

What is meant by 'good wound closure?'

Development and pre-testing of a tool for assessing the quality of wound closure after surgery

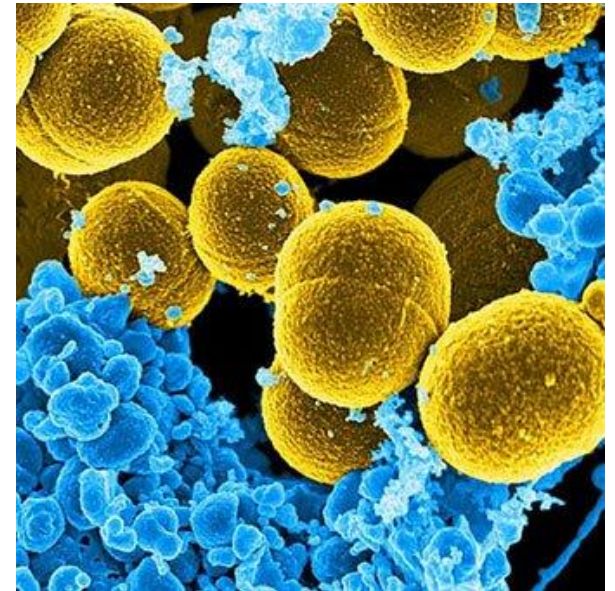
Beth Birkbeck

INSPIRE Studentship 2018: Centre for Surgical Research, UoB.

Supervisors: R. Macefield & J. Blazeby

Surgical Site Infections (SSIs) are a common complication post-surgery

- Poor wound healing
- Prolonged hospital stay
- Increased healthcare costs
- Impact on patient wellbeing

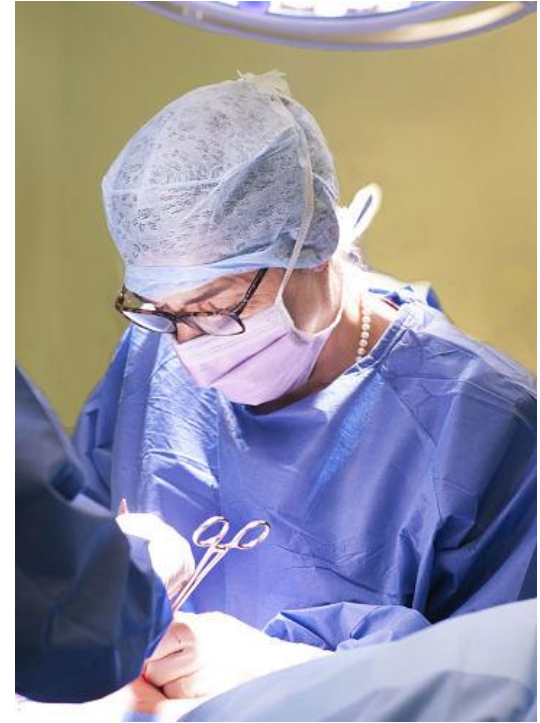
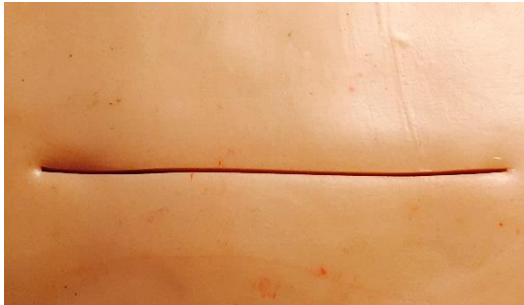


How do we reduce SSI incidence?

- Interventions before, during and after surgery
- Quality of wound closure itself?



Wound closure after surgery



**Patients undergoing
gastrointestinal surgery or
Caesarean section**

Simple dressing



Glue as-a-dressing



'No' dressing



Wound Closure Quality Assessment Tool: Initial mixed-methods study

- What *is* good quality wound closure?
- What *influences* good quality wound closure?

Wound Closure Quality Assessment Tool: Initial mixed-methods study

Literature

Interviews

Observations



Long list of potential
factors

Wound Closure Quality Assessment Tool: Initial mixed-methods study

‘Long list’ of 38 potential factors

Metrics (visible)

- Approximation/Gaping
- Horizontal alignment
- Vertical alignment/Step-offs & Overlap
- Puckering
- Curling
- Eversion of edges
- Devitalised tissue
- Tension
- Use of steri-strips
- No visible suture material
- Bleeding/oozing

Mediators (influential)

- Incision
- Bite size
- Expertise
- Type of surgery
- Patient factors
- Deep dermal layer
- Previous scar(s)
- Size of each individual stitch
- Length of wound
- Time taken to close wound
- Co-interventions
- Presence of an observer

Wound Closure Quality Assessment Tool: Initial mixed-methods study

Feasibility of taking / using photos:

- Method to assess wound closure
- Practical challenges (minor)
- Concerns of limitations
 - additional mediators collected?



Wound Closure Quality Assessment Tool: INSPIRE project methods

- I. Operationalise list of metrics into items
- II. Pre-testing via cognitive-interviews
- III. Collate and label a bank of photographs



Wound Closure Quality Assessment Tool: INSPIRE project methods & results

I. Operationalise list of metrics into items:

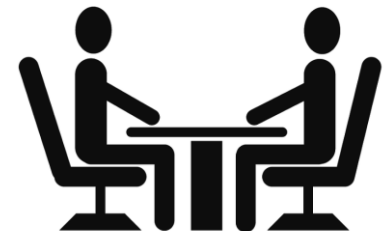
- Metrics 'not visually-assessable' from photographs were excluded
- Items in plain language with medical terminology in brackets
- 13 metrics → 8 items



Wound Closure Quality Assessment Tool: INSPIRE project methods

II. Pre-testing via cognitive-interviews:

- 8 surgeons from the Centre for Surgical Research
- ‘Think aloud’ technique
- Topic guide
- Iterative tool revisions
- Summarised in memos



Wound Closure Quality Assessment Tool: INSPIRE project methods

III. Wound photograph bank:

- Anonymised wound photographs collated and categorised with unique identifiers.





Your initials _____

Today's date

___/___/_____
d d m m y y y y

Wound Closure Quality Assessment

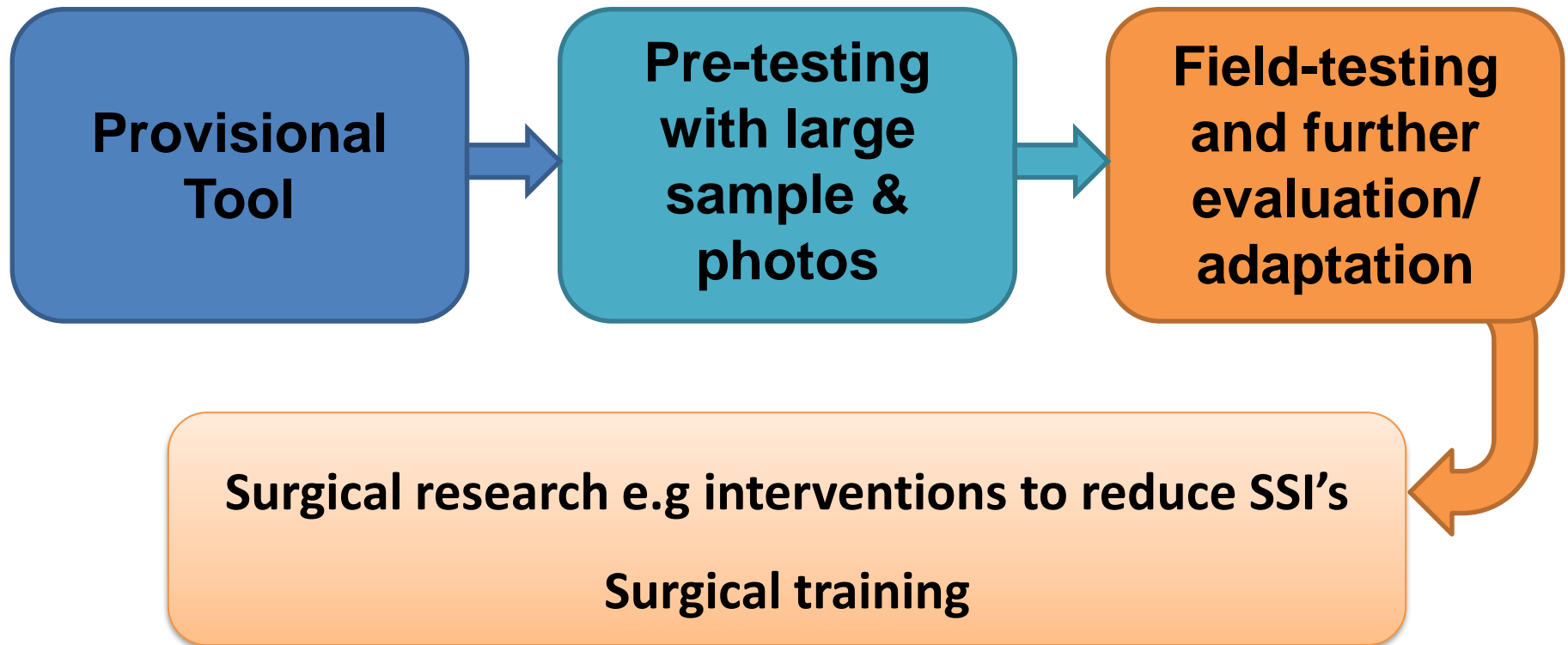
Abdominal Surgery (subcuticular sutures)

	Agree	Slightly Agree	Slightly Disagree	Disagree
1. The wound edges are touching with no gaps and no visible tissue underneath (<i>well-approximated</i>).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The wound edges are level without overlap or a step (<i>vertical alignment</i>).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The wound edges are accurately realigned e.g no bulges of skin at the ends of the wound (<i>dog-ears</i>) and pre-existing skin features such as stretch marks or tattoos match up (<i>horizontal alignment</i>).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The wound edges sink inward (<i>inverted</i>).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- Provisional tool tested for content and face validity
- Saturation point reached
- Three final interviews tested with wound photos
- Small sample, single centre (next stage multicentre)
- Tool designed for abdominal surgery closed with sub-cuticular sutures
- Difficult to assess tension

Future Steps



INSPIRE Placement 2018



Acknowledgments

Rhiannon Macefield

Natalie Blencowe

Leila Rooshenas

Jane Blazeby



Questions?

Beth Birkbeck

eb17383@bristol.ac.uk