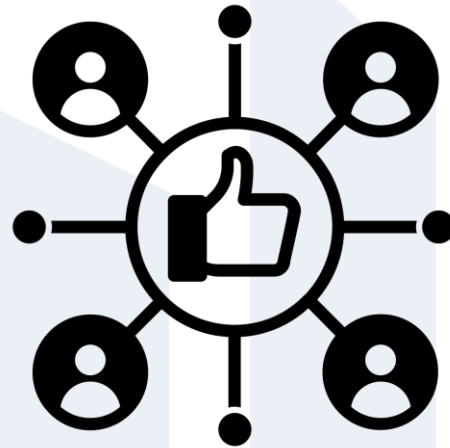
- No relevant financial disclosures



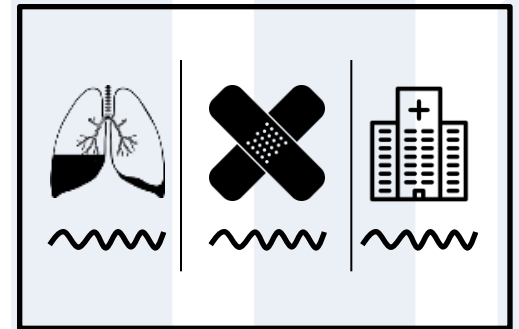
Game Plan



Backstory



Impact



Leverage

London Trauma...



London Trauma...



ORIGINAL ARTICLE

The Impact of a Pan-regional Inclusive Trauma System on Quality of Care

Elaine Cole, PhD,* Fiona Lecky, MBBS,† Anita West, RN,‡ Neil Smith, PhD,§
Karim Brohi, FRCS,* Ross Davenport; PhD*; on behalf of the ELoTS Study Collaborators

Accession Number: 00000658-201607000-00029.

Author: Cole, Elaine PhD; Lecky, Fiona MBBS; West, Anita RN; Smith, Neil PhD; Brohi, Karim FRCS; Davenport, Ross PhD; on behalf of the ELoTS Study Collaborators

Institution: (*)Centre for Trauma Sciences, Blizard Institute, Queen Mary University of London, London, UK
(*)Emergency Medicine Research, University of Sheffield, London, UK
(**)Barts Health NHS Trust, Royal London Hospital, London, UK
(§)NCEPOD (National Confidential Enquiry into Patient Outcome and Death), London, UK.

Title: The Impact of a Pan-regional Inclusive Trauma System on Quality of Care [Article]

Source: Annals of Surgery, 264(1):188-194, July 2016.

Abstract: Objectives: To evaluate the impact of the implementation of an inclusive pan-regional trauma system on quality of care.

Background: Inclusive trauma systems ensure access to quality injury care for a designated population. The 2007 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) found quality deficits for 60% of severely injured patients. In 2010, London implemented an inclusive trauma system. This represented an opportunity to evaluate the impact of a pan-regional trauma system on quality of care.

Methods: Evaluation of the London Trauma System (ELoTS) utilized the NCEPOD study core methodology. Severely injured patients were identified prospectively over a 3-month period. Data were collected from prehospital care to 72 h following admission or death. Quality, processes of care, and outcome were assessed by expert review using NCEPOD criteria.

Results: Three hundred and twenty one severely injured patients were included of which 84% were taken directly to a major trauma center, in contrast to 16% in NCEPOD. Overall quality improved with the proportion of patients receiving "good overall care" increasing significantly [NCEPOD: 48% vs ALL-ELoTS: 69%, RR 1.3 (1.2 to 1.4), $P < 0.01$], primarily through improvements in organizational processes rather than clinical care. Improved quality was associated with increased early survival, with the greatest benefit for critically injured patients [NCEPOD: 31% vs ALL-ELoTS 11%, RR 0.37 (0.33 to 0.99), $P = 0.04$].

Conclusions: Inclusive trauma systems deliver quality and process improvements, primarily through organizational change. Most improvements were seen in major trauma centers; however, systems implementation did not automatically lead to a reduction in clinical deficits in care.

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DOI Number: 10.1097/SLA.0000000000001393



Text Abstract Dissemination....

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2k IMPRESSIONS

8 RETWEETS

81 ARTICLE VISITS

Birth of the Visual Abstract...

London Trauma after establishing an inclusive, coordinated trauma system

Access to Trauma
Specialist on First Arrival



16% ➡ 84%

Involvement of senior
clinicians <30 min



38% ➡ 92%

Improved Survival in
critically ill (ISS>35)



69% ➡ 89%

Cole et al. *Ann Surg.* July 2016.

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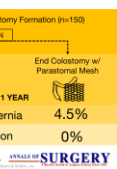
35k IMPRESSIONS  x17.5

169 RETWEETS  x21.2

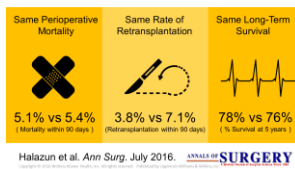
251 ARTICLE VISITS  x3.1

More Stories to Tell....

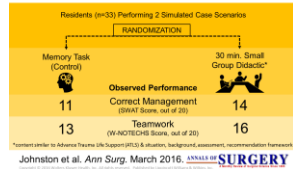
Plastic Mesh to
Hernia



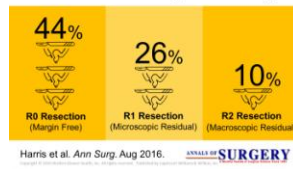
Recipient Outcomes of Right Vs. Left Liver Lobes in Adult Living Donor Transplantation



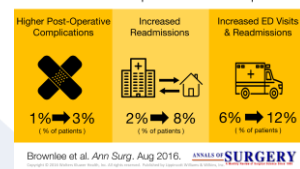
RCT: Structured Educational Intervention for Surgical Residents to Improve Escalation of Care



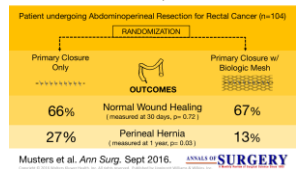
Surgery for Recurrent Rectal Cancer: 5-Year Survival Rates by Resection Type



Impact of Hospitalization in Previous 90 days on Elective Outpatient Hernia Repair



RCT: Primary Closure With & Without Biologic Mesh after Abdominoperineal Resection



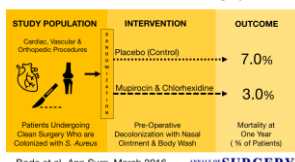
Factors that Challenge



Small Bowel
Surgical Team Had...



RCT: Decolonization of *Staphylococcus Aureus* Carriers Prior to Clean Surgery



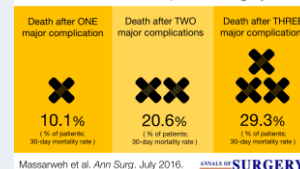
RCT: Intraperitoneal Local Anesthetic for Laparoscopic Appendectomy in Children



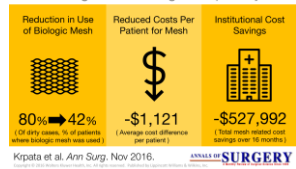
RCT: Oral & IV Antibiotics to Prevent SSI after Elective Colorectal Surgery



Impact of Multiple Complications on Failure to Rescue after Inpatient Surgery



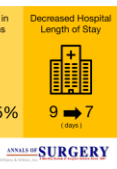
Impact of Implementing a Disease-Based Hernia Program on a Single Hospital System



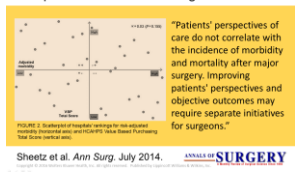
Comparison of Intervention



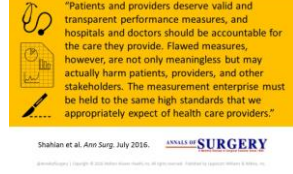
Training Program for Pancreatectomy



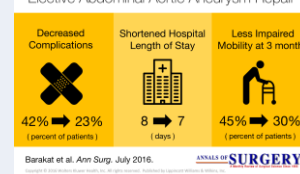
No Correlation Between Patients' Perspectives of Care & Surgical Outcomes



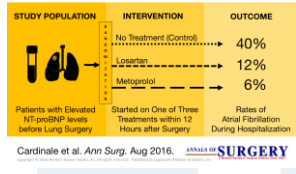
Impact of treating Iron Deficiency Anemia Before Major Abdominal Surgery



RCT: Impact of Supervised Exercise before Elective Abdominal Aortic Aneurysm Repair



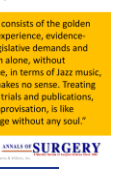
Reducing the Rate of Atrial Fibrillation after Lung Surgery: the PRESAGE Trial



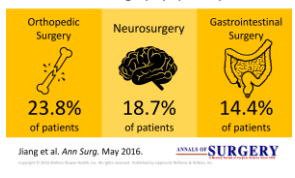
RCT: Tere



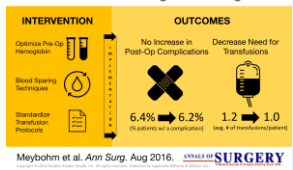
Improvisation, experience.



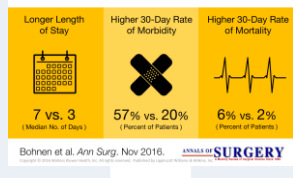
Chronic Use (>3 months) of Opioids after Surgery by Specialty



Impact of Implementing a Perioperative Patient Blood Management Program



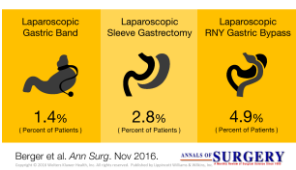
Propensity Matched Retrospective Review: Intraoperative Adverse Events Associated with...



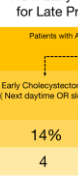
Five Domains of Intraoperative Performance



Retrospective Review: 30-Day Readmissions After Bariatric Surgery by Procedure



RCT: Early



More Stories to Tell....

RCT: Early Vs. Delayed Cholecystectomy for Late Presenting Acute Cholecystitis

Patients with Acute Cholecystitis Symptoms >72 hours (n=86)

RANDOMIZATION

Early Cholecystectomy
(Next daytime OR slot)

Delayed Cholecystectomy
(> 6 weeks later)

Post-Operative Outcomes

14%

Morbidity
(% of patients, $p = 0.015$)

39%

4

Length of Stay
(days, $p < 0.001$)

7

Roulin et al. *Ann Surg.* July 2016.

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More Stories to Tell....

Most Opioids Prescribed for Outpatient General Surgery Procedures Go Unused



Hill et al. *Ann Surg.* Sept 2016.

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More Stories to Tell....

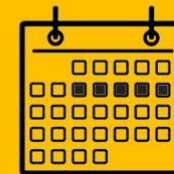
Opportunities for Surgeons to Improve Antibiotic Stewardship



Limit Perioperative
Antibiotics to the OR



Discontinue Use of
Topical Antibiotics



Fixed Antibiotic Duration
after Source Control



Discontinue
Antibiotics after
Appropriate I&D



Limit Antibiotics for
Uncomplicated
Diverticulitis



Limit Treatment of
Asymptomatic
Bacteriuria



Limit Treatment for
Asymptomatic
Clostridium Difficile

Leeds et al. *Ann Surg.* Feb 2017.

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More Stories to Tell....

Characteristics of Effective Mentorship for Academic Surgeons: A Grounded Theory Model

Multiple Mentors



Unselfish Mentors



Strategic Advisor



Diverse Mentees



Diverse Sample:



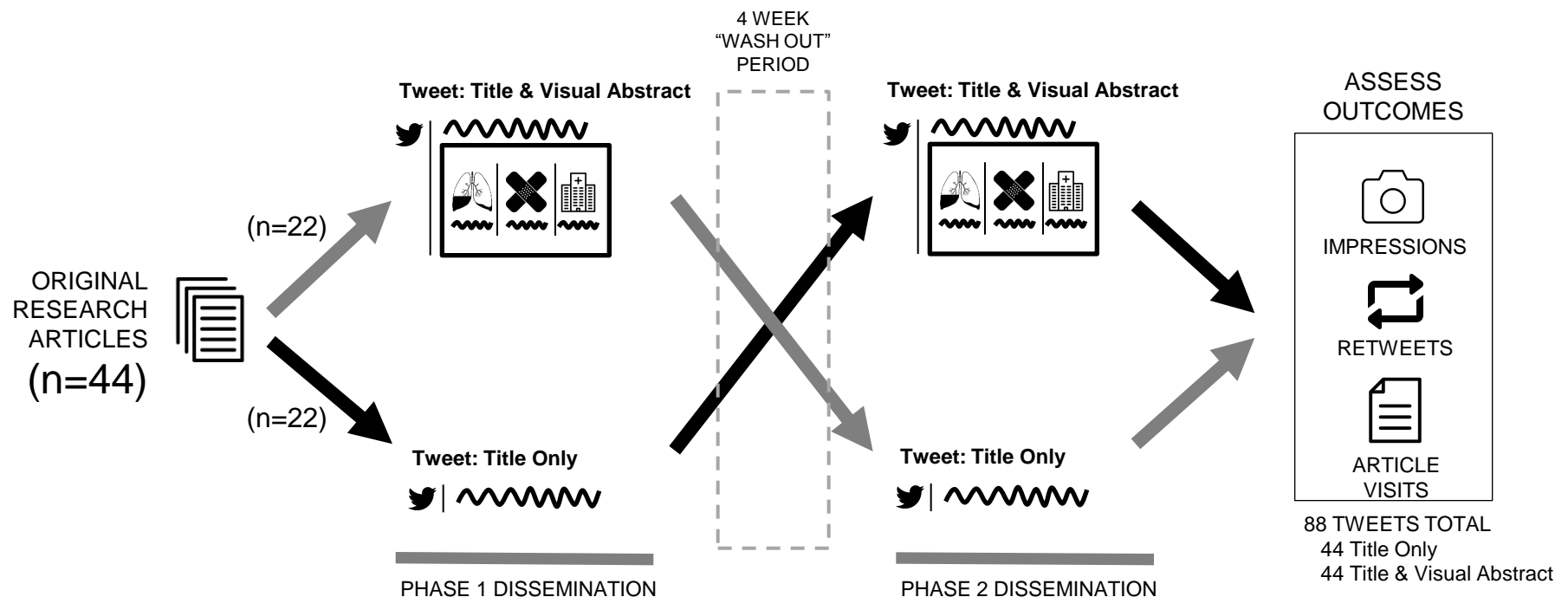
Cochran et al. *Ann Surg.* Oct 2017.

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More than a Pretty Picture...

Prospective, Matched-Crossover Study to Evaluate the Impact of Visual Abstracts



Impact of Visual Abstracts on Article Dissemination

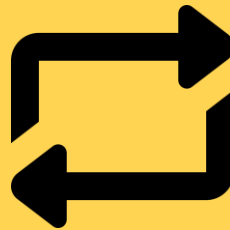
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x8.4 fold



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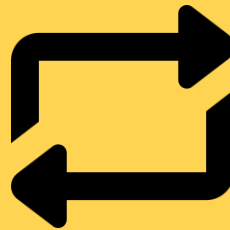
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Une excellente utilisation des média sociaux en #médecine qui favorise la
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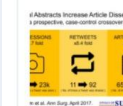


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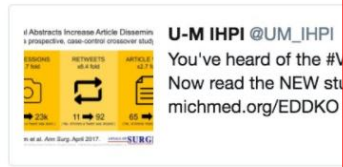
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IN 10 MINUTES**

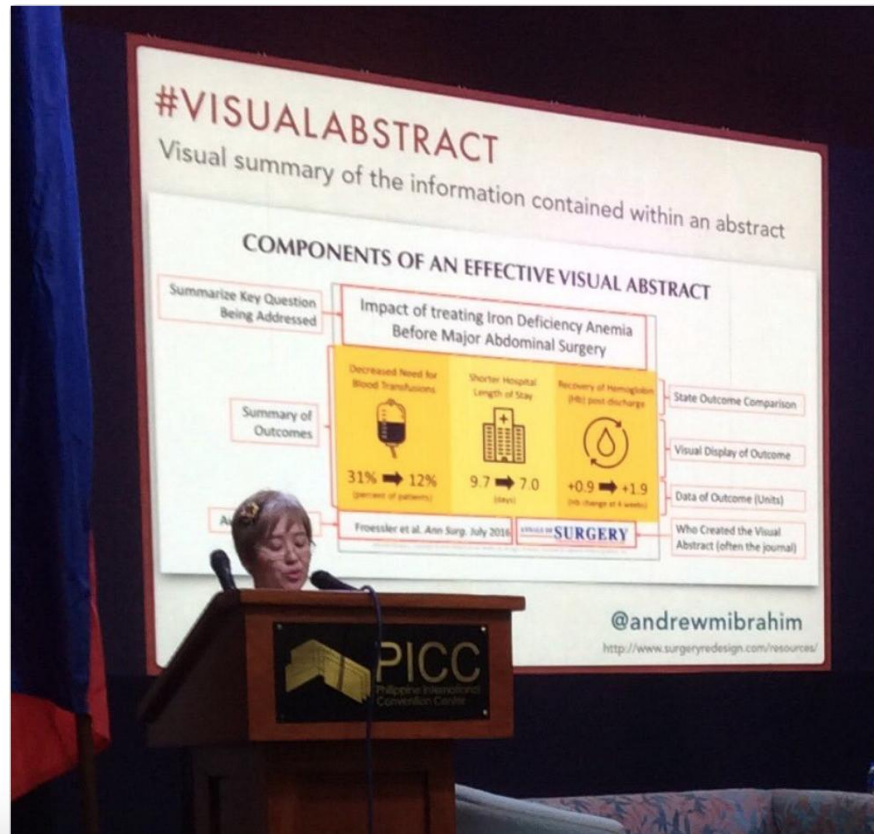
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At #PNHRS2017: @endocrine_witch stresses the research dissemination power of the #VisualAbstract #healthxph

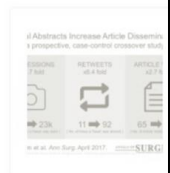


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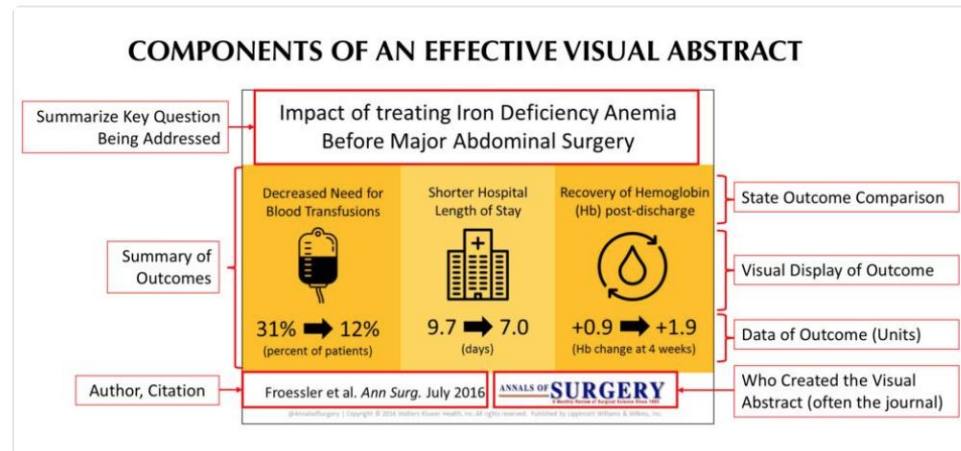
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3



130




150



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PREVENT-Trial: Prophylactic Mesh to Prevent Parastomal Hernia



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RCT: Prophylactic Mesh to Prevent Parastomal Hernia
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Our debut offering overviews 25 U.S. News methodologies thru Donabedian's eyes.

 **HOW U.S. NEWS RANKS HOSPITALS**

16 Specialty Rankings
Top 50 hospitals in each specialty are ranked

Specialty	Ranking Measures
Cancer	Outcomes, Structure, Transparency, Expert Opinion
Gynecology	Outcomes, Structure, Transparency, Expert Opinion
Pulmonology	Outcomes, Structure, Transparency, Expert Opinion
Cardiology & Heart Surgery	Outcomes, Structure, Transparency, Expert Opinion
Nephrology	Outcomes, Structure, Transparency, Expert Opinion
Rehabilitation	Outcomes, Structure, Transparency, Expert Opinion
Diabetes & Endocrinology	Outcomes, Structure, Transparency, Expert Opinion
Neurology & Neurosurgery	Outcomes, Structure, Transparency, Expert Opinion
Rheumatology	Outcomes, Structure, Transparency, Expert Opinion
Ear, Nose & Throat	Outcomes, Structure, Transparency, Expert Opinion
Ophthalmology	Outcomes, Structure, Transparency, Expert Opinion
Urology	Outcomes, Structure, Transparency, Expert Opinion
Gastroenterology & GI Surgery	Outcomes, Structure, Transparency, Expert Opinion
Orthopedics	Outcomes, Structure, Transparency, Expert Opinion
Geriatrics	Outcomes, Structure, Transparency, Expert Opinion
Psychiatry	Outcomes, Structure, Transparency, Expert Opinion

9 Procedures & Conditions Ratings
Top hospitals are recognized as High Performing

Procedure/Condition	Rating Measures
Abdominal Aortic Aneurysm Repair	Outcomes, Structure, Process
Hip Replacement	Outcomes, Structure, Process
Aortic Valve Surgery	Outcomes, Structure, Process
Knee Replacement	Outcomes, Structure, Process
Colon Cancer Surgery	Outcomes, Structure, Process
Lung Cancer Surgery	Outcomes, Structure, Process
Chronic Obstructive Pulmonary Disease (COPD)	Outcomes, Structure, Process
Heart Bypass Surgery	Outcomes, Structure, Process
Heart Failure	Outcomes, Structure, Process

BEST HOSPITALS
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12:38 AM - 8 Aug 2017

Now >30 Journals & Institutions...



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Leveraging the #VisualAbstract ...

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Toward Patient-Centered Hospital Design: What Can Airports Teach Us?

Elements of Airport Process Design that Could be Adopted by Hospitals



Online Check-In



Self Check-In Kiosks



Fast-Track Entry
for Frequent Users



User-Friendly
Wayfinding Signage



Mobile Phone
Time Updates

Mullangi S, Ibrahim AM, Chopra V.
Annals of Internal Medicine. May 2017



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Online Check-In



Self Check-In Kiosks



Fast-Track Entry
for Frequent Users



User-Friendly
Wayfinding Signage



Mobile Phone
Time Updates

Mullangi S, Ibrahim AM, Chopra V.
Annals Intern Med. May 2017

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#surgtweeting #SurgEd



6:26 AM - 11 Oct 2017



robert furberg
@medicfurby

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EPID 802, Clinical Research Skills
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11:56 AM - 3 Oct 2017 from McGavran-Greenberg Hall

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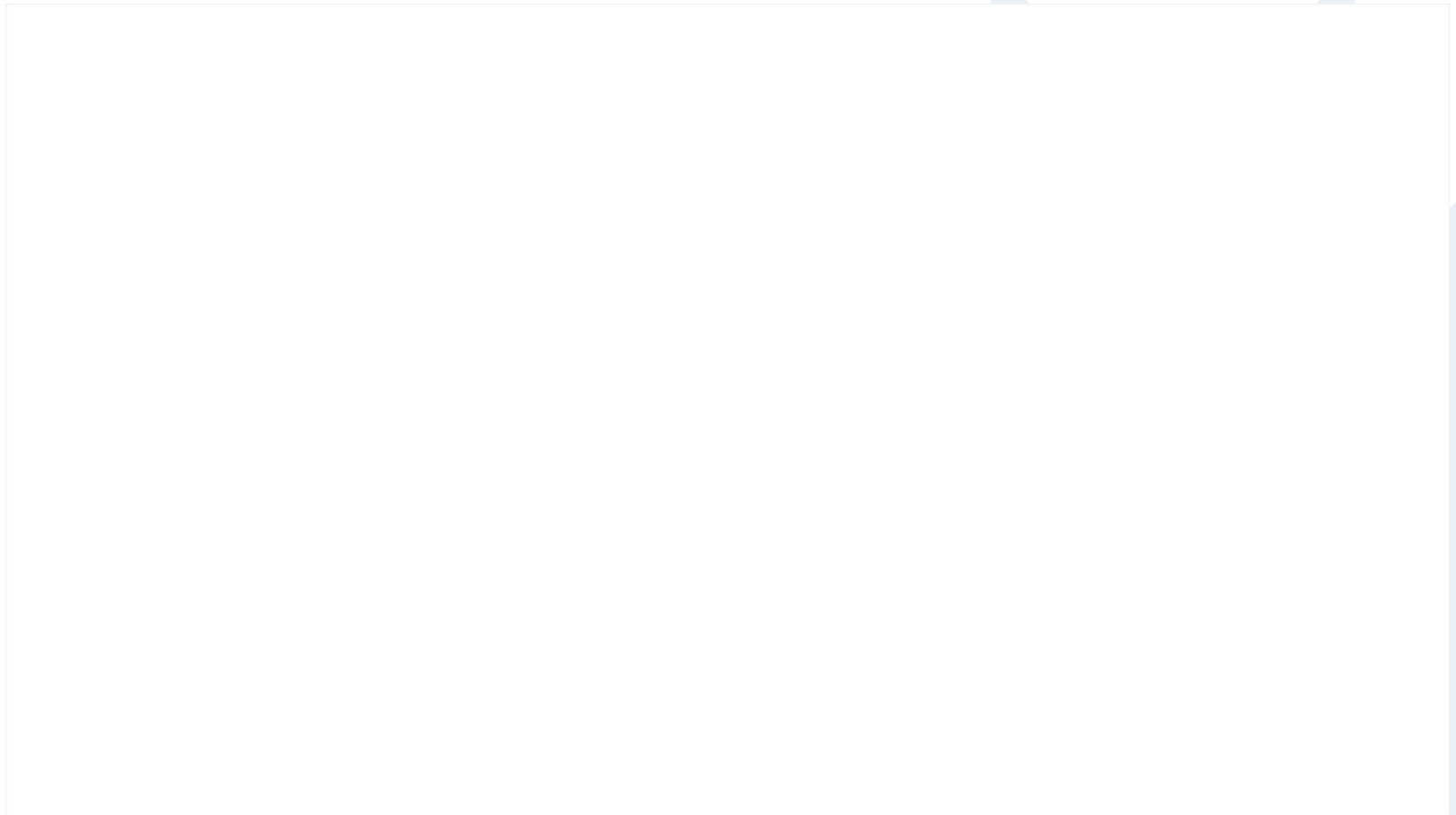
Leveraging the #VisualAbstract ...

3. Help Yourself Help You...



DHW Lab, Auckland City Hospital (Auckland, New Zealand)

Wait... How Do I Make One?



Wait... How Do I Make One?

A Primer on How to Create a **VISUAL ABSTRACT**

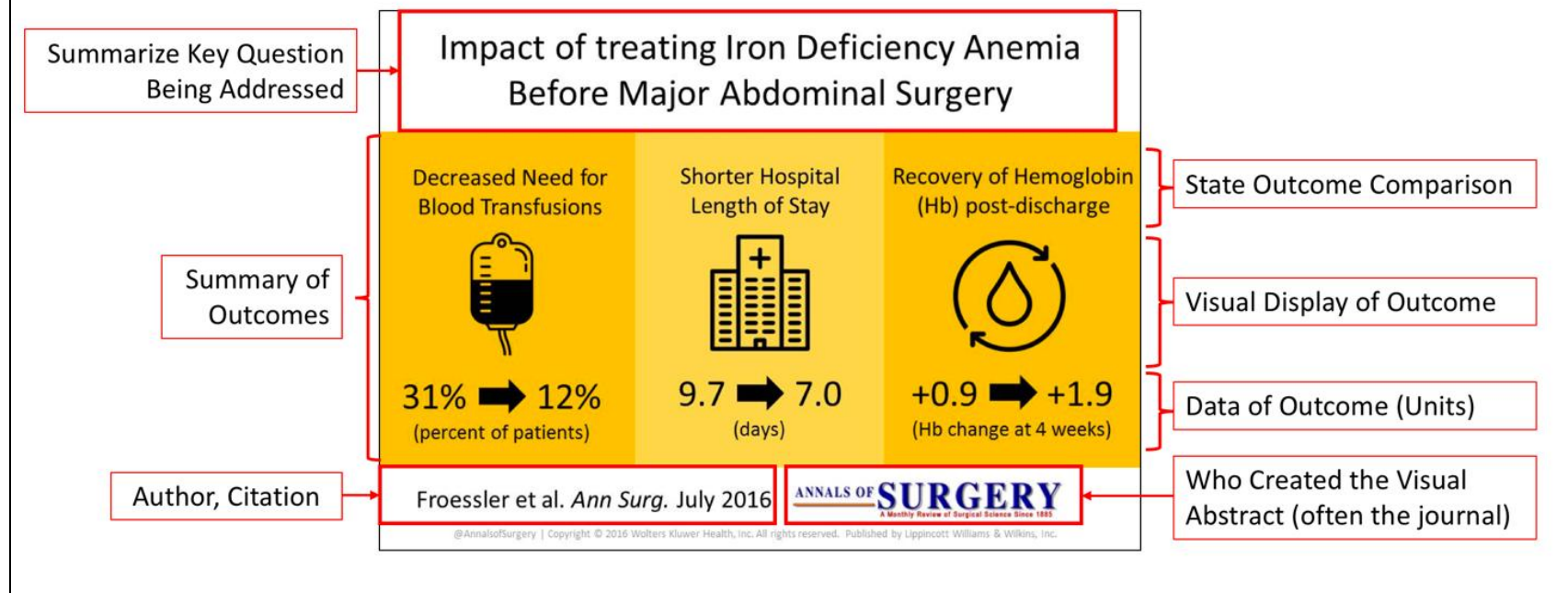
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COMPONENTS OF AN EFFECTIVE VISUAL ABSTRACT



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EMBRACING SOME DESIGN PRINCIPLES

An effective visual abstract has a clear message. You will want to embrace some principles of design when creating your visual abstract. These include:



Focus on the user experience. The process of design starts and always returns to the user experience. Always keep in mind, *"What does my audience on Twitter want to know about scientific research?"*



Clarity of Purpose. Particularly within complex articles, you want to spend time narrowing the key message down to what you want to deliver. *Some* simplification of presentation may be necessary to establish a clear focus.



Rapid Prototyping. There are infinite ways to visually display research. Your 1st, 2nd or 10th visual abstract won't be your best one. You will improve significantly by rapidly trying new formats and seeing what works!



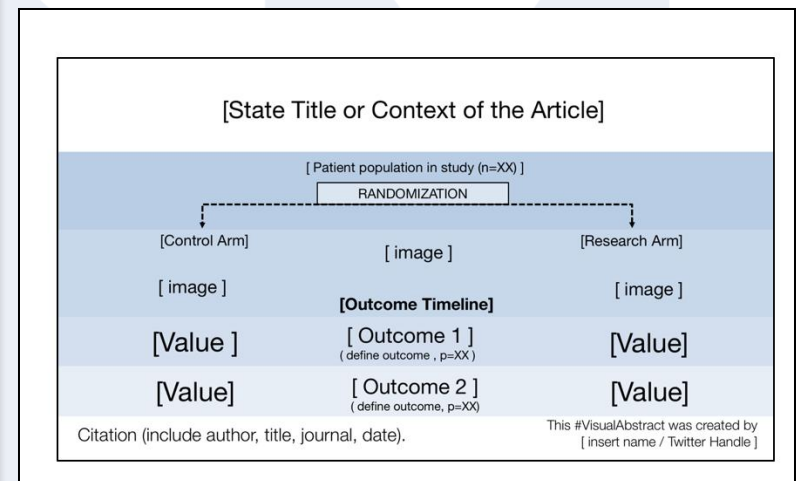
Iterative Improvement. Rather than ask, "Is it perfect?" design thinking focuses on, "What is the next step to make it partially better?" You will significantly improve by soliciting feedback and studying other designs.



Thoughtful Restraint. Prioritize the key message over completeness. Sure, having every secondary endpoint and every limitation of the article in the visual abstract is ideal to give context, but this can significantly distract from the key message. In the case of visual abstracts, more is not always better.



Relevant Creativity. Thinking outside the box can be valuable, but ultimately needs to be grounded in the desired outcome. Experimenting "just to be different" isn't always effective. You should frequently balance your design creativity with *thoughtful restraint and clarity of purpose.*



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THANK YOU



Questions?

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