‘Implementing research findings into practice: Frameworks and guidance’

Professor Bridie Kent

UNIVERSITY OF PLYMOUTH

‘Change is not made without inconvenience, even from worse to better.’

Richard Hooker, (1554–1600)

Plan

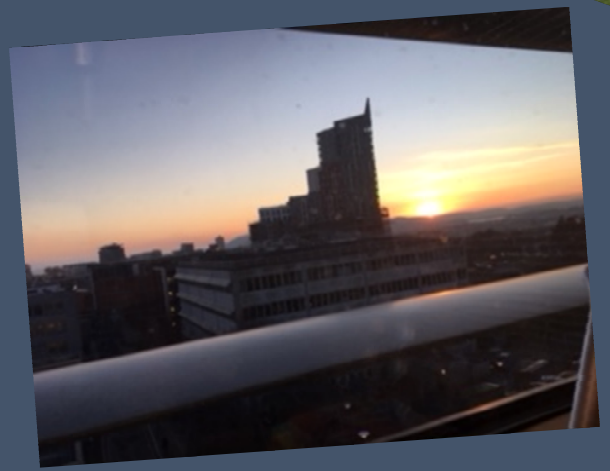
- Why we need to change what we do
- Barriers and enablers to change
- Three models/frameworks that you might want to use
- How we use them at University of Plymouth

South west of England

University of Plymouth

Plymouth – Britain's' ocean city

- Located in the south west region of England
- Mix of rural and urban settings



UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Why we need to change what we do

- Despite the growing knowledge base on evidence-based practices in health and social care, there is a large gap between what is known and what is consistently done.
- This research practice gap has arisen for many reasons; the prime one being the lack of a driver to have practice reflect new evidence.
- Many research grants haven't – and still don't – include a phase for implementation of findings when appropriate.
- Implementation has been seen as an 'add-on'.

Need for change

- The pipeline view of health research (mainly medical) has dominated;
- A new intervention is tested for efficacy, then moves through effectiveness trials, and after a number of years, is explored for its potential for application in practice.
- We have seen many problems with this approach – it is dependent on human behaviour accepting a new idea or change.
- Many factors can interfere with this pipeline including lack of knowledge, skills and resources; and many contextual issues arising at local, organisational and national levels.

The result?

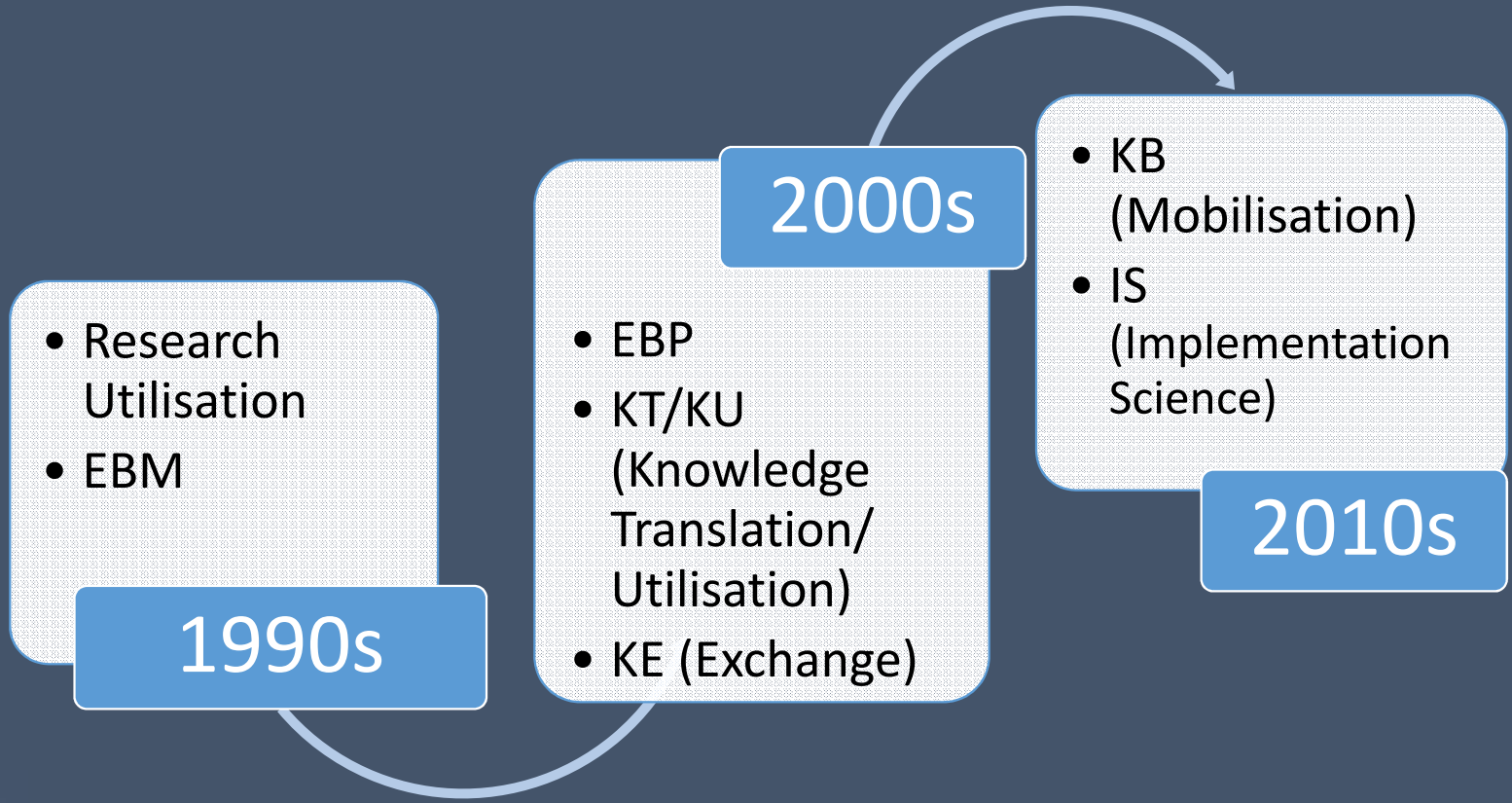
- Patients not receiving the most up-to-date interventions or care
- Patients receiving inappropriate treatments – over or under dosing – exposed to harm
- Costs to organisations from the continued use of procedures that are not proven to be effective.
- An example is the NICE ‘Do not do’ list - a PhD student of mine is studying these and found significant hot spots of activity across the country, where procedures are being undertaken contrary to best practice guidance.

Implementation Science/Implementation Research – a brief overview

- Implementation Science is commonly defined as the study of methods and strategies to promote the uptake of interventions that have proven effective into routine practice, with the aim of improving population health.
- Implementation research is the study of methods to promote the uptake of research findings into routine practice.
- Implementation is considered to be a process, not a linear pipeline, that is continuous and interactional

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Background to terminology



Implementation vs Improvement Science

- Organisations such as the UK's Health Foundation are now advocating for the term 'Improvement Science'
- It is an umbrella term encapsulating change processes and diffusion techniques
- The organisation states it is a way of developing and applying a sound knowledge base to improve healthcare quality, safety and value to ensure successful improvements can be adopted and spread across the breadth of healthcare services

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Key differences?

- My interpretation:
  - Emphasis on quality improvement
  - Improvement is a way of focusing research so that it is conducted within, and with relevance to, the broader practice environment
  - Often much smaller scale than Implementation Science projects
  - 'Just do it, and learn as you go' approach, which has been modified slightly in the form of the PDSA approach
  - In the UK, there is a grey area around ethical approval for Improvement projects
  - *implementation science* and *implementation research* describe the scientific investigation of the best methods to promote changes in clinical practice (*Implementation Science*, 2013).
- Batalden and Stoltz (1993) suggested that traditional improvement was driven by intellectual disciplines that differed substantially from continual improvement
- Ultimately both Implementation and Improvement Science aim to do the 'right things right'

Types of Studies to Address Blockages in the Implementation Process (Bauer et al 2015)

Implementation Process Gap	Types of Studies
Limited external validity of efficacy/effectiveness studies	• Design clinical interventions ready for implementation earlier in the research pipeline, emphasizing tools, products, and strategies that mitigate variations in uptake across consumer, provider, and or organizational contexts
Quality gaps across systems due to variations in organizational capacity (e.g., resources, leadership)	• Assess variations and customize implementation strategies based on organizational context
	• Data infrastructure development to routinely capture or assess implementation fidelity, patient-level processes/outcomes of care, and value/return-on-investment measures
	• Further refinement of implementation strategies involving organizational and/or provider behaviour change
	• Development of provider/practice networks to conduct implementation studies or evaluation of national programs
Frontline provider competing demands (e.g., multiple clinical reminders)	• Refinement of implementation strategies using cross-disciplinary methods that address provider behaviour/organizational change (e.g., business, economics, policy, operations research. etc.)
	• Positive deviation or adaptation studies especially to improve implementation at lower-resourced, later-adopter sites
Misalignment with national or regional priorities	• National policy/practice roll-outs
	• Randomized evaluations of national programs or policies

Implementation grant applications

- Conceptual models, frameworks, and systems can play a critical role in anchoring a research study theoretically by portraying the key variables and relationships to be tested.
- There have been 10 ingredients highlighted for successful grant applications – funding is important and it is getting more plentiful
- https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-7-96
- See next slide

Ten key ingredients for implementation research proposals

Proposal ingredient	Key question	Review criteria	Check (yes/no)
1. The care gap or quality gap	The proposal has clear evidence that a gap in quality exists?	Significance Impact	
2. The evidence-based treatment to be implemented	Is the evidence for the program, treatment, or set of services to be implemented demonstrated?	Significance Innovation	
3. Conceptual model and theoretical justification	The proposal delineates a clear conceptual framework/theory/model that informs the design and variables being tested?	Approach Innovation	
4. Stakeholder priorities, engagement in change	Is there a clear engagement process of the stakeholders in place?	Significance Impact Approach Environment	
5. Setting's readiness to adopt new services/treatments/programs	Is there clear information that reflects the setting's readiness,capacity, or appetite for change, specifically around adoptionof the proposed evidence-based treatment?	Impact Approach Environment	
6. Implementation strategy/process	Are the strategies to implement the intervention clearly defined,and justified conceptually?	Significance Impact Innovation	
7. Team experience with the setting, treatment, implementation process	Does the proposal detail the team's experience with the studysetting, the treatment whose implementation is being studied,and implementation processes?	Approach Investigator team	
8. Feasibility of proposed research design and methods	Does the methods section contain as much detail as possible,as well as lay out possible choice junctures and contingencies,should methods not work as planned?	Approach Investigator team	
9. Measurement and analysis section	Does the proposal clarify the key constructs to be measured, corresponding to the overarching conceptual model or theory?	Approach Investigator team	
	Is a measurement plan clear for each construct?		
	Does the analysis section demonstrate how relationships between constructs will be tested?		
10. Policy/funding environment; leverage or support for sustaining change	Does the proposal address how the implementation initiative aligns with policy trends?	Impact Significance	

Implementation Science Theories and constructs: 3 broad groups

- Motivational: explain behaviour of people who have not yet established intention –
  e.g. Theory of Planned Behaviour
- Action: explain behaviour of people who have identified a need to change –
  e.g. Operant Conditioning
- Organisational: explain 'institution' level change – e.g. Diffusion of Innovation

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Three examples of approaches to implementation

- Theoretical Domains Framework (Michie et al, 2005)
- The Integrated (i) PARIHS framework (Harvey and Kitson 2016)
- Knowledge to Action framework – KTA (Graham et al, 2006)

Theoretical Domains Framework (TDF)

- The TDF was developed using an expert consensus process and validation (led by Susan Michie, Imperial) to identify psychological and organisational theory relevant to health practitioner clinical behaviour change
- Comprises of initially of a set of 12 domains covering the main factors influencing practitioner clinical behaviour and behaviour change, then a further 2 were added
- Interview questions and questionnaire items may be designed to explore the specific content of these domains in relation to implementation problems. The TDF may also be used as a coding framework for analysis.

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

14 Domains of the TDF

- Knowledge
- Skills
- Social/Professional Role and Identity
- Beliefs about Capabilities
- Optimism
- Beliefs about Consequences
- Reinforcement
- Intentions
- Goals
- Memory, Attention and Decision Processes
- Environmental Context and Resources
- Social Influences
- Emotions
- Behavioural Regulation

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

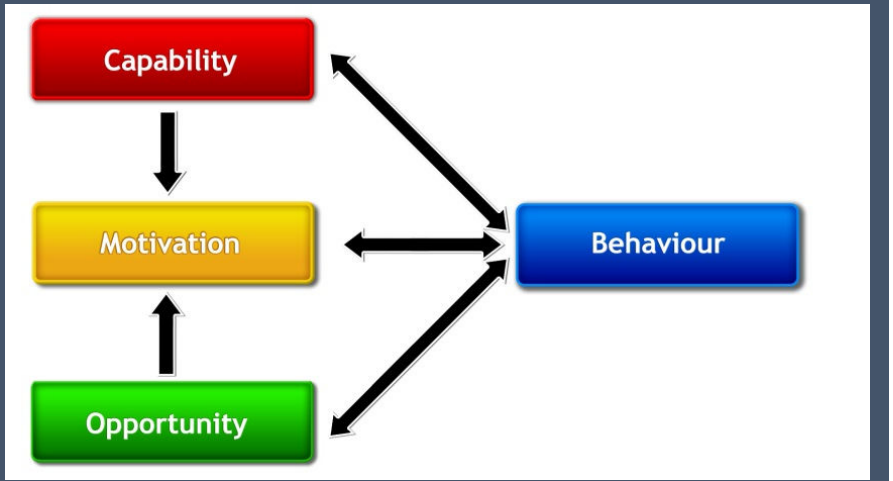
Concepts within the domains

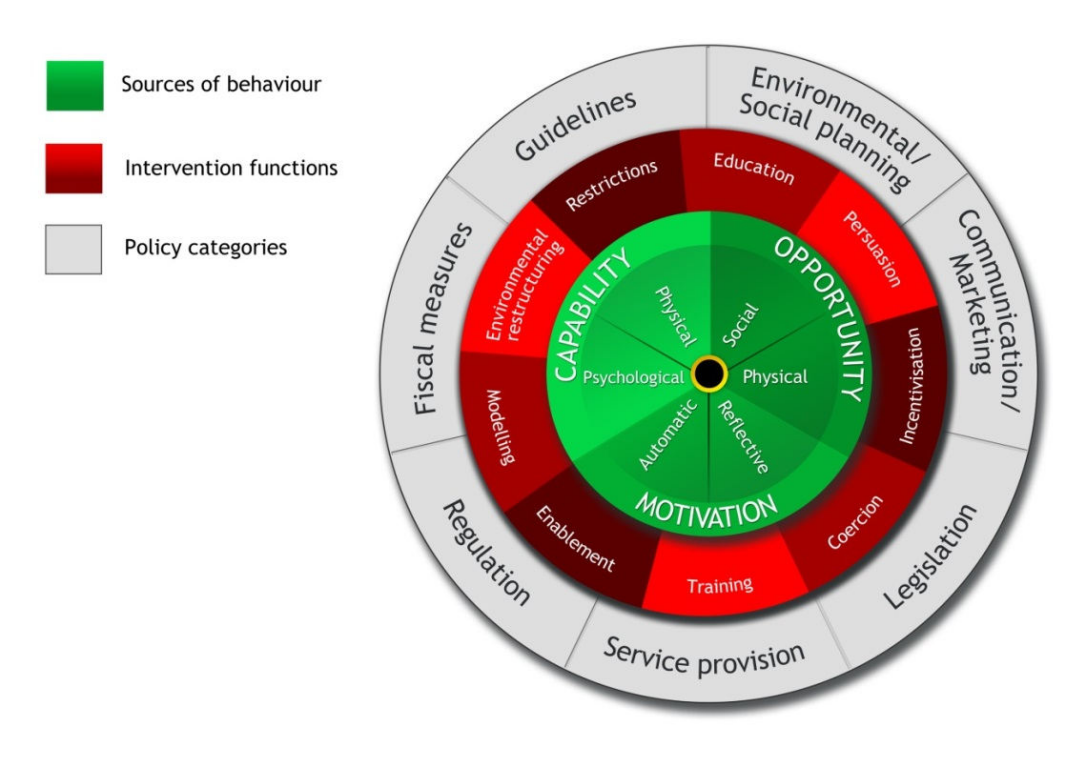
- Each of the domains contains a number of concepts
  - http://www.implementationscience.com/content/7/1/37/table/T2

- Informed by the development of the COM-B model
- http://www.ktcanada.ohri.ca/workshop_tdf/TDF_Michie.pdf

COM-B

The COM-B system: Behaviour occurs as an interaction between three necessary conditions





UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Examples of application and impact - TDF

- This is a really useful collection of papers on the TDF
  - http://www.implementationscience.com/series/TDF
- One uses the Theoretical Domains Framework to explore the factors perceived to influence the uptake of four key evidence-based recommended practices for managing mild traumatic brain injury.
- This qualitative study found that using the Theoretical Domains Framework, factors thought to influence the management of mild traumatic brain injury in the emergency department were identified. These factors present theoretically based targets for a future intervention.

i-PARIHS

- Developed originally by nurse academics/researcher at the RCN to aid the implementation of research evidence into practice.
- There were 3 main areas of activity to assess ranging from weak to strong:
  - Evidence
  - Context and
  - Facilitation
- Within each are a number of different concepts
- If all are judged to be strong or high then successful implementation will be more likely

Adaptations made (Harvey and Kitson)

'Successful implementation' in the original PARIHS framework	**'Successful implementation' in the revised i-PARIHS framework**
SI = ƒ(E,C,F) SI = successful implementation ƒ = function (of) E = evidence C = context F = facilitation	SI = Fac^{n}(I + R + C) SI = successful implementation Achievement of agreed implementation/project goals The uptake and embedding of the innovation in practice Individuals, teams and stakeholders are engaged, motivated and 'own' the innovation Variation related to context is minimised across implementation settings Fac^{n} = facilitation I = innovation R = recipients (individual and collective) C = context (inner and outer)

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Factors for consideration: Innovation

- Underlying knowledge sources
- Clarity
- Degree of fit with existing practice and values (compatibility or contestability)
- Usability
- Relative advantage
- Trialability
- Observable results

Factors for consideration: Recipients

- Motivation
- Values and beliefs
- Goals
- Skills and knowledge
- Time, resources, support
- Local opinion leaders
- Collaboration and teamwork
- Existing networks
- Power and authority
- Presence of boundaries

Factors for consideration: Context

- **Local level:**
- Formal and informal leadership support
- Culture
- Past experience of innovation and change
- Mechanisms for embedding change
- Evaluation and feedback processes
- Learning environment
- **Organisational level:**
- Organisational priorities
- Senior leadership and management support
- Culture
-
- Structure and systems
- History of innovation and change
- Absorptive capacity
- Learning networks

- **External health system level:**
- Policy drivers and priorities
- Incentives and mandates
- Regulatory frameworks
- Environmental (in)stability
- Inter-organisational networks and relationships

Using i-Parihs

- https://implementationscience.biomedcentral.com/articles/10.1186/s13012-016-0398-2

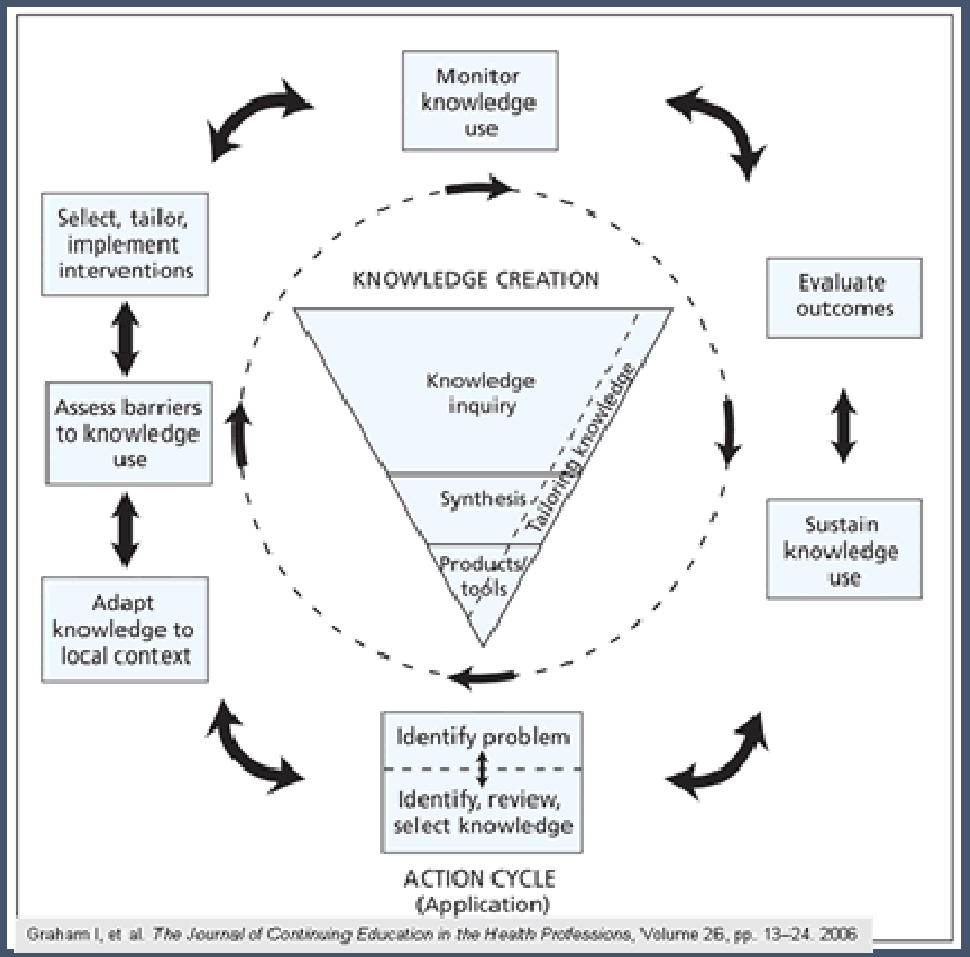
Knowledge to Action Framework

- Developed in Canada by Ian Graham and colleagues at the CIHR
- Focused on two main areas of activity
  - Knowledge creation and knowledge tailoring
  - Evidence implementation
- Largely informed by action learning
- Dynamic process which doesn't follow a linear model

How KT is done

- **1. Creating Knowledge**
  - Deriving knowledge from primary studies, such as randomized controlled trials (Knowledge Inquiry)
  - Synthesizing primary studies to form secondary knowledge, such as systematic reviews or meta-analyses
  - Generating knowledge tools or products (third-generation knowledge) such as practice guidelines, decision aids or care pathways based on best available evidence distilled from synthesized knowledge
- 2. Evidence implementation

KTA framework



Graham I, et al. *The Journal of Continuing Education in the Health Professions*, Volume 26, pp. 13–24. 2006

Examples of application and impact - KTA

- WHO 2010: Science-driven innovations for combating maternal and perinatal ill-health: The G.R.E.A.T. project
  - Guideline development,
  - Research priorities,
  - Evidence synthesis,
  - Applicability of evidence,
  - Transfer of knowledge
- A project to address one of the most challenging problems in sexual and reproductive health is how to lower the stubbornly high rates of mater nal and perinatal mortality and morbidity, especially in low-income settings in sub-Saharan Africa and South Asia
  - http://www.who.int/reproductivehealth/topics/best_practices/Great_Project_2010.pdf?ua=1

Implementation locally – through Clinical Schools

- At the University of Plymouth, we have established 5 professorial led centres, in partnership with our NHS colleagues
- The goal of the clinical schools is to enable nurses, midwives and other supporting clinical colleagues to work together on a growing academic portfolio of work that involves our patients in activity centring on improving care and patient outcomes
- Our work with local health services has identified the urgent need to boost research capacity, and increase the amount of nursing and midwifery led research.
- We have adopted these three framework to guide activity in these centres
- Improvements have been seen in research interest, knowledge and skills among nursing clinicians
- Patients have benefitted from new interventions – one specific example includes pressure mapping technology for those at high risk of pressure injuries; funded by the Health Foundation.


We are… leading the change in hospitals

South west of England – clinical schools

Taunton

University of Plymouth

University Hospitals Plymouth

Exeter

Truro

Torbay and South Devon

UNIVERSITY OF PLYMOUTH
Faculty of Health and Human Sciences

Summary

- There is a growing recognition of the need to do things differently and embrace change to facilitate improvements for our patients
- We need to understand the factors that impact, positively and negatively, on our individual practice
- Alone we can achieve small changes, but together we can drive forward significant change – we can't allow the translation of research findings into any change in clinical practice to take at least 17 years (Morris et al 2011)!

Thank you for your attention

Email: bridie.kent@plymouth.ac.uk
Twitter: @BridieKent