Implementation Science
theory & programmes

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What are clinical guidelines good for?

• A(complex) behaviour change intervention has:
  – Underlying knowledge content
    • Guideline for the management of diabetes
  – Active ingredients = behaviour change techniques
    • Persuasive communication, graded task etc.
  – Method of delivery
    • Educational workshop, interpersonal communication
• Guidelines “may” be necessary but they are definitely not sufficient
  – There is a limit to what you can expect from even the best crafted guideline
Implementation Research

• Implementation research centrally involves the study of changing behaviour and maintaining changed behaviours
  – of and in organizations and the groups and individual healthcare professionals within them

• It concerns:
  – The study of behaviour
  – The determinants of behaviour
  – How to change and maintain behaviour

• All with due cognisance of the organisational context within which behaviours are enacted
Implementation Research – a sizeable evidence base but ...

- Over the past 15-20 years a body of implementation research has developed
  - Cochrane Effective Practice and Organisation of Care Review Group
    - Interventions can be effective
    - The effects are “worth having”
      - Effectiveness of interventions varies across different clinical problems, contexts and organizations
Systematic review of audit and feedback

• 85 randomised trials
  – 83 comparisons: for dichotomous outcomes, median adjusted relative risk of non-compliance was 0.85 [IQR 0.74 to 0.96]
  – 15 chronic disease management trials
    • Small to moderate effects in 11 of 19 comparisons
  – 4 trials of diabetes care (n = 4)
    • Moderate to large effects in two comparisons

• “Conceptualising audit and feedback within a theoretical framework offers a way forward.”

Why consider theory?

The use of theory in Implementation Research offers (at least) three important potential advantages

- a generalisable framework that can apply across differing settings and individuals
- the opportunity for the incremental accumulation of knowledge
- an explicit framework for analysis

Why consider theory?

• No clear agreement about what makes a study or an intervention “theory-based”
  – Range of phrases such as “informed by theory”, “underpinned by theory”, “theory-inspired” and “theory-based”
• Little agreement about which theories are important and under what circumstances
• There is considerable overlap between theories

• And then there are models and frameworks ….
Systematic review of audit and feedback

- An analysis of ‘audit and feedback’ interventions, based on Control Theory
  - suggests that behaviour change is most likely if feedback is accompanied by comparison with a behavioural target and by action plans
  - Multivariate meta-regression was performed on 85 comparisons from 61 studies
- Few interventions incorporated targets or action plans
  - The utility of our approach could not be tested via our analysis because of the limited nature of the audit and feedback interventions

Systematic review of audit and feedback

- Feedback Intervention Theory (Kluger & DeNisi, 1996)
  - Univariate meta-regression; 19 studies that reported effects of a feedback-only intervention relative to a no-intervention control group; found evidence to support tenets of the theory

- Concluded that feedback would be most effective where delivered with suggestions for performance improvement


Theoretical determinants of individual’s behaviour

PRIME

• To explore the usefulness of a range of psychological frameworks to predict health professional behaviour relating to the management of:
  – upper respiratory tract infections without antibiotics

• Psychological measures were collected by postal questionnaire survey from a random sample of general practitioners (GPs) in Scotland

What about chronic diseases?
Multiple actors & different levels

• To improve the quality of care for patients with diabetes cared for in primary care by identifying individual, team & organisational factors that predict high quality care
  – To measure attributes of individual HCPs, teams and their organisation in primary care within a theoretical framework
  – To measure the organisational structure in primary care
  – To measure the process of care, markers of biological control & QOF scores
  – To identify configurations associated with high quality care
What about chronic diseases? Multiple actors & different levels

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Measures

• Practice structures and function
  – Demographics; staffing; skill mix; appointments

• Individual’s cognitions about their own and others behaviour
  – TPB, SCT, OLT, SRHI, AP/CP

• Individuals’ cognitions about work characteristics
  – Karasek Decision/Demand, Siegrist Effort/Reward Imbalance, TCI, OJES

• Behaviour
  – Intention; Behavioural simulation; self-report behaviour; patients report; clinical data from practice computers
Relating individuals’ cognitions to behaviour

• All self report measures are at the individual level
• Behaviour (for most chronic diseases) is at practice level and is the product of the behaviour of teams of individuals
• How do you best express the collective cognitions of a team in terms of explaining behaviour?
  – Mean
  – Use highest intender
  – Use highest intender and most control
  – Use values of person whose role it is

Eccles MP, Hrisos S, Francis JJ, Steen N, Bosch M, Johnston M. Can the collective intentions of individual professionals within healthcare teams predict the team’s performance: developing methods and theory. *Implementation Science* 2009, 4:24
Intervention building and testing

• Evaluate the impact of two theory-based interventions on the behavioural intention and simulated behaviour of GPs in relation to the management of uncomplicated URTI
  – A randomised 2x2 factorial design with baseline and post-intervention assessment
• Intervention 2 targeted anticipated consequences and risk perception (also from SCT)
  – Mapped on to the theoretical construct domain, “beliefs about consequences”
  – The main behaviour change technique selected was “persuasive communication”
  – This intervention also incorporated the behaviour change technique, “provide information regarding behaviour, outcome and connection between the two”
Dr A manages patients with URTI by prescribing antibiotics

“I’m worried about our Colin, he’s got a dreadful cough and sore throat.”

“You should take him to Dr A for some antibiotics.”

“More sore throats – does Dr A have any appointments left for this week?”

“I’m sorry I gave you my cold, here, have some of the antibiotics Dr A gave me.”

“Not another four extra’s with sore throats wanting antibiotics!”

Penicillin 3 times daily

Dr B manages patients with URTI symptomatically

“I’m worried about our Colin, he’s got a dreadful cough and sore throat.”

“Our Martin had that last week. A couple of days of Calpol and he was fine.”

“That’s another ‘flu vac clinic booked up.”

“I’m sorry I gave you my cold, here, let me get you some paracetamol.”

“No extra’s today. I’ll enjoy this cup of tea before I start my visits!”

Paracetamol, fluids, bed rest
TRiaDS: a programmatic approach to guideline development and implementation

- For dentistry in Scotland, the production of clinical guidance is the responsibility of the Scottish Dental Clinical Effectiveness Programme (SDCEP).
- TRiaDS (Translation Research in a Dental Setting) is a multidisciplinary research collaboration, embedded within the SDCEP guidance development process.
- Aims to conduct and evaluate a programme of integrated, multi-disciplinary research to enhance the science of knowledge translation.

TRiADS - Define Professional Behaviour Outcomes

SDCEP Guidance - Pre-Consultation Period

SDCEP Guidance Development Group identify and prioritise professional behaviour outcomes to assess best practice

SDCEP Guidance - Consultation Period

TRiADS - Define Professional Behaviour Outcomes

TRiADS - Diagnostic Analysis

Identify barriers and enablers to best practice using questionnaires and interviews with GDPs/DCPs

Measure variation in professional behaviour using routine or bespoke data

Identify criteria to determine if knowledge translation strategy is required

Identify theoretical domains and possible knowledge translation interventions

TRiADS - Identify the Need for, Timing and Design of Knowledge Translation Intervention

SDCEP Guidance - Publication and Dissemination Period

Identify trend and step changes following publication of guidance

TRiADS - Evaluation

Intervention Required
Develop and test guidance knowledge translation intervention

Intervention Not Required
Monitor professional behaviour outcomes

TRiADS - Collect Data from Steps Above and Collate With Each Guidance Experience to Synthesise What is Known About Changing Each Set of Behaviours
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<th>Define professional behaviour outcomes</th>
<th>Diagnostic analysis</th>
<th>Decide on the need for and design of knowledge translation intervention</th>
<th>Evaluation</th>
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Conclusions

• Generalisability is important
• Theoretical approaches offer a way to:
  – Enhance generalisability
  – Contribute to replication
  – Thereby contribute to useful accumulation of knowledge
• Programmatic approaches to guideline development and implementation (research) can enhance this process.
Implementation Science: Impact Factor 2.49

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Scope
All aspects of research relevant to the scientific study of methods to promote the uptake of research findings into routine healthcare in both clinical and policy contexts

www.implementationscience.com
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