

Managing the challenges of translational research?

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SACRED HEART
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for palliative care



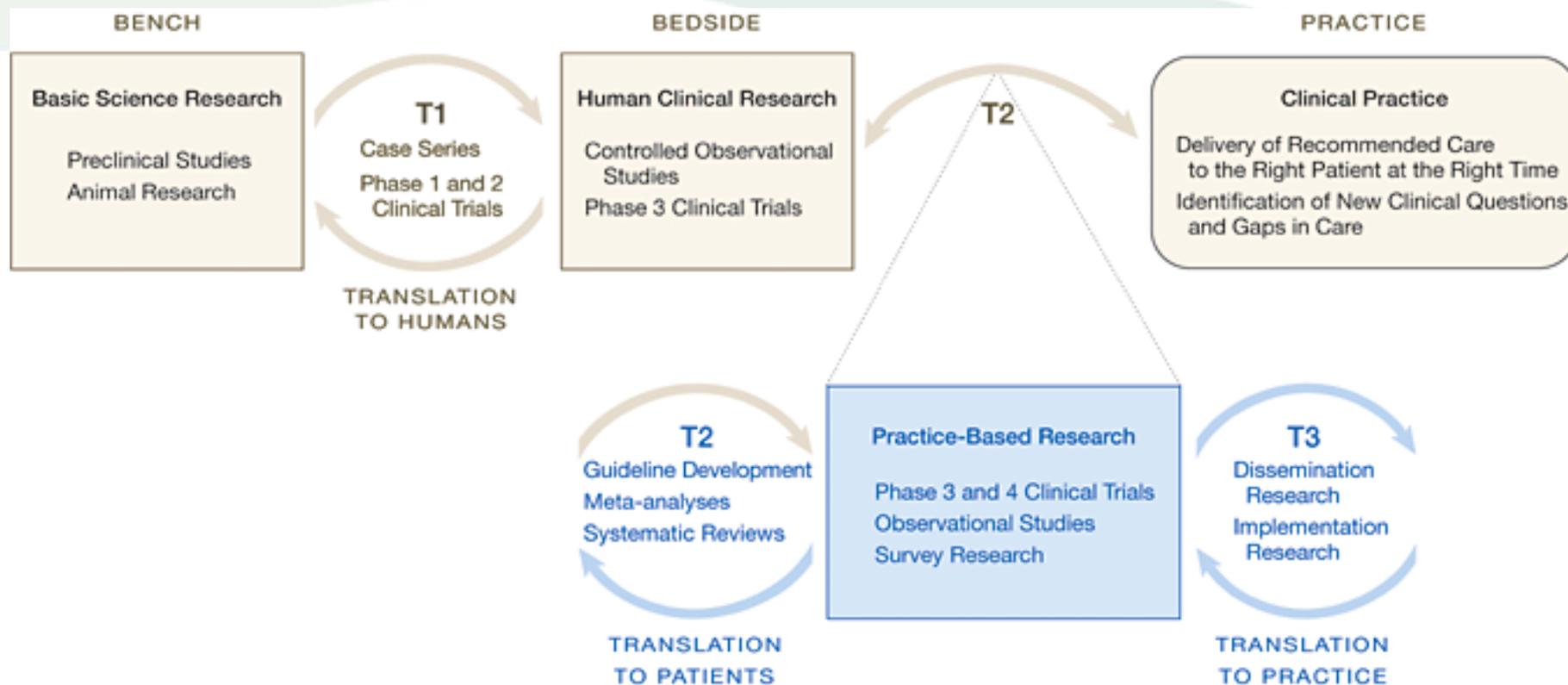
THE UNIVERSITY OF
NOTRE DAME
AUSTRALIA

Bridging the gap

Enormous gap between what we know can optimise health and healthcare and what actually gets used and implemented in every day practice.



The research continuum



Westfall, J. M. et al. JAMA 2007;297:403-406.

Challenge Number 1:

**Reducing the time
from discovery
to practice**

Evidence into practice: a long journey

- 1593 - Sir Richard Hawkins – scurvy treatment
 - "That which I have seen most fruitfull for this sicknesse, is sower [sour] oranges and lemmons."
- 1601- Captain James Lancaster shows that lemon juice supplement eliminates scurvy among sailors (non-randomized controlled trial)



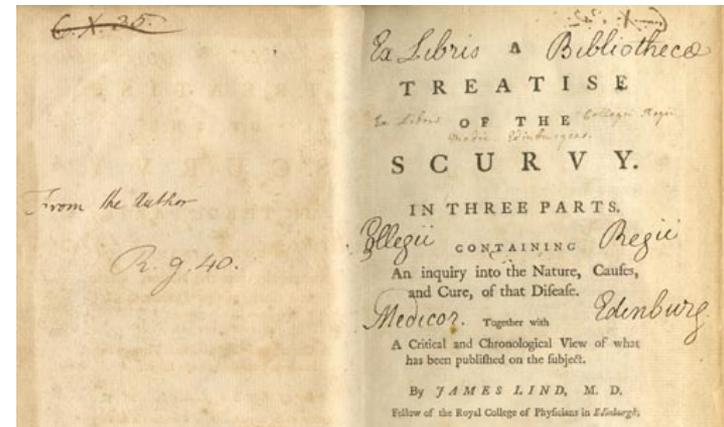
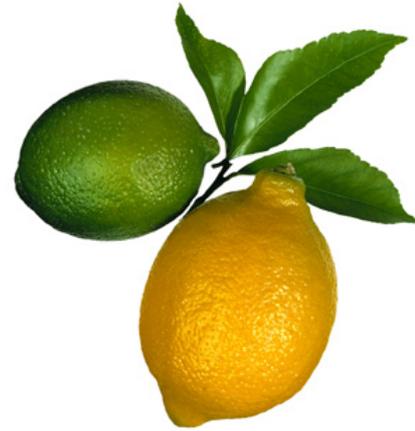
Captain James Lancaster, 1601

- 4 ships, England to India
- Non-randomized clinical trial
- 1 ship, 3 teaspoons lemon juice every day
 - 0% died of scurvy
- 3 ships, no lemon juice supplements
 - 40% died of scurvy



Translating Scurvy Evidence into Practice: A 194 year journey....

- **146 years later** - Lind shows that citrus juice supplement eliminates scurvy
- **1795-(194 years after Level 2 evidence)** British Navy implements citrus juice supplement



150 years later...Marshall and Warren – *Helicobacter pylori*

- Discovery bacterium *Helicobacter pylori* and its role in gastritis and peptic ulcer disease.
- 1983- seminal Lancet publication
- 2000 - NICE guidance - Regimens to eradicate *Helicobacter pylori*
- **17 years to become standard best-practice**



**How many unnecessary
gastrectomies and selective
vagotomies have been undertaken?**

Robin Warren, Department of Pathology, Royal Perth Hospital, Perth, Australia

Barry Marshall, *Helicobacter pylori* Research Laboratory, Queen Elizabeth II Medical Centre, Nedlands, Perth, Australia.

Can we afford to wait this long?



Challenge Number 2:

**Premature translation
vs. Lost in translation**

Dichotomy – too early or too late

Premature Translation

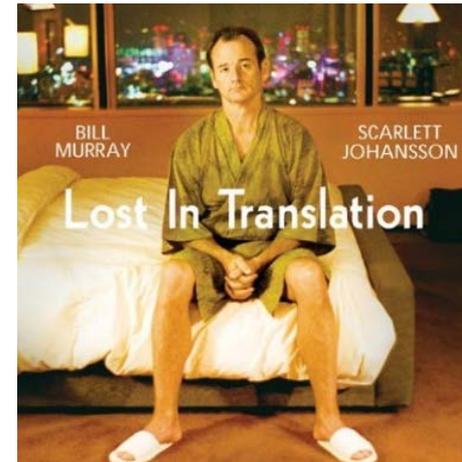
“Genomics and Personalized Health”
*Predictive, Preventive & Personalized
Medicine*



“I predict that comprehensive, genomics-based health care will become the norm with individualized preventive medicine and early detection of illnesses” (Zerhouni, 2006)

“Lost in Translation”

• **< 33% of patients with coronary artery disease are prescribed aspirin**



“Let's be realistic: If we didn't do it with aspirin, how can we expect to do it with DNA?”

Applying the knowledge we have

- “The application of what we know already will have a bigger impact on health and disease than any drug or technology likely to be introduced in the next decade.”

J A Muir Gray, Director of Clinical Knowledge, Process and Safety -
Connecting for Health, NHS

Challenge Number 3:

**Integrating
dissemination and
implementation science
into the research design**

Quality in Acute Stroke Care

Background

- ❑ 48,000 strokes/year
- ❑ High burden of disability and death
- ❑ 50% of patients post stroke experience fever & hyperglycaemia – brain tissue adversely affected
- ❑ 75% difficulty swallowing - pneumonia

Intervention

- ❑ Implemented evidence based management of swallowing, fever and hyperglycaemia
- ❑ 19 NSW Stroke Units
 - ❑ intervention (n=10)
 - ❑ control (n=9)
- ❑ 2005-2011
 - ❑ 6 years

Quality in Stroke Care Study

Results

- ❑ 16% reduction in death and dependency for stroke patients due to teamwork and good nursing care from this cluster randomised controlled trial'
- ❑ Fast tracked **Lancet Publication**
- ❑ Work in the top 2% of published articles in biology and medicine
- ❑ *'unique design...well conducted...findings should be taken very seriously'* ACP Journal Club 2012.

Prof Sandy Middleton



http://www.acu.edu.au/about_acu/research/about_us/research_centres_and_institutes/national_centre_for_clinical_outcomes_research/our_research/quality_in_acute_stroke_care/

Translating evidence into practice

THE LANCET

Volume 378, Issue 9804, 12–18 November 2011, Pages 1699–1706



Articles

Implementation of evidence-based treatment protocols to manage fever, hyperglycaemia, and swallowing dysfunction in acute stroke (QASC): a cluster randomised controlled trial

Prof Sandy Middleton, PhD^{a, b},  , Patrick McElduff, PhD^c, Prof Jeanette Ward, PhD^f, Prof Jeremy M Grimshaw, PhD^g, Simeon Dale, BAHons^{a, b}, Prof Catherine D'Este, PhD^d, Peta Drury, MN^{a, b}, Prof Rhonda Griffiths, PhD^h, N Wah Cheung, PhDⁱ, Clare Quinn, MSc^j, Malcolm Evans, MN^e, Dominique Cadilhac, PhD^{k, l, m}, Prof Christopher Levi, PhD^{c, e}, on behalf of the QASC Trialists Group

Challenge Number 4:

Securing funding

Traditionally not a funding priority

- 60% of NIH budget allocated to basic research
- 30% NIH budget spent on clinical research
- 10% NIH budget allocated to other research, including translational research

Is it cost effective?

- A major obstacle to the translation of the basic scientific discoveries to human studies; and new knowledge into everyday clinical practice and decision making, is determining whether the new approach is cost effective for widespread adoption.
- Integrating economic analysis into the research design

Challenge Number 5:

**Keeping up with an
evolving science**

An evolving science

- **Knowledge translation research** – evidence practice gap
- **Dissemination and implementation research (Implementation Science)** seeks to address this gap by understanding how to best ensure that evidence-based strategies to improve health and prevent disease are effectively delivered in clinical and public health practice.
- **Program research** – Big Picture, Focus on Public Health Population and Policy. Systematic application of theoretical and empirical scientific knowledge to improve the design, implementation and evaluation of public health programs..

Challenge Number 6:

**Balancing the need for a
robust research design
with practicalities**

Implementation 'Science'

What **outcome gap(s)** are we looking at?

What is the **evidence** to support practice change?

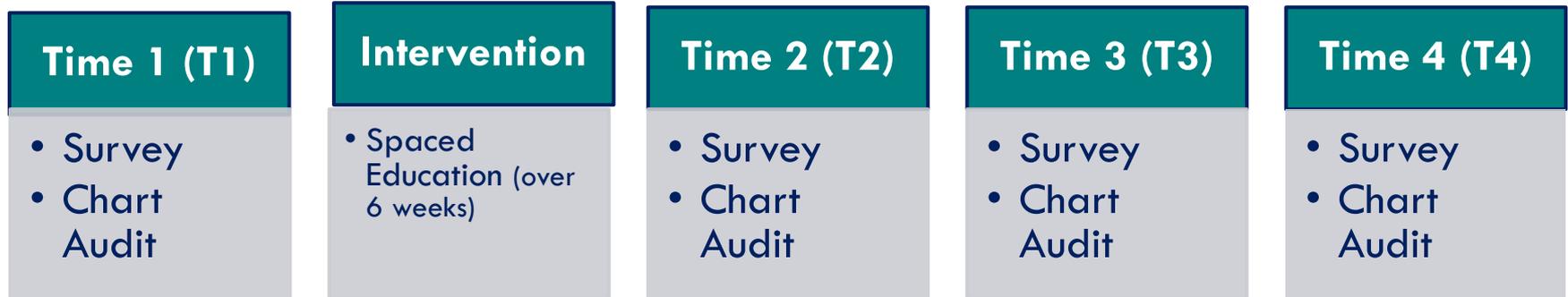
What are the **barriers and enablers** to change?

What **intervention** is most suitable to apply at this time?

How will we **evaluate** its impact?

Methods

Pre-post test quasi-experimental study design

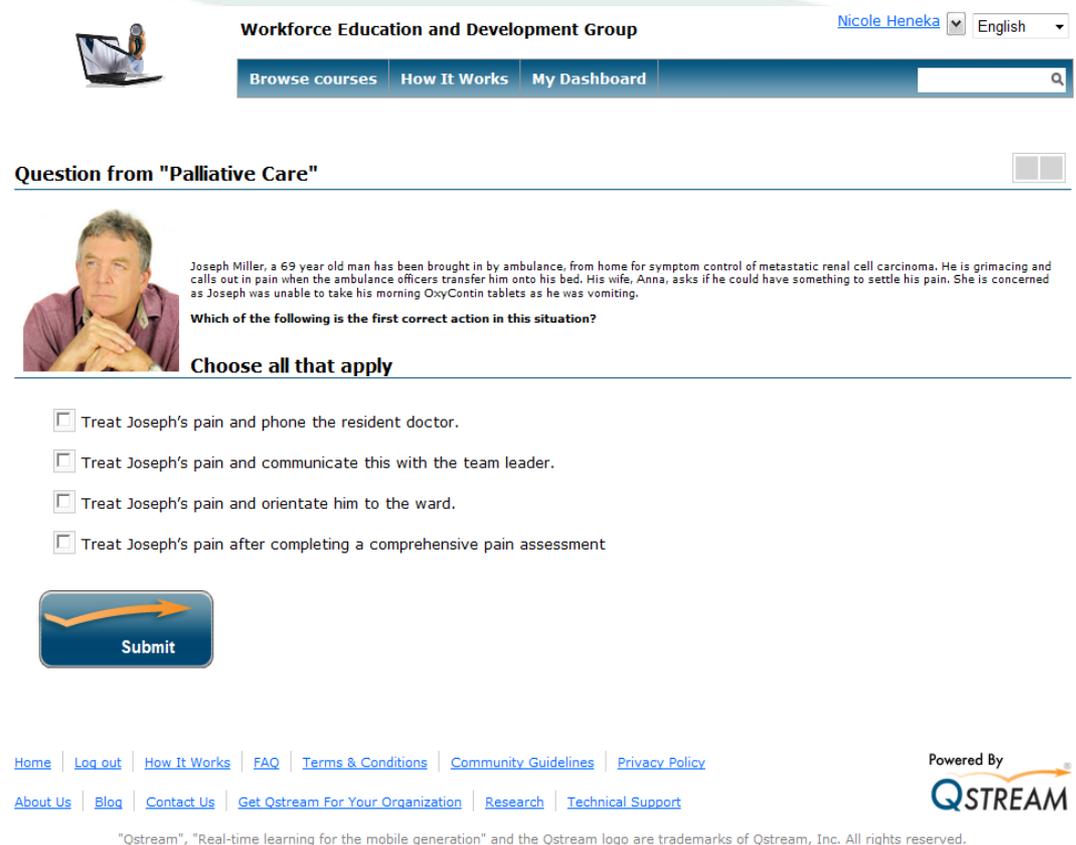


- ❑ Survey: pain assessment capabilities
- ❑ Chart audit: pain assessment practices
- ❑ Impact: Patient reported pain outcomes

Intervention: Spaced Education

Built around two evidence-based theories:

- The testing effect
- The spacing effect



The screenshot displays the 'Workforce Education and Development Group' interface. At the top right, the user 'Nicole Heneka' is logged in, and the language is set to 'English'. A navigation bar includes 'Browse courses', 'How It Works', and 'My Dashboard', along with a search bar. The main content area features a question titled 'Question from "Palliative Care"'. The question text reads: 'Joseph Miller, a 69 year old man has been brought in by ambulance, from home for symptom control of metastatic renal cell carcinoma. He is grimacing and calls out in pain when the ambulance officers transfer him onto his bed. His wife, Anna, asks if he could have something to settle his pain. She is concerned as Joseph was unable to take his morning OxyContin tablets as he was vomiting. Which of the following is the first correct action in this situation? Choose all that apply'. Below the text are four multiple-choice options, each with an unchecked checkbox: 'Treat Joseph's pain and phone the resident doctor.', 'Treat Joseph's pain and communicate this with the team leader.', 'Treat Joseph's pain and orientate him to the ward.', and 'Treat Joseph's pain after completing a comprehensive pain assessment'. A blue 'Submit' button with an orange arrow is positioned below the options. At the bottom of the page, there is a footer with navigation links: 'Home', 'Log out', 'How It Works', 'FAQ', 'Terms & Conditions', 'Community Guidelines', 'Privacy Policy', 'About Us', 'Blog', 'Contact Us', 'Get Qstream For Your Organization', 'Research', and 'Technical Support'. The footer also includes the text 'Powered By QSTREAM' and a trademark notice: 'Qstream', "Real-time learning for the mobile generation" and the Qstream logo are trademarks of Qstream, Inc. All rights reserved.

The lived experience

- Governance approval for five sites – took 6 months
 - Ethics Approvals – 4 months
 - Site Specific Approvals – 6 months
 - Clinical Trials Agreements – 3 months
- IT issues
 - Piloted – worked well
 - Firewalls changed !!!!
- Research design vs. ethical issues
 - Audit and feedback –
 - protecting underperforming staff!!!

Summary

1. Reducing the time from discovery to practice
2. Premature translation vs. lost in translation
3. Integrating dissemination and implementation science into research
4. Securing funding
5. Keeping up with an evolving science
6. Balancing the need for a robust research design with practicalities

Focus on priority areas

Need to prevent and minimise:

- ❑ Errors and mistakes
- ❑ Poor quality healthcare
- ❑ Waste
- ❑ Variations in policy and practice
- ❑ Poor patient experience
- ❑ Overenthusiastic adoption of interventions of low value
- ❑ Failure to get new evidence into practice



Thank you

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