Problems in Clinical Research in Surgery, and IDEAL solutions

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Why clinical research in surgery? Why Now?

- Important
- Fulfilling
- Feasible
  - Funding
  - College support
  - Expertise and Collaborative structures
  - Road Map for design and reporting
Problems, what problems?

- Getting agreement on a trial question
- Getting agreement on a trial population
- Getting agreement on a control group
- Getting funding
- Getting Ethical approval
- Getting a Registered CTU and a RDS to co-operate
- Getting Trust R&D approval
- Getting Research Passports or Honorary Contracts
- Getting colleagues to enter patients
- Getting patients to agree
- Getting participants to do what they were supposed to
- Etc......
Why is it especially hard in surgery?

• History
  – Large mass of pre-RCT procedures
  – Tradition of case series

• Personality
  – Decisiveness ~ Intolerance of Uncertainty
Inherent problems of studying surgery

- Nature of Surgery => TINKERING REQUIRED
  - Charnley hip
  - Liver Transplantation
- Nature of Surgery => LEARNING REQUIRED
  - Surgical learning curve => RCT from case 1 is nonsense.
- Nature of Surgery => DEFINING INTERVENTION DIFFICULT
  - Inter-surgeon variation
  - Adaptation to the patient
- Nature of Surgery => QUALITY CONTROL REQUIRED
  - Compliance with the procedure
  - Quality of operative technique
- Nature of Surgery => STRONG PREFERENCES
  - Customised
  - Skill-based
  - Dramatic
  - Inherent risks, often severe
Is surgical research impossible?
No!
An IDEAList Approach

• Describe what really happens (**Framework**)
• Select methods of evaluation which match this reality (**Recommendations**)
• Advocate changes which encourage adoption of these methods (**Proposals**)

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Idea, Development, Exploration, Assessment, Long-term follow-up
IDEAL Framework
Describing what really happens

- Stage 1 - IDEA
- Stage 2a – DEVELOPMENT (tinkering stage)
- Stage 2b – EXPLORATION (learning & debating)
- Stage 3 - ASSESSMENT (RCT now or never)
- Stage 4 – LONG TERM MONITORING
IDEAL Recommendations

• IDEA: Confidential Registry of First-in-Man Studies
• DEVELOPMENT: Prospective Development Study
• EXPLORATION: Phase IIIS Study
• ASSESSMENT Augmented RCT, large Cohort
• LONG TERM MONITORING Registries
Stage 2a: Development

• **Prospective Development Studies**, comprising:
  - Detailed description of selection criteria
  - Detailed technical description
  - Prospective account of ALL cases
  - Clear definitions of outcomes reported
  - Description of ALL modifications and when made in series

• Registration of PROTOCOL before study starts
• Use of SPC methods to evaluate progress
  -
Stage 2b Exploration

**Phase II Study**
(collaborative uncontrolled prospective study)

- To evaluate technique prospectively and co-operatively
- To develop a consensus over definition of the procedure, quality standards
- To accumulate data for power calculations
- To evaluate and monitor learning curves
- To achieve consensus on the trial question
- To develop a multi-centre randomised trial

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Stage 3: Assessment

**Surgical RCT +**

- Randomised Controlled Trial – question agreed during Phase IIS
- Use power calculations from Phase IIS
- Use learning curve data to decide entry points
- Use Phase IIS consensus to define operation, quality control AND outcome measures

- Dealing with Preferences
  - Modified Consent
  - Parallel Cohorts
- Use modified RCTs or recognised alternative if RCT not feasible:
  - Tracker trials
  - Expertise-based RCT
  - Step-wedge design
  - Controlled interrupted time series.

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How you can use IDEAL

1. Use **IDEAL Framework & literature review** to determine where your innovation is

2. Use **IDEAL Recommendations** in designing and reporting your research (and emphasise this to Editors and Funders...)

3. Use **IDEAL Collaboration** to find resources, advice, potential collaborators

"Help us to improve research quality in surgery, radiotherapy, physiotherapy and other areas of complex intervention."

http://www.ideal-collaboration.net/

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An IDEAL World? Advocacy

• **Targeting Regulators**: need faster, more flexible regulation at local level: (FDA 😊 !!)

• **Targeting Funders**: need support for PDS and Phase IIS studies

• **Targeting Editors**: need to replace case series with PDS

• **Targeting Professional Bodies**: Follow the lead of the RCS and support surgical science!