

# The NIHR Systematic Reviews Programme: Opportunities for Greater Impact

An Organisational Perspective

Neil Hawkins, LSHTM

# What determines the impact of a review?



The Cochrane Nursing Care Field writes exclusively for Nursing Times readers

Nursing Practice  
**Cochrane summary**  
Intravenous therapy

Catheter insertion is an unpleasant experience for patients. This Cochrane review assessed the effects of removing catheters when clinically indicated compared with doing so routinely

## When should peripheral venous catheters be replaced?

### Review question

What are the effects of replacing a peripheral intravenous catheter when clinically indicated, versus removing and re-siting the catheter routinely among patients who receive intravenous therapy in acute and community settings?

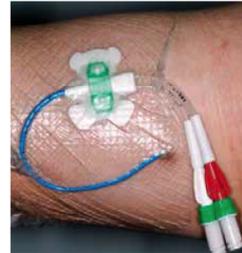
### Nursing implications

Certified nurses are permitted to perform peripheral intravenous cannulation for patients who require intravenous therapy. Therefore, from initiating cannulation to catheter removal, nurses play an important role in caring for, and maintaining the catheter to prevent complications such as infection and occlusion.

### Study characteristics

Six randomised controlled trials consisting of a total of 3,455 participants were included in the review. The inclusion criteria considered any participants who received intermittent or continuous intravenous therapy, except parenteral fluids. There was no age limitation. The intervention of interest was any type of catheter that was routinely replaced between 48 and 96 hours, compared with catheters being replaced when clinically indicated for conditions such as blockage, pain, redness, infiltration, swelling, leakage and phlebitis. The primary outcome measures were suspected device-related bacteraemia, thrombophlebitis and cost.

All trials reported adequate computer-generated randomisation and allocation concealment, but blinding was not possible in any of the trials. Five of the six trials included were free of other potential biases, apart from a reported higher antibiotic use in the "routinely replaced group" in one of the five studies. These five trials also used an intention-to-treat analysis



A peripheral catheter inserted into the arm of a patient to deliver chemotherapy drugs

and outcome measures were reported in accordance with a planned protocol.

### Summary of key evidence

Two trials reported that removal of peripheral venous catheters when clinically indicated reduced the cannulation costs significantly. In five studies, there was a 43% reduction in suspected device-related bacteraemia compared with routine replacement, but this was not statistically significant.

There was a statistically significant increase in catheter blockage in four studies, and a non-significant increase in phlebitis of 24% in six trials in the

clinically indicated group. There was also a non-significant increase in catheter failure due to infiltration of 13% in three studies among clinically indicated groups.

The incidence of local infection was not statistically different in clinically and routinely indicated groups in three studies.

When phlebitis incidence was assessed per 1,000 device days, there was no statistical difference between groups.

### Best practice recommendations

The results from this review suggest that peripheral venous catheters should be replaced when clinically indicated for those patients who receive intravenous therapy in acute and community settings. The evidence recommends discouraging the routine change of catheters every 72-96 hours. **nr**

The full review report, including references, can be accessed at [tinyurl.com/coch-catheter](http://tinyurl.com/coch-catheter)

Dora Lang is a group member of the National Cancer Institute Singapore, National University Health System, and a member of the Cochrane Nursing Care Field

### Reference

Webster J et al (2010) Clinically indicated replacement versus routine replacement of peripheral venous catheters. *Cochrane Database of Systematic Reviews*, Issue 3, Art No: CD007798. DOI: 10.1002/14651858.CD007798.pub2

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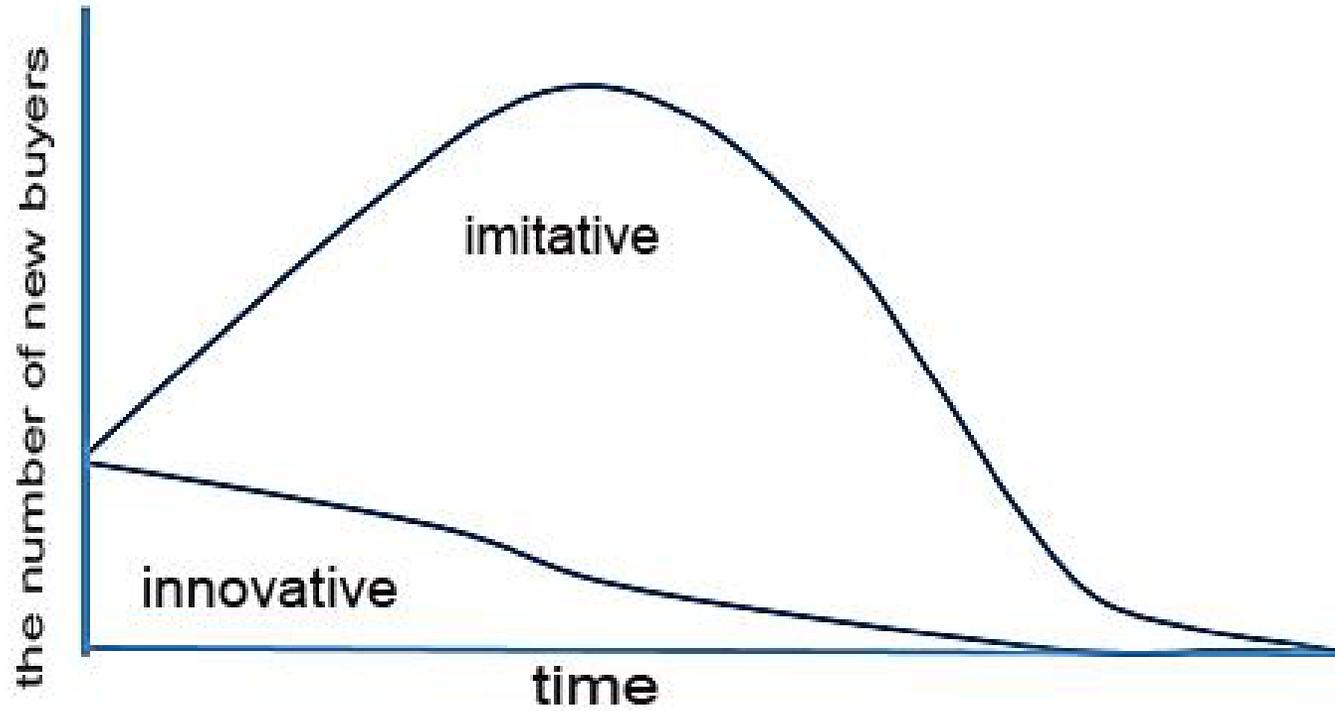
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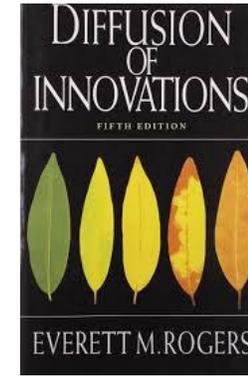
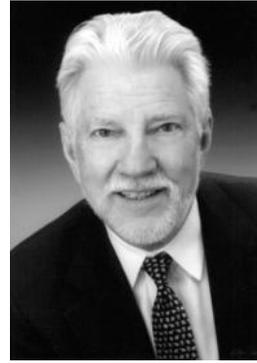
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We can think of impact as the diffusion of innovation (change in practice)

The “Bass’ Model



# Everett M. Rogers

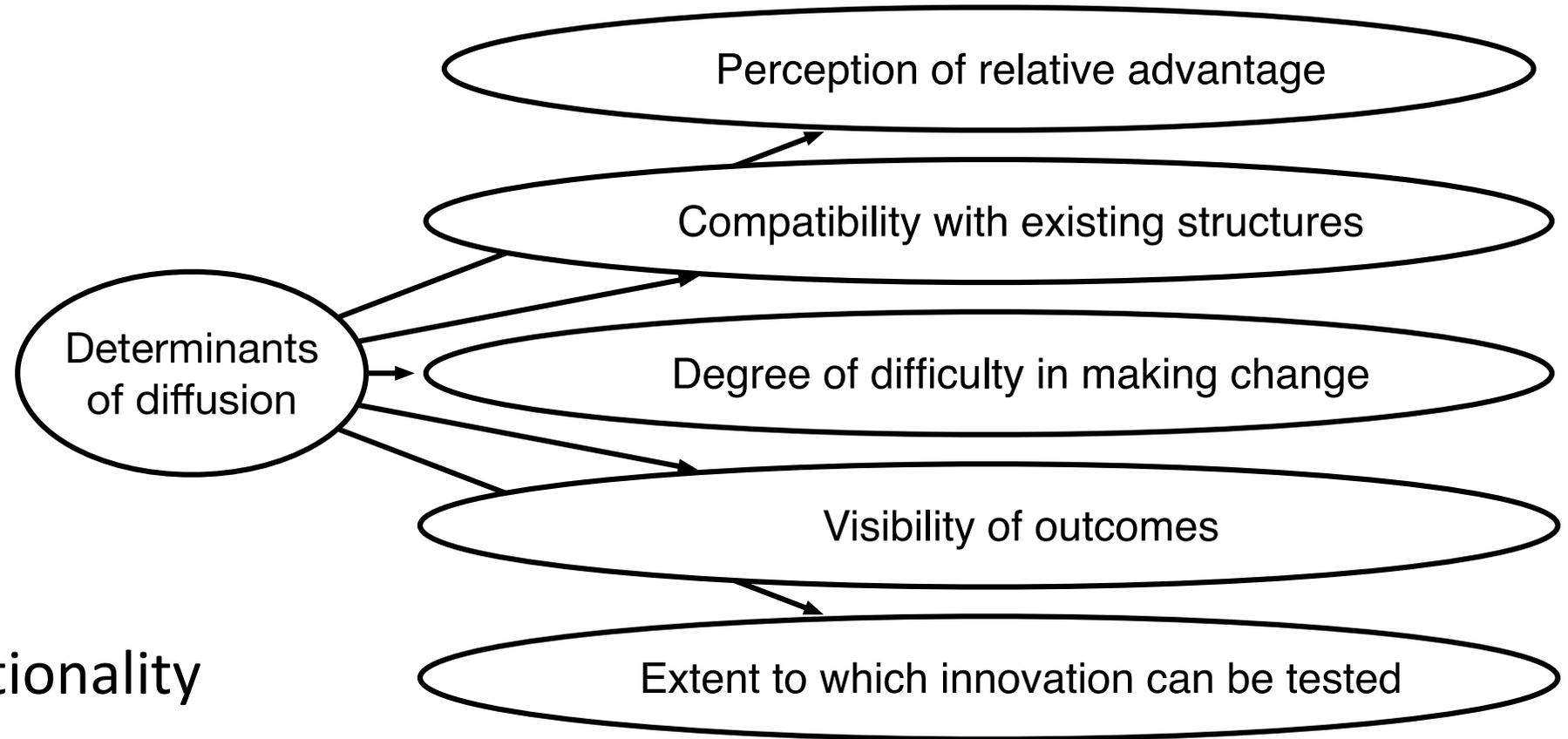


His father loved electromechanical farm innovations, but was highly reluctant to utilize biological–chemical innovations, so he resisted adopting the new hybrid seed corn, even though it yielded 25% more crop and was resistant to drought.

During the Iowa drought of 1936, while the hybrid seed corn stood tall on the neighbor’s farm, the crop on the Rogers’ farm wilted. Rogers’ father was finally convinced.

Backer TE. FORUM: THE LIFE AND WORK OF EVERETT ROGERS—SOME PERSONAL REFLECTIONS  
Introduction. J Health Commun [Internet]. 2005;10(4):285–8

# Roger's Model of the diffusion of innovation



Criticised for:

- Reliance on rationality
- Over-simplification of change process
- Insufficient consideration of networks

# The importance of organisational context

## No Magic Targets! Changing Clinical Practice To Become More Evidence Based

Sue Dopson, Louise FitzGerald,  
Ewan Ferlie, John Gabbay, and  
Louise Locock

*This article focuses on the diffusion and adoption of innovations in clinical practice. The authors are specifically interested in underresearched questions concerning the latter stages of the creation, diffusion, and adoption of new knowledge, namely: What makes this information credible and therefore utilized? Why do actors decide to use new knowledge? And what is the significance of the social context of which actors are a part?*

This article focuses on the diffusion and adoption of innovations within the context of clinical practice. We are specifically interested in what we regard to be underresearched questions concerning the latter stages of the creation, diffusion, and adoption of new knowledge, namely: What makes this information credible and therefore utilized? Why do actors decide to use new knowledge? And what is the significance of the social context of which actors are a part? The article also attempts to address these questions in a novel way in that it arises from regular meetings of two groups of researchers working within the rapidly developing field of health services organizational research in the U.K. who have over the last 2 years sought to reflect on their research activity in relation to these questions. In particular, we have considered whether it would be additive to "scale up" or aggregate analyses by taking an overview across a suite of seven related and recently completed studies that consider the diffusion of innovation. We were interested in exploring, first, if pooling results across this family of related studies would produce more generalizable findings. And second, if so, what are the rules of method to be adopted and do they differ from those apparent within the conventional systematic review paradigm? Here we concentrate on the first aspect of our work together. (The work on rules of method is discussed in Ferlie et al.)

*Key words:* adoption of innovations, changing clinical practice, diffusion, evidence based medicine

Sue Dopson, B.Sc., M.Sc., Ph.D., is University Lecturer, Saïd Business School and Fellow in Organisational Behaviour, Templeton College, University of Oxford, U.K.

Louise FitzGerald, Ph.D., B.A. (Econ.) Hon., M.L.P.M., is Professor of Human Resource Development, Departments of HRM, School of Business & Law, De Montfort University, Leicester, U.K.

Ewan Ferlie, M.A., M.Sc., Ph.D., is Professor of Public Services Management, Imperial College Management School, London, U.K.

John Gabbay, Ph.D., is Professor of Public Health, Community Clinical Sciences Division, School of Medicine, University of Southampton.

Louise Locock, Ph.D., is Research Fellow, HSMC, University of Birmingham.

TABLE 2

### RESEARCH THEMES

Theme	Dopson & Gabbay <sup>22</sup>	Wood et al. <sup>29</sup>	Dawson et al. <sup>12</sup>	CSAG (Gabbay et al.) <sup>21</sup>	Fitzgerald et al. <sup>26,27</sup>	Dopson et al. <sup>23</sup>	Locock et al. <sup>28</sup>
1. EVIDENCE IS NOT SUFFICIENT	3	2	3	3	3	3	3
2. EVIDENCE IS SOCIALLY CONSTRUCTED	2	3	3	2	3	3	3
3. EVIDENCE IS DIFFERENTIALLY AVAILABLE	2	3	2	3	3	1	2
4. HIERARCHIES OF EVIDENCE EXIST	3	3	3	3	2	3	3
5. OTHER SOURCES OF EVIDENCE	2	2	3	3	3	2	3
6. THE IMPORTANCE OF PROFESSIONAL NETWORKS	2	3	3	3	3	3	3
7. THE ROLE OF PROFESSIONAL BOUNDARIES	2	3	3	3	3	2	2
8. CONTEXT AS AN INFLUENCE	3	2	3	3	3	3	3
9. THE ROLE OF OPINION LEADERS	2	2	3	3	3	3	3
10. THE ENACTMENT OF EVIDENCE	3	3	3	3	3	3	3

#### Key:

1 = Theme is present

2 = Strong evidence of theme

3 = Very strong evidence of presence

Dopson S, FitzGerald L, Ferlie E, Gabbay J, Locock L. No Magic Targets! Changing Clinical Practice To Become More Evidence Based. Health Care Manage Rev [Internet]. 2002 Jul;27(3):35–47.

# The diffusion of innovations in U.K. health care: common core themes (1)

- Robust evidence is not sufficient to facilitate diffusion
- Interpretation of evidence is socially constructed
  - Competing bodies of evidence - differing interpretations
  - Interpretations may vary by stakeholder (profession, group, and individual)
  - Malleability of evidence over time and according to priority
- Evidence is differentially available for different professions
- Hierarchies of evidence exist
- Other sources of evidence are important
  - Tacit / experimental knowledge
  - Craft skills

# The diffusion of innovations in U.K. health care: common core themes (2)

- Professional networks shape behaviour
- Professional boundaries inhibit knowledge diffusion
- Context influences diffusions
  - Government policy
  - Regional influences
  - Individual practitioners
- Opinion leaders as facilitators and inhibitors
  - Expert opinion leaders
  - Peer opinion leaders
- Strength of evidence

# What sort of 'interventions' might we consider?

Adaptation of RICE'S Four E's:

- Education
  - Printed materials; educational outreach, monitoring
- Engineering
  - Managerial interventions: disease management; prescribing targets
- Economics
  - insurance and reimbursement; co-payments; financial incentives
- Enforcement
  - Generic substitution

## Soft Regulations in Pharmaceutical Policy Making

An Overview of Current Approaches and their Consequences

Björn Wettermark,<sup>1,2</sup> Brian Godman,<sup>3,4</sup> Bengt Jacobsson<sup>5</sup> and Flora M. Haaijer-Ruskamp<sup>6</sup>

1 Department of Clinical Pharmacology and Centre for Pharmacoepidemiology, Karolinska Institutet, Stockholm, Sweden

2 Department of Drug Management and Informatics, Stockholm County Council, Stockholm, Sweden

3 Institute of Pharmacological Research 'Mario Negri', Milan, Italy

4 Department of Management Studies, University of Liverpool, Liverpool, UK

5 Södertörn University College, Stockholm, Sweden

6 Department of Clinical Pharmacology, University Medical Centre Groningen, University of Groningen, Groningen, the Netherlands

Wettermark B, Godman B, Jacobsson B, Haaijer-Ruskamp FM. Soft Regulations in Pharmaceutical Policy Making. Appl Health Econ Health Policy [Internet]. 2009;7(3):137-47

# And which interventions actually work?

## *Getting research findings into practice*

### Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings

Lisa A Bero, Roberto Grilli, Jeremy M Grimshaw, Emma Harvey, Andrew D Oxman, Mary Ann Thomson on behalf of the Cochrane Effective Practice and Organisation of Care Review Group

Despite the considerable amount of money spent on clinical research relatively little attention has been paid to ensuring that the findings of research are implemented in routine clinical practice.<sup>1</sup> There are many different types of intervention that can be used to promote behavioural change among healthcare professionals and the implementation of research findings. Disentangling the effects of intervention from the influence of contextual factors is difficult when interpreting the results of individual trials of behavioural change.<sup>2</sup> Nevertheless, systematic reviews of rigorous studies provide the best evidence of the effectiveness of different strategies for promoting behavioural change.<sup>3 4</sup> In this paper we examine systematic reviews of different strategies for the dissemination and implementation of research findings to identify evidence of the effectiveness of different strategies and to assess the quality of the systematic reviews.

#### Summary points

Systematic reviews of rigorous studies provide the best evidence on the effectiveness of different strategies to promote the implementation of research findings

Passive dissemination of information is generally ineffective

It seems necessary to use specific strategies to encourage implementation of research based recommendations and to ensure changes in practice

Further research on the relative effectiveness and efficiency of different strategies is required

# Interventions to promote behavioural change among health professionals

- Consistently effective interventions
  - Educational outreach
  - Reminders
  - Interactive educational meetings
- Interventions of variable effectiveness
  - Audit and feedback
  - Use of local opinion leaders
  - Local consensus processes
  - Patient mediated interventions
- Interventions that have little or no effect
  - **Educational materials**
  - **Didactic educational meetings**

So, how do we make them come?



# Questions?

- Should Cochrane be concerned about impact and diffusion?
- What type of activities might be undertaken?
- How should Cochrane interact with the relevant organisational structures?