

# Promoting professional behaviour change in healthcare – what interventions work, and why? Protocol for a theory-led overview of systematic reviews

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## Abstract

**Background:** An overview of systematic reviews of interventions intended to facilitate professional behaviour change in healthcare is presented, and its proposed methods are described.

**Aim:** to (i) ascertain the extent to which Normalisation Process Theory is a useful tool for framing overviews and permits novel and plausible interpretation of results, and (ii) to identify, describe and explain the mechanisms that contribute to the relative success or failure of specific approaches to professional behaviour change.

**Method:** Overview of systematic reviews, with a theory led analysis.

**Conclusion:** The proposed overview will be the first such study to be informed by Normalization Process Theory and will be an important proof of concept exercise for NPT led overviews of systematic reviews.

## Introduction

Understanding professional behaviour change in healthcare is an important challenge for managers, clinicians, and policy-makers who seek to translate clinical evidence into practice. It is also an important area of research, to which the new discipline of implementation science can make important contributions (Eccles and Mittman, 2006). Typically, behaviour change interventions are founded on the application of psychological models to translational problems (Angus et al., 2006; Michie et al., 2011). This assumes that behaviour change is a

matter of individual motivation and action. It also assumes that individual attitudes and intentions are fundamental underpinnings of those behaviours. Our point of departure is that psychological models may be valuable and important in determining behaviour change, but most implementation work takes place in complex organisational settings and is accomplished through complex social processes (Linton, 2002) in which individuals' behaviours are actually parts of complex social wholes. In this overview of systematic reviews we will explore and interpret what is known about the results of behaviour change interventions

using a translational framework derived from Normalisation Process Theory (NPT) (May and Finch, 2009; May et al., 2009). NPT starts from the assumption that individual and collective factors are both important for successful implementation of behaviour change interventions, and that they equally contribute in important ways to a social process in which complexes of behaviours and practices are operationalised against the background of social systems in action. It therefore offers a useful lens through which to explore behaviour change intervention in a healthcare setting.

## Aim

The aim of the study is to undertake a theory informed overview of systematic reviews in order to (i) ascertain the extent to which Normalisation Process Theory is a useful tool for framing overviews and permits novel and plausible interpretation of results, and (ii) to identify, describe and explain the mechanisms that contribute to the relative success or failure of specific approaches to professional behaviour change.

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## Methods

This review will follow the methodology set out by Smith et al. (2011) for conducting a systematic review of systematic reviews of healthcare interventions.

### Eligibility criteria

To be included in the overview, studies must be (1) a systematic review, meta-analyses or syntheses of published qualitative or quantitative studies; (2) have examined the effectiveness of 'Professional Interventions' as defined by the Cochrane EPOC Review Group (2004), (see Table 1)

in implementing evidence based practice by healthcare professionals or providers; (3) have compared the implementation of an intervention to a control group (no intervention) or another intervention; (4) have used outcome measures which included any measures of clinical process change, compliance or patient outcomes; (5) be in the English language.

The following types of study will be excluded: (1) studies focussing on financial incentives, organisational changes and policy changes (because these tend to be aimed at relatively autonomous professionals in fee for service environments,

rather than complex workgroups in complex organizational settings); (2) studies considering larger public health issues not directly concerned with professional practice changes (e.g. smoking cessation aimed at the general public), together with those concerned with changing patient behaviour rather than practice or professionals behaviour (e.g. promotion of healthy lifestyle changes); (3) studies looking at the barriers or factors affecting implementation, rather than the effects of interventions themselves on outcomes.

**Table 1:** Professional Interventions defined by the Cochrane EPOC Review Group

	Name	Description
A	Distribution of educational materials	Distribution of published or printed recommendations for clinical care, including clinical practice guidelines, audio-visual materials and electronic publications. The materials may have been delivered personally or through mass mailings.
B	Educational meetings	Health care providers who have participated in conferences, lectures, workshops or traineeships
C	Local consensus processes	Inclusion of participating providers in discussion to ensure that they agreed that the chosen clinical problem was important and the approach to managing the problem was appropriate
D	Educational outreach visits	Use of a trained person who met with providers in their practice settings to give information with the intent of changing the provider's practice. The information given may have included feedback on the performance of the provider(s).
E	Local opinion leaders	Use of providers nominated by their colleagues as 'educationally influential'. The investigators must have explicitly stated that their colleagues identified the opinion leaders.
F	Patient mediated interventions	New clinical information (not previously available) collected directly from patients and given to the provider e.g. depression scores from an instrument.
G	Audit and feedback	Any summary of clinical performance of health care over a specified period of time. The summary may also have included recommendations for clinical action. The information may have been obtained from medical records, computerised databases, or observations from patients.
H	Reminders	Patient or provider encounter specific information designed or intended to prompt a health professional to recall information. This would usually be encountered through their general education; in medical records or through interactions with peers, and so remind them to perform or avoid some action to aid individual patient care. Computer aided decision support is included.
I	Marketing	Use of personal interviewing, group discussion ('focus groups'), or a survey of targeted providers to identify barriers to change and subsequent design of an intervention that addresses identified barriers.
J	Mass media	Either 1) Varied use of communication that reached great numbers of people including television, radio, newspapers, posters, leaflets, and booklets, alone or in conjunction with other interventions, or 2) Targeted at the population level.

**Table 2:** Search strategy used in overview of systematic reviews (MH= Medical Subject Heading, AB=abstract, TI=title, PT=publication type, '+' indicates an exploded term)

1	"clinicians"
2	(MH "Nurse Practitioners+") OR (MH "General Practitioners") OR "practitioner"
3	(MH "Nursing Staff+") OR (MH "Medical Staff+") OR (MH "Nursing Staff, Hospital") OR (MH "Medical Staff, Hospital+") OR "staff"
4	"health professional" OR "health professionals"
5	"healthcare teams" OR (MH "Patient Care Team+")
6	(MH "Health Personnel") OR "health personnel" OR (MH "Allied Health Personnel+")
7	(MH "Allied Health Occupations+") OR (MH "Allied Health Personnel") OR "allied health professionals"
8	"occupational therapists"
9	(MH "Pharmacists") OR "pharmacist"
10	(MH "Nutritionists") OR "dietitians"
11	(MH "Physical Therapists") OR "physiotherapist"
12	(MH "Nurses+") OR "nurses"
13	(MH "Physicians") OR "physicians"
14	"doctors"
15	(MH "Algorithms+") OR "algorithm*"
16	(MH "Information Dissemination") OR "information dissemination"
17	(MH "Clinical Protocols+") OR "protocol"
18	(MH "Mass Media+") OR "mass media"
19	(MH "Medical Audit+") OR (MH "Nursing Audit") OR "audit"
20	(MH "Marketing+") OR "marketing"
21	"opinion leaders"
22	(MH "Reminder Systems") OR "reminder"
23	"academic detailing"
24	"educational outreach"
25	"educational materials"
26	(MH "Guideline+") OR "guideline" OR (MH "Practice Guideline")
27	(MH "Education+") OR "education"
28	"printed"
29	"identify barriers"
30	"reminders"
31	(MH "Process Assessment (Health Care)") OR "process"
32	"outcomes" OR (MH "Outcome Assessment (Health Care)+")
33	(MH "Guideline Adherence")
34	"behaviour"
35	(MH "Behavior+") OR "behavior"
36	(MH "Physician's Practice Patterns") OR (MH "Professional Practice+") OR (MH "Nursing, Practical") OR "practice"
37	"process of care" OR "processes of care" OR "health outcomes" OR "patient outcomes"
38	AB MEDLINE OR TI MEDLINE OR AB systematic review OR TI systematic review OR PT meta-analysis
39	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14
40	15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30
41	31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37
42	38 AND 39 AND 40 AND 41

*Searches and Information sources*

Table 2 shows the search strategy that will be used. Search terms for retrieving systematic reviews was based on optimal search strategy for maximum precision for retrieving from Medline outlined by Montori (2005). Of note, in view of the close relationship between guideline implementation, practice patterns, evidence based medicine and quality improvement, these MeSH terms will also be included in the search strategy. The electronic databases MEDLINE (1947 to Present), CINAHL (1981 to Present), PsychINFO (1967 to present) will be searched using EBSCO. In addition, the Cochrane library (1988 to present) will also be searched using a similar search strategy, adapted for use in the web interface. Citation and reference searching will also be performed on articles selected for review.

*Study selection*

Studies will be assessed for eligibility by two reviewers working together, who will not be blinded to the identities of the

study authors or institutions.

*Data collection process*

Data extraction will be carried out by a single reviewer using a specially designed spread sheet (table 3), which will collect data on the subject of the review, the setting, the participants, the intervention assessed, the outcome measures, years of literature searched, the main findings and author’s conclusions. Studies will then be coded by two reviewers working together, as to which single intervention or multiple interventions they were assessing.

*Quality assessment of included Systematic Reviews*

The quality of included reviews will be assessed using the AMSTAR criteria (see table 4 (Shea et al., 2007)). Studies score one point for each of the 11 criteria they meet, and score zero if they do not meet the criteria or it cannot be assessed due to a lack of reported information. These scores will be taken account of when synthesising results.

*Synthesis of results*

This overview of systematic reviews will use vote counting, together with a narrative synthesis of included studies to summarise findings. This method has been chosen as some meta-analysis may have already taken place in the included studies, together with the likelihood of varying areas of focus between reviews; and anticipated heterogeneity in the reporting of results. Systematic reviews will be analysed in three separate groups: (1) Those focusing on single interventions (i.e. they considered only one type of professional intervention exclusively). (2) Those considering multiple interventions (i.e. they included studies using a variety of interventions or combinations of interventions). Note that studies which state they are focussing on a single specific intervention but include studies which use multiple interventions will be included here. (3) Those focussing specifically on guideline implementation. Each systematic review will then be coded as to which interventions it used (based on the studies it had included).

**Table 3:** Example of data extraction sheet used in review

Study	Quality Score (0-11)	Focus	Inclusion Criteria					Single/Multiple/ Guideline	EPOC Interventions	Main Results	Authors Main Conclusions
			Setting	Participants	Intervention	Outcomes	Period				

**Table 4:** The AMSTAR criteria, adapted from (Shea et al., 2007)

<p><b>1. Was an ‘a priori’ design provided?</b> The research question and inclusion criteria should be established before the conduct of the review.</p> <p><b>2. Was there duplicate study selection and data extraction?</b> There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.</p> <p><b>3. Was a comprehensive literature search performed?</b> At least two electronic sources should be searched. The report must include years and databases used (e.g. Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.</p> <p><b>4. Was the status of publication (i.e. grey literature) used as an inclusion criterion?</b> The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.</p> <p><b>5. Was a list of studies (included and excluded) provided?</b> A list of included and excluded studies should be provided.</p> <p><b>6. Were the characteristics of the included studies provided?</b> In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analysed e.g. age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.</p> <p><b>7. Was the scientific quality of the included studies assessed and documented?</b> ‘A priori’ methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant.</p> <p><b>8. Was the scientific quality of the included studies used appropriately in formulating conclusions?</b> The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.</p> <p><b>9. Were the methods used to combine the findings of studies appropriate?</b> For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e. Chi-squared test for homogeneity, I<sup>2</sup>). If heterogeneity exists a random effects model should be used and/or the clinical appropriateness of combining should be taken into consideration (i.e. is it sensible to combine?).</p> <p><b>10. Was the likelihood of publication bias assessed?</b> An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test).</p> <p><b>11. Was the conflict of interest stated?</b> Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.</p>
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**Table 5: The Constructs of NPT**

<b>Group</b>	<b>Construct</b>	<b>Description</b>	<b>Code</b>
<b>Coherence</b>	<b>Differentiation</b>	An important element of sense-making work is to understand how a set of practices and their objects are different from each other.	CODI
	<b>Communal specification</b>	Sense-making relies on people working together to build a shared understanding of the aims, objectives, and expected benefits of a set of practices.	COIS
	<b>Individual specification</b>	Sense-making has an individual component too. Here participants in coherence work need to do things that will help them understand their specific tasks and responsibilities around a set of practices.	COCS
<b>Cognitive Participation</b>	<b>Internalization</b>	Finally, sense-making involves people in work that is about understanding the value, benefits and importance of a set of practices.	COIN
	<b>Initiation</b>	When a set of practices is new or modified, a core problem is whether or not key participants are working to drive them forward.	CPIN
	<b>Enrolment</b>	Participants may need to organize or reorganize themselves and others in order to collectively contribute to the work involved in new practices. This is complex work that may involve rethinking individual and group relationships between people and things.	CPLE
	<b>Legitimation</b>	An important component of relational work around participation is the work of ensuring that other participants believe it is right for them to be involved, and that they can make a valid contribution to it.	CPEN
<b>Collective Action</b>	<b>Activation</b>	Once it is underway, participants need to collectively define the actions and procedures needed to sustain a practice and to stay involved.	CPAC
	<b>Interactional Workability</b>	This refers to the interactional work that people do with each other, with artefacts, and with other elements of a set of practices, when they seek to operationalize them in everyday settings.	CAIW
	<b>Relational Integration</b>	This refers to the knowledge work that people do to build accountability and maintain confidence in a set of practices and in each other as they use them..	CARI
	<b>Skill set Workability</b>	This refers to the allocation work that underpins the division of labour that is built up around a set of practices as they are operationalized in the real world.	CACI
	<b>Contextual Integration</b>	This refers to the resource work - managing a set of practices through the allocation of different kinds of resources and the execution of protocols, policies and procedures.	CASW
<b>Reflexive Monitoring</b>	<b>Systematization</b>	Participants in any set of practices may seek to determine how effective and useful it is for them and for others, and this involves the work of collecting information in a variety of ways.	RMSY
	<b>Communal appraisal</b>	Participants work together - sometimes in formal collaboratives, sometimes in informal groups to evaluate the worth of a set of practices. They may use many different means to do this drawing on a variety of experiential and systematized information.	RMIA
	<b>Individual appraisal</b>	Participants in a new set of practices also work experientially as individuals to appraise its effects on them and the contexts in which they are set. From this work stem actions through which individuals express their personal relationships to new technologies or complex interventions.	RMCA
	<b>Reconfiguration</b>	Appraisal work by individuals or groups may lead to attempts to redefine procedures or modify practices - and even to change the shape of a new technology itself.	RMRE

### *Mapping of EPOC Professional Interventions to NPT*

A coding matrix mapping the NPT constructs (table 1) to each of the ten EPOC intervention types (excluding the 'Other' category, table 5) will be generated by two authors working together. The NPT sub-constructs of 'differentiation' and 'reconfiguration' will be excluded from the 16 NPT constructs mapped to the EPOC intervention types, because 'differentiation' is a precondition for an experimental intervention and 'reconfiguration' is a requirement of an intervention study. This means that only the remaining 14 constructs will be included in the coding matrix.

### *Coding of Systematic Reviews to NPT framework*

Once developed, the NPT-EPOC professional intervention coding framework will be applied to each included review to determine which NPT constructs it had covered in its component interventions. This will allow each review to be given a score for each construct of NPT depending on which EPOC intervention types had been used in the included studies when drawing conclusions about effectiveness. Each systematic review will also be coded as to whether it concludes that the intervention/interventions it had reviewed had

been successful in improving the process of care and/or patient outcomes. For each of these two outcomes, systematic reviews will be coded as 'successful', 'unsuccessful', 'unclear' or 'not assessed'. Once coded, results will be represented as radar plots, with each review overlaid to show how each construct is represented across reviews in each category. This will provide a graphical representation of the number and extent to which each NPT construct is represented in reviews which considered the interventions to be successful in improving practice or outcomes, which can then be compared to those which were less successful. The more complete the area of the radar plot, the more constructs of NPT a review is including, with large peaks in the plot area highlighting NPT constructs that are being most heavily accessed by interventions or groups of interventions.

## Conclusion

Overviews of systematic reviews are undertaken for many reasons. The most common one is to synthesise the results of many different studies in the interests of evaluating the clinical and cost effectiveness of different interventions. In this overview our aim, as noted above, is somewhat different. We propose a the-

ory-informed overview that will help us to identify, describe and explain – from a social science perspective – the mechanisms that contribute to the relative success or failure of specific approaches to professional behaviour change. Such an approach has limitations of course. The most salient of these is that the studies included may not ultimately be amenable to analysis in this way, either because they are informed by other theories or because they do not provide sufficient information on which to judge relative success: but time will tell. Importantly, this is the first overview of systematic reviews to be informed by Normalisation Process Theory. We therefore expect it to be both a useful overview and also a proof of concept exercise for the development of NPT related research.

## Competing Interests

None.

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