



**PenCIRN**

[www.pencirn.org](http://www.pencirn.org)

The Peninsula Complex  
Interventions Research Network

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NIHR Senior Investigator



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**PenCIRN Objective**

- Establish a network of stakeholders including researchers, lay members and clinicians in the South West
  - to provide a forum for collaboration, education, knowledge exchange and question generation
  - leading to the development, piloting, evaluation and implementation of evidence-based complex interventions delivered by allied health care professionals.



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**A more personal objective...**

- Reduce the current squandering of research capacity, including funding, human resources and projects, from its current level of 85% by developing networks, education strategies and research programmes in longitudinal, programmatic, patient and implementation focused research throughout the South West Peninsula, UK and Europe.



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### Avoidable waste in the production and reporting of research evidence

Iain Chalmers, Paul Glasziou

- *“Much healthcare research is currently wasted because its findings are unusable”*
  - Glasziou et al, BMJ 2010
- What is waste?
- Why does it matter?
- Why does waste occur?
- Is this problem confined to medicine?
- If not, what can we do about it?



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### What is health care research waste?

- Results from studies whose findings are not usable by clinicians or patients
- Research which is:
  - Asking irrelevant or low priority questions
    - Clinicians and patients not involved in setting research agendas
  - Using inappropriate designs, important outcomes not assessed, poor quality procedures
  - Over 50% studies designed without reference to systematic reviews of existing evidence
  - Publishing inaccessible inaccurate, biased or no reports



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### Why does it matter?

- \$100bn US dollars annually worldwide spent on healthcare research
- 1 million research publications produced annually
- In medicine, most of the \$100bn/1m publications supports basic research
- In UK, <10% for treatment evaluation



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### Why does it matter?

- But most importantly, in an era of the informed healthcare consumer, patient choice and self management of chronic and acute illness:
- *“Research results should be easily accessible to people who need to make decisions about their own health”*

Liberati, BMJ, 2004




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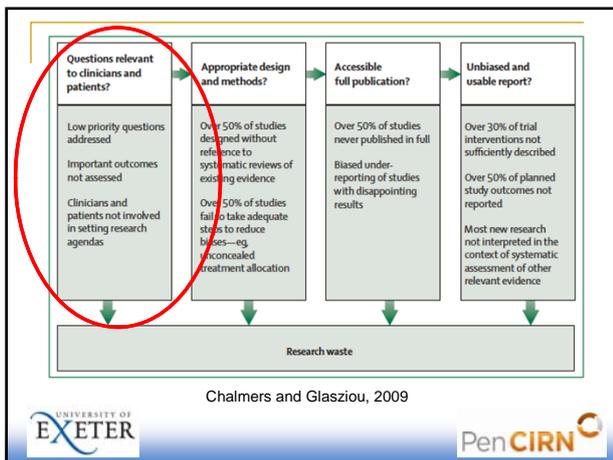
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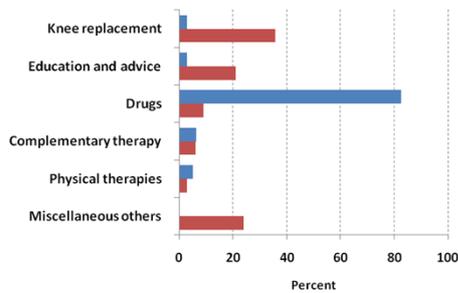
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### Mismatches of patients', clinicians and researchers' priorities for research on osteoarthritis of the knee (Tallon et al. Lancet, 2000).




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### Mismatches in measures for assessing treatments for rheumatoid arthritis

OMERACT 7 Workshop

#### Incorporating the Patient Perspective into Outcome Assessment in Rheumatoid Arthritis — Progress at OMERACT 7

JOHN R. KIRWAN, SARAH E. HEWLETT, TURID HEIBERG, ROD A. HUGHES, MAGGIE CARR, MAGGIE HEHIR, TORE K. KVIEEN, PATRICIA MINNOCK, STANTON P. NEWMAN, ENID M. QUEST, ERIK TAAL, and JANNEY WALE

A survey of patients with rheumatoid arthritis found that **pain was not** usually their most important symptom.



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A survey of patients with rheumatoid arthritis found that **pain was not** usually their most important symptom.

It was **fatigue**



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### Result?

- *“If the losses estimated in the figure apply more generally, then the roughly 50% loss at stages 2, 3, and 4 would lead to a greater than 85% loss, every year”*
- *“Although we have mainly used evidence about the design and reporting of clinical trials, we believe it is reasonable to assume that the problems also apply to other types of research.”*



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## Medicine vs. Nursing

- In medicine, question irrelevance *might* be explained because much research is conducted by basic scientists with no clinical background
- In nursing, where one might assume researchers to be clinically connected, is the situation any better?



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## A problem confined to medicine?

- Chalmers et al (2009)
  - Only 15% of research is NOT wasted
- Rahm Hallberg (2006)
  - Of 210 papers published in two international nursing science journals annually, only 15% addressed 'research that may carry strong evidence for practice'



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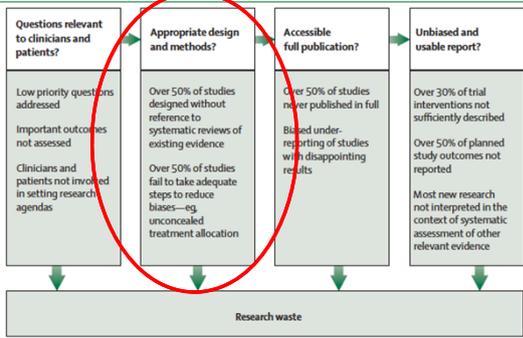
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Chalmers and Glasziou, 2009



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### Nursing research 2000-2006

- 2574 studies
- 1148 (45%) practice/clinical topic
- 47% descriptive
- <6% systematic reviews, meta-analyses or meta-syntheses

Mantzoukas, IJNS 2008, p481



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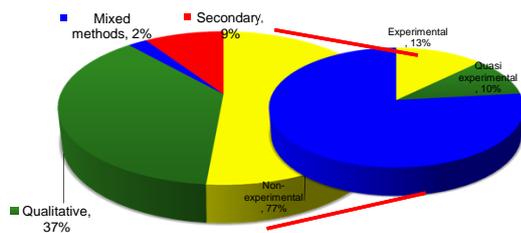
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### Type of Research Methods (n=2574)



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### A sobering analysis of a collective professional delusion

- *Research evidence published in nursing journals are considered to be systematic and well-organised knowledge sources that can function as evidences for nursing practice.*
- *However, this assumption cannot be taken for granted and research studies need to demonstrate the value of the produced evidence for practice.*

Mantzoukas, IJNS 2008, p481



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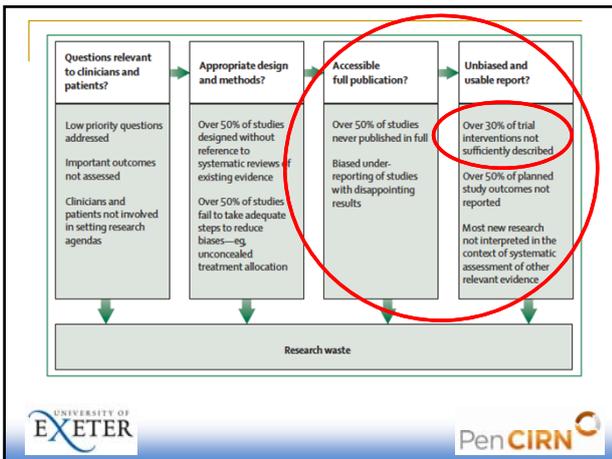
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### Problems with reporting

- Not enough information in 51% of reports of the 80 trials *most relevant to practice* in 2005-2006 to allow clinicians to replicate interventions - worse for non-drug treatments  
Glasziou et al, BMJ 2008
- Interventions in 141 reports from 27 nursing journals in 2005 *not described in sufficient detail to be replicated*.  
Conn et al, J.Nurs.Scholarsh 2008

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### Conclusion

- Very little research helps doctors, nurses and allied health professionals answer their key questions
  - What should I do?
  - What would help patients more than what I do already?
  - What options would harm patients least?

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**And they want to know! - Most accessed Cochrane Reviews**

Review Title	Full Text Accesses	Abstract accesses	CRG
Interventions for preventing falls in older people living in the community	11057	18799	Bone, Joint and Muscle Trauma Group
Interventions for preventing obesity in children	10557	20180	Heart Group
Interventions for preventing falls in older people in nursing care facilities and hospitals	7841	16046	Bone, Joint and Muscle Trauma Group
Interventions for treating obesity in children	7595	14297	Heart Group
Support surfaces for pressure ulcer prevention	6252	11772	Wounds Group
Discharge planning from hospital to home	6142	11804	Effective Practice and Organisation of Care Group
Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes	5831	10493	Effective Practice and Organisation of Care Group
Midwife-led versus other models of care for childbearing women	5350	9604	Pregnancy and Childbirth Group
Interventions for promoting smoking cessation during pregnancy	5052	7823	Pregnancy and Childbirth Group
Interventions for enhancing medication adherence	4971	10425	Consumers and Communication Group

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**Reasons for research waste?**

- In nursing and allied health care professions 'methodology wars' have led to a flight from experimentation and a preference for non-programmatic and observational research, due in part to the inherent difficulty of evaluating interventions which are highly **complex**




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**Why are we in this state?**

- Many if not the majority of interventions in health care are 'complex'
- Complex interventions are built up from a number of components, which may act both independently and inter-dependently.
- The components usually include
  - behaviours
  - parameters of behaviours (e.g. frequency, timing)
  - methods of organising and delivering those behaviours (e.g. type(s) of practitioner, setting and location).




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### An example: Physiotherapy

- Prescription and monitoring of specific exercises
  - Type and frequency
- Confidence building
  - 'common' psychotherapeutic factors
- Training
  - Patient for long term management
  - Carer, now and for future patient support
- Equally a physiotherapist could be just one (complex) component in an even bigger complex system such as a rehabilitation setting or stroke unit



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### The Problem of Evaluating Complex Interventions

- All evaluations present practical and methodological difficulties
- Complex interventions present additional problems
  - the difficulty of standardising the design and delivery of the interventions
  - their sensitivity to features of the local context
  - the organisational and logistical difficulty of applying experimental methods to service or policy change
  - the length and complexity of the causal chains linking intervention with outcome



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### Elements of Complexity

- Number of and interactions between components within the experimental and control interventions
- Number and difficulty of behaviours required by those delivering or receiving the intervention
- Number of groups or organisational levels targeted by the intervention and inherent variation in the populations targeted by interventions (e.g. age; stage of disease)
- Number and variability of outcomes (e.g. possible levels of mobility)
- The degree to which researchers and clinicians are prepared to allow flexibility or tailoring in intervention fidelity



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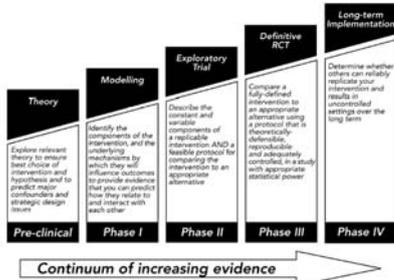
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## Original MRC Guidance (2000)




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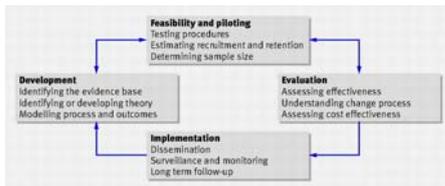
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Fig 1 Key elements of the development and evaluation process Revised MRC Framework



Craig, P. et al. BMJ 2008;337:a1655




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## The task ahead

- Many researchers lack the knowledge, skills and infrastructure to undertake programmatic, multidisciplinary, theory based and integrated research
- Some nursing and allied health care research traditions are portrayed as being in opposition to each other
- The next generation of researchers must be equipped with knowledge and skills in sequenced, mixed methods, complex interventions strategies.




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## The magnitude of the task

- We rarely train our researchers to think in this programmatic, structured, linked and translational manner
- Very few researchers, even from the evidence-based movement, have embraced these interlinked concepts
- REFLECTION and PenCIRN aim to provide new European and Regional environments to redress these systemic problems



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## Investment in networking websites and educational programmes

- **REFLECTION**. Complex Interventions Research Network which combines an online community ([www.reflection-network.eu](http://www.reflection-network.eu)) and project management software with summer schools and master classes in complex interventions research methods across European nursing. Funded by the European Science Foundation including the MRC and seven other European research academies, €500k 2011-2016.
- **PenCIRN**. Complex Interventions Research Network which combines an online community (website in development) and project management software with master classes in complex interventions research methods for allied health care professionals in the South West. Funded by a strategic grant from the College of Life and Environmental Science, £25k, 2012.



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## Websites



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## PenCIRN

UNIVERSITY OF EXETER PenCIRN

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## PenCIRN Activities

- PenCIRN launched summer 2012
- First PenCIRN masterclass in November 2012
- **IMPLEMENTATION Science**
- Apply through [www.pencirn.org](http://www.pencirn.org)

Peninsula Complex Interventions Network  
(www.pencirn.org)

**Workshop and Masterclass**  
Implementing Complex Interventions in Health Care

Led by Professor Thea van Achterberg, Professor of Nursing Science, Radboud University Nijmegen Medical Centre, and Professor Michiel Wensing, Professor of Implementation Science, Radboud University Nijmegen Medical Centre.

**7<sup>th</sup> – 9<sup>th</sup> November 2012**

52 Henry Wellcome Building for Mental Disorders Research  
University of Exeter  
Perry Road  
Exeter EX2 4JG

If you would like to attend, please complete the attached application form and send to Marie Lounsbury by email: [ML.Lounsbury@exeter.ac.uk](mailto:ML.Lounsbury@exeter.ac.uk)  
Tel: 01392 721762

Please note that the number of places are limited.

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## Why the focus on nursing and allied health care professionals?

NHS	Headcount	FTE
All staff	1,186,099	1,034,513
Clinically qualified	628,129	558,353
Doctors	107,779	101,205
Nurses	348,972	306,999
Allied Health Professions	74,643	62,897

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[www.pencirn.org](http://www.pencirn.org)

Questions and Discussion



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