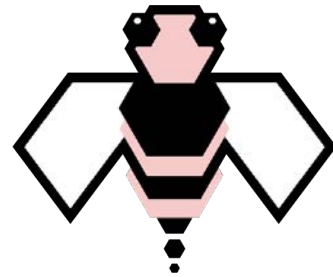


TWIST

Tracking Wound Infection with Smartphone Technology

A circular graphic composed of several concentric, overlapping curved lines, resembling a stylized flame or a swirling motion.

Surgical
Informatics
@University of Edinburgh

Ewen Harrison (Principal investigator + Group lead), Katie Mountain,
Riinu Ots, Catherine Shaw, Thomas Drake, Kenneth McLean, et al.

Aims

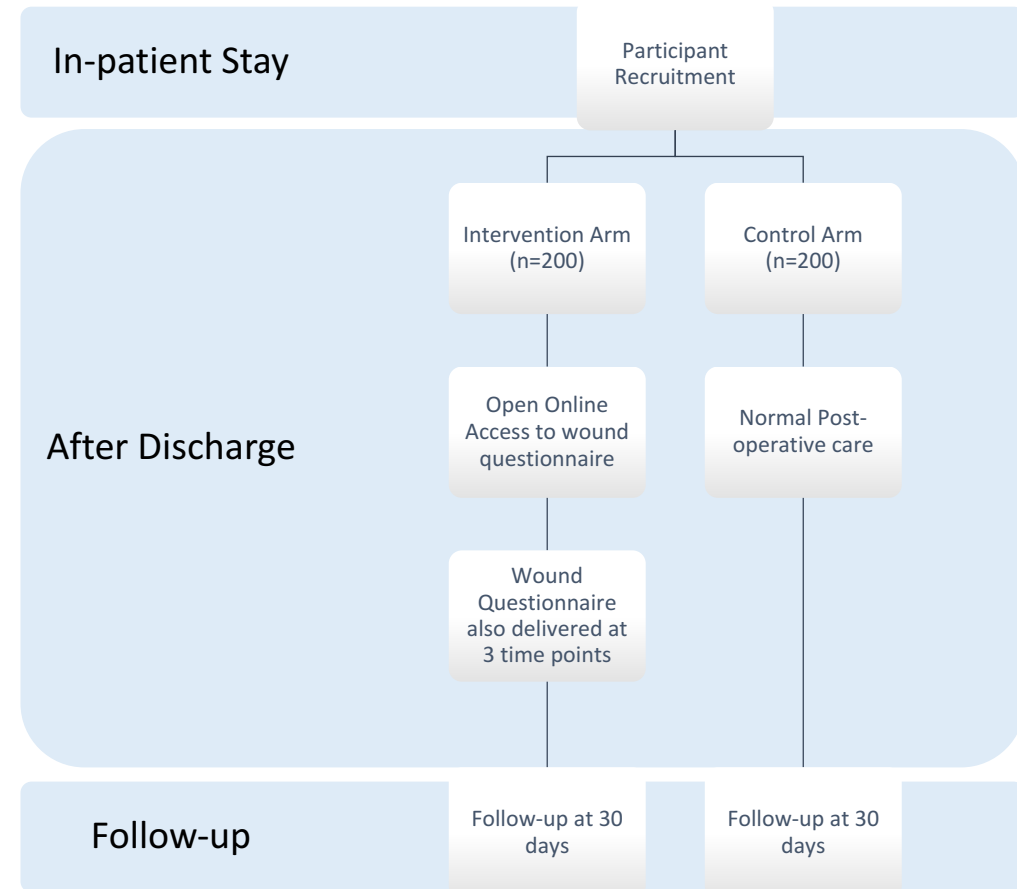
- **Can a smartphone-delivered questionnaire facilitate the assessment of surgical site infection, and result in earlier treatment? A randomized-controlled trial in emergency surgery patients.**
- Primary outcome measure:
 - Time-to diagnosis
- Secondary outcome measures:
 - Service usage
 - Patient experience
 - Reliability of computer algorithm

Background

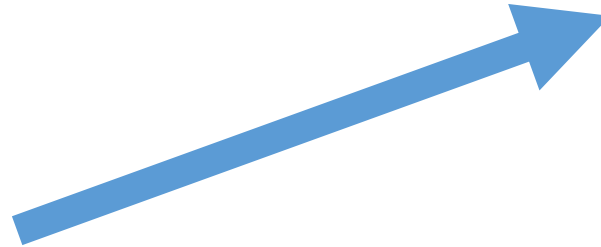
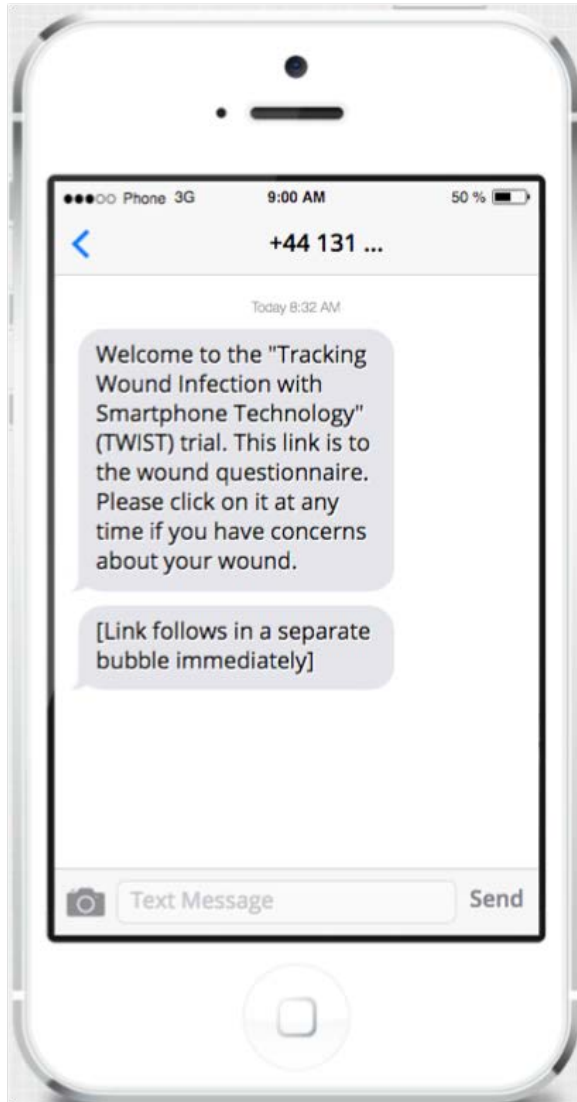
- Up to 25% of patients will report wound complications such as infection
- Many of these complications mild (only 1% of them require readmission)
- Two-thirds of adults have smartphones, with one-third using smartphone as primary access to internet.
- Increasing interest in Telehealth as an aid to diagnosis and management

Methods

- RCT aiming to recruit 400 patients across RIE and WGH
- Intervention: Smartphone Questionnaire
- Criteria:
 - Inclusion:
 - Emergency Abdominal Surgery
 - Age >16
 - Owner of Smartphone
 - Exclusion:
 - Significant Visual Impairment



Intervention group (day 3, 7, 15 + any time within 30 days):



The image shows a mobile application interface for a questionnaire. The status bar at the top shows 'Messag...', '4G', '09:33', and '92%' battery. The URL 'redcap.cir.ed.ac.uk' is displayed. The form contains three multiple-choice questions, each with 'Yes' and 'No' options and a 'reset' link. The first question is 'Have you experienced fevers in the last 24 hours?'. The second question is 'Have you been diagnosed with a wound infection since surgery?'. The third question is 'Please upload a photo of your wound.' followed by a paragraph: 'The photo will be reviewed by a qualified doctor, who will contact you if there are any concerns not picked up in the questions above.' Below this is a green '+ Upload document' link. At the bottom is a 'Submit' button.

Yes
No
reset

Have you experienced fevers in the last 24 hours?

Yes
No
reset

Have you been diagnosed with a wound infection since surgery?

Yes
No
reset

Please upload a photo of your wound.

The photo will be reviewed by a qualified doctor, who will contact you if there are any concerns not picked up in the questions above.

+ Upload document

Submit

Clinician's response:

- The clinician reviews the `concern score` calculated from the questionnaire and the photo.

Response

☐ No concerns

☐ Possible infection - see GP

☐ Probable infection - contact surgery nurses

Event

☐ Clinician response 1

☐ Clinician response 2

☐ Clinician response 3

☐ Wound concerns

Your name:

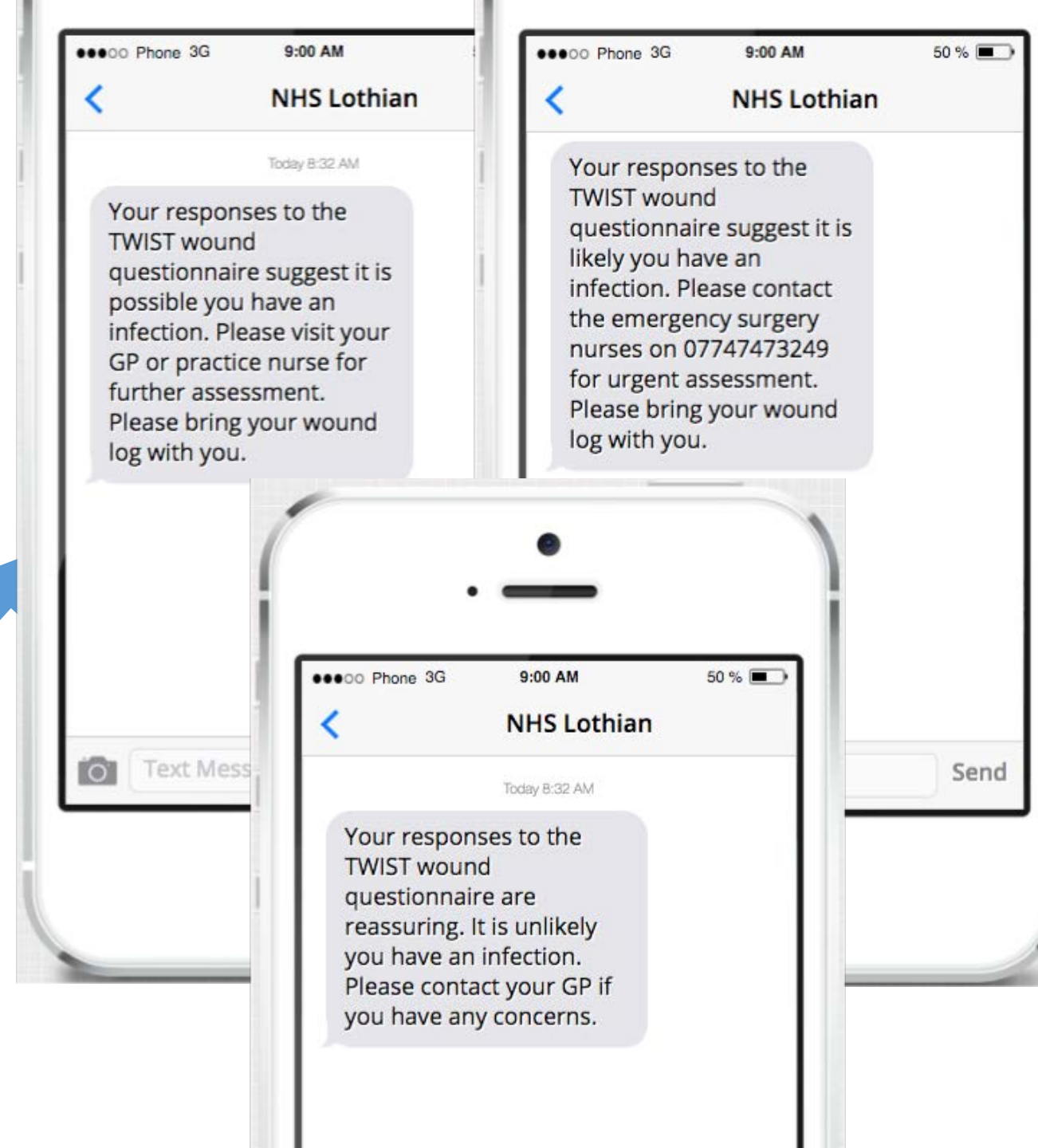
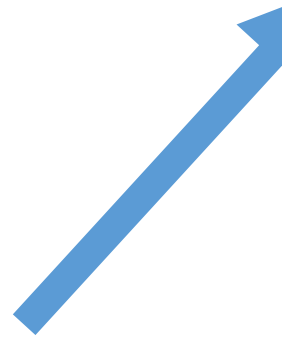
Test (Riinu) ▼

Royal Western

Record ID:

Royal: 1 ▼

SEND TEXT TO PATIENT



Patient consents to take part in the TWIST Randomised Control Trial

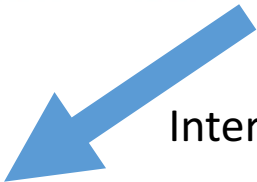


Control arm

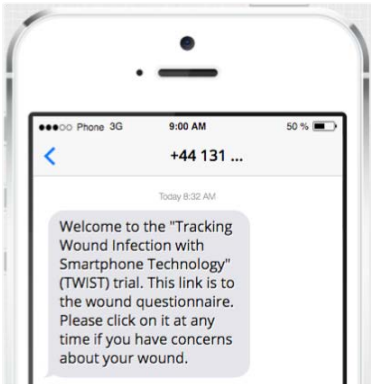


30-day follow-up
by a blinded
clinician

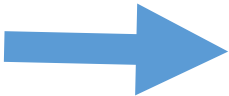
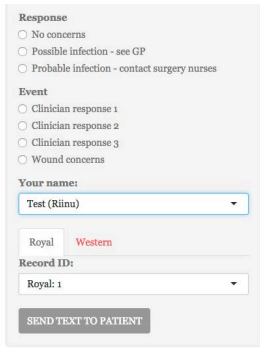
Intervention arm



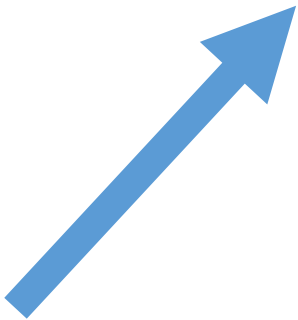
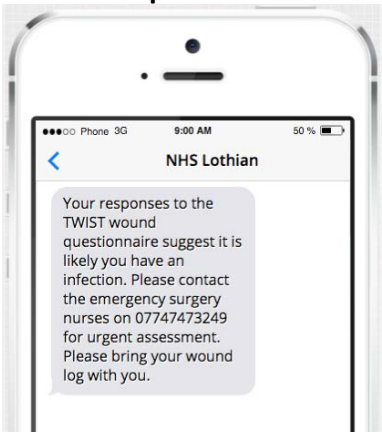
Patient's
phone:



Clinician's
response



Patient's phone:



Questions?



For more information:

Contact the Emergency
Surgery Nurses on:
07747473249
(or find them on the Surgical
Assessment Unit)

What is TWIST?

- The TWIST trial is investigating whether a smartphone questionnaire can be used to help diagnose wound infection earlier.

Who can take part?

- We are looking for patients who have recently had (or are about to have) abdominal surgery
- Those taking part would also need a smartphone



THE UNIVERSITY
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TWIST TRIAL TEAM

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