Masterclass: take-home messages

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Chest pain

- **Biomarkers:** Identify those at high risk who may benefit from early/aggressive intervention

- **But:**
  - You can be too early
  - Troponin assays require intelligent application – individualised to the institution and the patient
Chest pain

- Atypical chest pain – ‘arrogance and ignorance of cardiologists’

- Do we need CPUs?:
  - Probably not
  - Do need shared protocols and policies with our ED colleagues
  - Not all CP is cardiac
Cardiac arrest

- **OHCA:**
  - Significant improvement in outcomes (short and long-term) over years
  - Commonest cause of death
    - MOF in first 3 days
    - Neurology thereafter
  - Coronary angiography is recommended for all – as many have CAD

- **Increasing potential for MCS**
  - eCPR (refractory cardiac arrest) – with ongoing trials
  - Post-arrest cardiogenic shock
Cardiac arrest

- **No treatment has been shown to improve outcome in MOF**

- **Brain:**
  - all drug trials thus far negative (cyclosporine, GNP1 etc)
  - ?Xenon in the future
  - TTM (how low, how long, how? TTM2 results awaited)

- Neuroprognosisitcation
- Wait – and use multimodality assessment
Cardiac arrest

- ECMO: ‘need to be able to say no, as well as yes’

- Ethical issues in the current era of MCS challenging – ECMO heralds a new era of defining death
AHF

- Registry data: state of HF management in 2017
  - 1-year overall mortality 35.9%
  - Drop-off in evidence-based disease modifying agents from mid-50’s - but prescribing rates increasing
  - <50% admitted to cardiology ward (but ok if see cardiologist – in-patient mortality 6%)
  - ?why no improvement in mortality: ?older ?no new drugs

www.escardio.org/ACCA
AHF: common errors

- **GPs:** think respiratory disease is the commonest cause of dyspnoea in the elderly
- **ED:** diagnosis of HF alone is not enough – worry about the underlying cause
- **HF specialists:** think they can diagnose/exclude HF clinically – they cannot
- **Sepsis:** precipitant of AHF in around 30% cases
caution
Super Bug!
AHF: present and future

- >210 AHF trials in progress currently
- Most recent: serelaxin – negative
- Inotropes – ATOMIC HF – increased troponin levels
- CUPID2 – neutral for every endpoint
- Ultratide (TRUE HF) – no difference in outcome
Cardiogenic shock

- Endpoints and definitions not clear
- RCTs lacking
  - Inotropes
  - Ventilation
  - The right heart
  - MCS

- Awaiting Holger’s next trial results for multi-vessel revascularisation

- Really need consensus regarding the whole spectrum of the disease process and interventions
Cardiogenic shock: the future?

• Uncertain outlook for future trials
  • MCS
  • Inotropic agents
  • Any intervention whatsoever

• Avoid if possible
Lessons from surgery?

The IDEAL Collaboration
Idea, Development, Exploration, Assessment, Long-term Follow-up, Improving the Quality of Research in Surgery

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

Welcome to IDEAL
The IDEAL Collaboration is an initiative to improve the quality of research in surgery. It is:

- A model that describes the stages of innovation in surgery: Idea, Development, Exploration, Assessment, Long-term study
- A set of recommendations at each stage of the model that have been developed by experts in evidence-based surgery, for example on improving methodology and how to address the challenges of randomized controlled trials in surgery

Latest Blog
Scientists Propose a Framework for More Comprehensive Assessment of Medical Device Safety and Efficacy – IDEAL-D (devices)
June 10, 2016
Sedrakyan Art, Campbell Bruce, Merino Jose G, Kuntz Richard, Hirst Allison, McCulloch Peter et al. IDEAL-D: a rational framework for evaluating and regulating the use of medical devices BMJ 2016; 353 :i2372 Article below reproduced with permission from Art
Spread to devices?

• Concept that just being safe isn’t enough – needs to be effective

Analysis

IDEAL-D: a rational framework for evaluating and regulating the use of medical devices

*BMJ* 2016; 353 doi: http://dx.doi.org/10.1136/bmj.i2372 (Published 09 June 2016)

Cite this as: *BMJ* 2016;353:i2372

*Art Sedrakyan, professor1, Bruce Campbell, professor2, Jose G Merino, clinical research editor3, Richard Kuntz, chief scientific, clinical, and regulatory officer4, Allison Hirst, researcher5, Peter McCulloch, professor5*
Adoption & diffusion: lessons from surgery?

<table>
<thead>
<tr>
<th>1 Idea</th>
<th>2a Development</th>
<th>2b Exploration</th>
<th>3 Assessment</th>
<th>4 Long-term study</th>
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<tbody>
<tr>
<td>Purpose</td>
<td>Proof of concept</td>
<td>Development</td>
<td>Learning</td>
<td>Assessment</td>
</tr>
<tr>
<td>Number and types of patients</td>
<td>Single digit; highly selected</td>
<td>Few; selected</td>
<td>Many; may expand to mixed; broadening indication</td>
<td>Many; expanded indications (well defined)</td>
</tr>
<tr>
<td>Number and types of surgeons</td>
<td>Very few; innovators</td>
<td>Few; innovators and some early adopters</td>
<td>Many; innovators, early adopters, early majority</td>
<td>Many; early majority</td>
</tr>
<tr>
<td>Output</td>
<td>Description</td>
<td>Description</td>
<td>Measurement; comparison</td>
<td>Comparison; complete information for non-RCT participants</td>
</tr>
<tr>
<td>Intervention</td>
<td>Evolving; procedure inception</td>
<td>Evolving; procedure development</td>
<td>Evolving; procedure refinement; community learning</td>
<td>Stable</td>
</tr>
<tr>
<td>Method</td>
<td>Structured case reports</td>
<td>Prospective development studies</td>
<td>Research database; explanatory or feasibility RCT (efficacy trial); diseased based (diagnostic)</td>
<td>RCT with or without additions/ modifications; alternative designs</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Proof of concept; technical achievement; disasters; dramatic successes</td>
<td>Mainly safety; technical and procedural success</td>
<td>Safety; clinical outcomes (specific and graded); short-term outcomes; patient-centred (reported) outcomes; feasibility outcomes</td>
<td>Clinical outcomes (specific and graded); middle-term and long-term outcomes; patient-centred (reported) outcomes; cost-effectiveness</td>
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<tr>
<td>Ethical approval</td>
<td>Sometimes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</table>

RCT = randomised controlled trial. SCOAP = Surgical Clinical Outcomes Assessment Programme. STS = Society of Thoracic Surgeons. NSQIP = National Surgical Quality Improvement Program. NOTES = natural orifice transluminal endoscopic surgery.

*Table: Stages of surgical innovation*
Many interventions seem physiologically/intuitively sensible – but that doesn’t mean they are right

Sir Iain Chalmers, co-founder Cochrane collaboration, BBC Radio 4, 2013