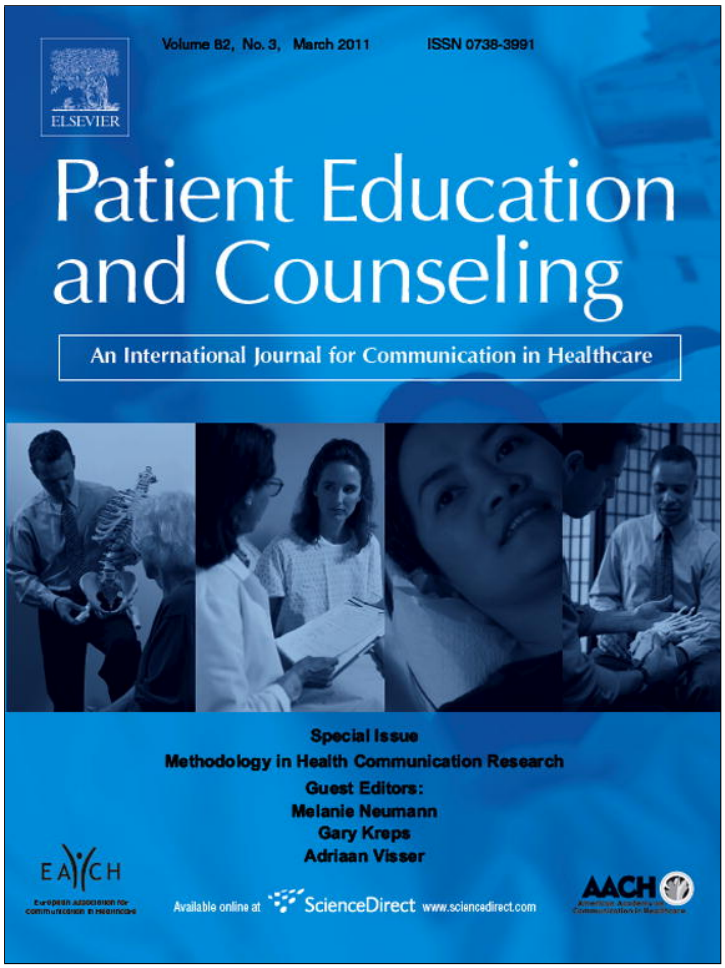

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Research in communication skills training translated into practice in a large organization: A proactive use of the RE-AIM framework

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ABSTRACT

Objective: To describe how a specific communication course for health professionals has been evaluated and implemented in clinical practice and how it will be transferred and evaluated at the entire hospital.
Methods: The different phases of the research process from generating the hypothesis to implementing the results are described and exemplified by means of published studies and a study under planning. RE-AIM, an acronym for Reach, Efficacy/Effectiveness, Adoption, Implementation, and Maintenance, is used to describe the process.
Results: In descriptive studies we identified a need for improving the communication with patients. By evaluating the efficacy and effectiveness of communication skills training we showed that the courses could improve clinicians' self-efficacy in specific communication tasks. After all clinicians had participated in the communication course the proportion of satisfied parents increased significantly. Based on these experiences a program for implementing the communication course at the entire hospital is being planned.
Conclusion: To succeed in translating the research results into practice, long-term commitment is needed in order to create a conducive climate for the implementation.
Practice implications: This focused and goal-oriented approach may inspire other researchers when planning, conducting, and evaluating their research.

1. Introduction

During recent decades, the impact of different courses in communication skills training has been studied, with most studies showing a positive effect on the communication style of the health professionals [1–3]. Furthermore, some of the studies have shown a positive effect on patient outcomes [3–6].

However, health service research cannot affect the behavior of the health professionals or the outcomes for the patients unless the interventions are implemented into practice [7]. Unfortunately it has not been possible to find any literature describing the experiences of transferring these or similar research findings into practice. It corresponds with the general experiences of getting research findings transferred into practice, where an enormous gap between clinical research-based knowledge and its implementation into clinical practice has been documented [8–10].

The gap between research and practice may reflect that many of the clinical trials published are of little relevance to clinical practice because of the strict inclusion criteria that eliminate many patients, and because they are conducted by motivated researchers and motivated experts in the clinic. Furthermore, lack of feedback and incentives for use of evidence-based practices, and inadequate infrastructure and systems to support translation may also play an essential role [10,11].

1.1. Translation research

The term "translation research" is mainly thought of as the process of transferring basic science knowledge into new drugs and therapy [12,13]. However, in recent years several studies addressing this issue have been published within the area of Health Promotion Research. In the field of health research, "translation research" has been defined as "an effective translation of the new knowledge, mechanisms, and techniques generated by advances in basic science research into new approaches for prevention, diagnosis, and treatment of diseases essential for improving health" [12].

The traditional pathway for the research and implementation process involves five phases: in phase I studies, the intervention hypothesis is developed; in phase II studies, methodologies to use in future efficacy and effectiveness studies are developed and

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tested; phase III studies (efficacy studies) aim to test the hypothesis using methods that have been tested in phase II; the objective of phase IV studies (effectiveness studies) are to test the impact of an intervention in a population that is representative of the intended target group; and in phase V studies, effective phase IV interventions are translated into large-scale projects [14,15].

The efficacy studies (phase III) are characterized by strong control in which a standardized program is delivered in a uniform fashion to a specific homogeneous target group, while the effectiveness studies (phase IV) allows implementation and levels of participation to vary on the basis of real world conditions [15,16].

Despite this well-defined process for implementation research into clinical practice, the situation is that we have many small-scale efficacy studies of unknown external validity and few effectiveness trials [9,15]. In order to deal with some of the problems described above research projects should to a higher intention be designed to meet the needs of the clinical practice and the decision-makers [11,17]. Bensing et al. [17] point out the importance of developing a proper research design using suitable and viable methods, to facilitate the utilization of the results to the decision makers and to ensure that the implementation strategy is elaborated, taking the complexity of the clinical praxis into account.

Health service research is a typical instance of applied research and these trials also called pragmatic or practical clinical trials (PCTs), are characterized by including a diverse population of study participants and recruiting participants from heterogeneous practice setting comparing clinically relevant interventions [11].

Glasgow et al. [15] recommend that greater attention is paid to the essential program elements in order to improve the sustainable adoption and implementation of effective, generalized, evidence-based interventions. These program elements include:

Reach that refers to the size and the characteristics of the potential target group.
Efficacy or Effectiveness refers to the impact of the intervention, including potential negative outcomes, as well as the intended results.
Adoption concerns the percentages and representativeness of settings that will conduct the program. Also including the political and cultural fit, the cost, and the level of resources and expertise required.
Implementation refers to the quality and the consistency of implementation of the program.
Maintenance refers to the impact of the behavior and how new practices become institutionalized at the organizational level.

The RE-AIM framework is designed to assist in planning, conducting, evaluating, and reporting research studies [15,18].

1.2. Objective

At Lillebaelt Hospital in Denmark, we have investigated the impact of communication skills training for medical doctors and nursing staff in efficacy studies [19,20], as well as in effectiveness studies [21,22] and are in the process of planning the implementation of the course into a large scale.

In this paper we will describe how a specific communication course for health professionals has been evaluated and implemented in clinical practice and how it will be transferred and evaluated at the entire hospital.

2. Methods

The research process started in 2002 and included all five phases described in Section 1, though phase V is still in progress.

During the different phases of the research process we have used the study design most suitable for investigating the aim of the specific study, the designs include descriptive studies, randomized controlled trials, and pre-post designs.

We will briefly describe the aim, the methods, and the results of each study. The intervention studies (phases III–V studies) are described with attention to the RE-Aim framework [15].

2.1. The setting

The program takes place at Lillebaelt Hospital, which is the fifth largest hospital in Denmark. The total number of employees is about 4800 and out of these about 3000 are defined as clinical staff and will be included in the program. There are 18 clinical departments and 10 clinical service departments (ex physiotherapy, roentgen). In 4 of the clinical departments, the communication course and brush-up courses have already been implemented on the initiative of the individual departments.

In the first phases, the research only included the Department of Paediatrics at Kolding Hospital. Then the Department of Orthopedics at Kolding Hospital was included and in the plans for implementing the course in the entire organization, we will include all clinical departments at the hospital.

2.2. The intervention

The intervention tested throughout the research process is a communication course founded on Albert Bandura's theory of Social Learning [23], and based on the method described by Maquire et al. [24]. Role play and feedback are among the central pedagogical methods used during the course and the intervention comprised of three basic elements. First, a tight structure of the consultation with reference to The Calgary-Cambridge guide [25], which is a structure that promotes overview and transparency. Second, communication techniques that focus on how to listen, how to help the patient to formulate the problems, and how to ask the right questions. Finally, there is a patient-centred approach focusing on how to elicit and respond to patient concerns and needs and how to reach a mutual understanding of the problem and its treatment.

In the phase III study, 5-day courses were conducted consisting of 3 days plus 2 days. During the period of the 4 weeks separating the two parts of the courses, the participants rehearse and make video recordings of one of their own consultations. The recordings are used to give feedback to the participants during the last part of the course.

Based on the experiences from the randomized trial in phase III, the course was shortened from a 5-day course to a 3-day course realizing that it would not be economically and organizationally realistic to continue with a 5-day course. The main difference of the 5-day and the 3-day course was that there was less time for role-playing.

The sessions, each with 8 participants, were conducted by doctors and nurses from the department who were trained by the Danish Medical Association to become certified teachers in clinical communication.

3. Results

3.1. Phase I study (generating the hypothesis)

The hypothesis for the future studies was developed in 2002 in a descriptive study, including 300 parents from the Department of Paediatrics. The aim of the study was to identify the parents' priorities and assessment of paediatric care. Based on a literature review, interviews with the parents, and a questionnaire survey,

we investigated nurses' and physicians' abilities to provide the care and treatment that met the parents' needs. The study also included an investigation of the determinants of parents' satisfaction. The study pointed out the need for improved and clearer communication [26–28].

3.2. Phase II study (developing and testing methods)

In order to investigate the applicability of electronic questionnaires for investigating the patient's assessment of the care and communication, we performed a study including 780 parents from the Department of Paediatrics. All parents discharged from the department were asked to fill out an electronic questionnaire on a touch-screen computer situated in the department and they were handed out a bar code giving them access to answer the questionnaire. The study showed that by using electronic questionnaires, it was possible to focus on the small percentage of parents not satisfied, to identify reasons for being less satisfied and to respond immediately to the feedback from the parents. Furthermore, electronic surveys produced a satisfactory response rate. The study was conducted in 2005 [29].

In a study carried out in 2008, we investigated if user satisfaction was influenced by the interval between a health care service and the assessment of the service. A total of 1148 parents and 346 children answered the questionnaires (the response rates on the electronic questionnaires were 73%). The conclusion was that the patient satisfaction was significantly higher when measured just before leaving the outpatient clinic than when measured after the visit [30,31].

3.3. Phase III study (testing efficacy)

The phase I study identified a need for improving the communication with the patients and for monitoring the perspective of the patients. The method developed in phase II, gave us a tool for monitoring the patient's experiences continuously and a tool for evaluating interventions aimed at improving patient perception of the communication.

Based on the problems identified in the phase I study and a review of the literature we hypothesized that communication skills training offered to nurses and doctors could improve the communication.

On that background, a randomized controlled trial was carried out at the Paediatric Outpatient Clinic in 2004/2005, including 29 physicians and nurses and 946 parents; the staff from the intervention group received a 5-day communication course whereas the control group had no intervention. The impact of the intervention was evaluated by means of visit-specific questionnaires comparing the outcomes of parents visiting clinicians from the intervention group with the outcomes of those visiting clinicians from the control group, and also included the clinicians' perception of their performance of communication tasks.

The study concluded that communication training can improve clinicians' self-efficacy in specific communication tasks. The results indicated that parents who had visited a clinician from the intervention group experienced the communication as more positive [19,20].

As illustrated in Table 1, this study was characterized by including a motivated department that "fit the intervention" and it was supervised closely by the research staff.

Table 1
Description of the characteristics of the intervention studies (phases III–V) in the communication course project; described according to the RE-AIM framework (Reach, Efficacy or Effectiveness, Adoption, Implementation and Maintenance) [15]. In phase V, the planned evaluation is described.

Trials	Reach	Efficacy/Effectiveness	Adoption	Implementation	Maintenance
Efficacy study: A randomized trial (phase III) [20,21]	Including volunteer departments	Outcome: Self-efficacy Patient perception of quality of communication	Political and cultural fit between the intervention and the selected department	Implemented by the research staff closely following the protocol	
Effectiveness studies: Intervention studies tested in a pre/post design in two different departments (phase IV) [22,23]	Including all health care professionals in volunteer department Investigating barriers to participate	Outcome: Patient perception of quality of care Investigated both positive and negative outcomes	Political and cultural fit between the intervention and the selected department Proxy measures of adoption: Focus group interview with staff members and with the leaders of the department	Implemented by the research staff closely following the protocol	Departments engaged in execution of communication course and brush-up courses in their own department Long-term evaluation of patients perception of quality of the communication
Implementation study evaluated in large scale (phase V)	Including all health professionals in the organization	Outcomes: Patient perception of quality of care	Appeal to multiple settings within the hospitals	Implemented by a variety of different staff with competing demands, using adapted protocol	
	Evaluate: participation rates, dropouts, representativeness	*Evaluate*: Effect of moderator variables Ex. organizational variables	Collaborating with members of the intended target group when planning the implementation of the intervention? *Evaluate*: Economic costs Level of resources, time and expertise required	*Evaluate*: Staff ability to implement key components of the communication course routine practice Evaluate consistency of the course in the whole organization	Continuation of communication program over time *Evaluate*: To which extend are different intervention components continued or institutionalized? How is the original program modified? Continues evaluation of indicators measuring the quality of the communication

3.4. Phase IV studies (testing effectiveness)

As illustrated in Table 1, the three phase IV studies also included (reach) volunteer departments. However, as they include both the highly and less motivated members of the staff, it has been possible to investigate potential barriers for participating and the positive and negative outcomes of the course. The long-term evaluation of the effect of the course was conducted in order to assess the chance of maintenance of the project.

3.4.1. Study including all staff at the department

In a study conducted in the in-patients ward at the Department of Paediatrics from 2005 to 2007, the health professionals who had not participated in the communication course before completed a 3-day course corresponding to 32 health professionals (26 nurses, 4 medical doctors, 1 psychologist, and 1 hospital teacher). In a pre-post design, the effect of the intervention was evaluated by the parents on electronic questionnaires filled in on finger-touch computers located centrally in the wards.

A total of 895 parents answered before the course (80%) and 1937 parents answered after the course (72%). After the staff had participated in a communication course, the proportion of satisfied parents increased for one-third of the questions asked on care and continuity [22].

3.4.2. Long-term evaluation

The long-term effect of the communication course has been evaluated in the outpatient clinic in the same department, including all medical doctors and nursing staff. We investigated parents' perceptions of the communications before the course was implemented in 2004 until after the full implementation in 2006 and 2007. The patient's assessment of the communication with the clinicians was monitored continuously for up to 3 years following the course using electronic questionnaires and a total of 6966 parents answered the questionnaire (mean response rate, 70%).

After the course, the proportion of satisfied parents increased significantly and remained unchanged for up to 3 years [21].

3.4.3. Evaluation of positive and negative outcomes

In an ongoing PhD study affiliated the same research unit, other perspectives of implementation of the communication course are being studied, for example, how health care professionals experience participating in a communication skills training course. A total of 32 health care professionals representing all wards at Department of Orthopedics have been included in focus group interviews and the results from the study are in the process of being published.

3.5. Phase V study (large scale)

The conditions in this last phase are very different from the other phases because it aims to reach all clinical departments at Lillebaelt Hospital and to appeal to multiple settings within the hospital.

The objective of unfolding the communication skills course in the entire organization is that all health professionals with patient contact shall participate in a 3-day course, in brush-up courses, and if needed in courses targeting specific issues and target groups.

Based on the experiences described above, a plan for implementing the course as a continuous offer to all health professionals in the entire organization is in the process of being developed and will be launched in the beginning of 2011.

In order to provide a productive dialogue between the researches and potential users the scope, form and content of the research will be developed iteratively between the stakeholders [17]. A steering group, including representatives from The Danish Medical Association, the Human Resource Department at the hospital, our research team, leaders from the clinical departments, and health professionals with teaching experience (in the communication course) has been established, and an action plan including the following issues has been developed: training of a corps of teachers, customizing the content of the course to the different departments, a plan for implementing the course, economic calculation and clarification of the economy, and preparing a plan for evaluation of the course.

In order to evaluate if we succeed in reaching the main part of the departments and the staff, and in implementing the course in a clinical practice with many competing demands, it is also important to establish a close collaboration with the intended target group and to plan a very different evaluation than in the other phases. For that purpose specific RE-AIM issues have been developed based on review of the literature describing other studies using the RE-AIM framework, and inspired by the tools and the methods at the RE-AIM website [32]. Examples of outcomes and proxy variables for measuring the effectiveness and the success rate for reaching the intended target group and for adopting, implementing and maintaining the interventions are illustrated in Table 1. For each outcome and proxy variable a method and a plan for how to collect, store and analyse data will be described. The effectiveness of the course will be evaluated at each of the participating departments and data will be investigated in sectional analysis and by pooling the data from all participating departments.

As illustrated in Table 1, a main part of this evaluation includes outcomes measuring the external validity, the economic cost and the ability to implement the key elements of the course in the clinical daily practice.

4. Discussion and conclusion

4.1. General discussion

The program described includes all five phases of the research and implementation process. Although the entire research process was not planned from the beginning, it is a process that is in concordance with the RE-AIM framework. The process reflects how the different phases in the research process continuously raises new questions until the overall objective has been reached; namely implementing the good experiences and results in clinical practice for the benefit of the patients [33].

By using the same intervention (the same course), and slowly expanding the implementation from one ward to several wards to the entire department and to several departments, we have experienced that we can improve the preparedness of the clinicians and the culture, not only in the involved departments, but also in the entire organization. The culture fit and the preparedness to change are some of the important determinants for translation of the research into clinical practice [15,34].

According to the recommendation in the literature [7], the research process described in this article is characterized by addressing an interdisciplinary group of health professionals, with using a broad range of research designs and methods, by using a concrete theory (the theory of social learning and self-efficacy), by having routinely available data to assess the implementation and methods to examine whether the effects are sustained over time (electronic questionnaires).

Economic evaluation is also recommended as an integral component of translation research [7,13,15,34]; however, so far it has not been included in any of our studies, although it could have been relevant to include the aspect in the phase IV studies. It has not been possible to find economic evaluations of any similar studies, but we have planned to include the economic aspect in the evaluation of the phase V study.

The evaluation of the intervention studies is limited by being mainly based on questionnaire filled out by parents, however the validity of the method is supported by recent research showing that parents are more satisfied when most or all of the expected parent–physician communications occur [35].

Our research process includes a study of a method to continuously assess the patients' perception of the communication [29]. It was developed and evaluated for that specific purpose, but have also been used to evaluate other intervention studies in the department [36], and the experiences from electronic questionnaires are in process of being transferred into a larger scale being implemented and used at several departments at hospitals in Denmark.

Also, focusing on the electronic questionnaires, the other phase II study emphasized the importance of the timing of the survey and contributed with valuable knowledge about how to achieve a high response rate in order to avoid selection bias [30,31].

Based on the experiences from the randomized trial in phase III, we were encouraged to unfold the project in the entire department, but had realized that it would not be realistic to continue with a 5-day course. Thus, in the next phase, the course was shortened to a 3-day course and the studies in phase IV showed that it was possible to obtain a positive and a long-lasting effect of the course, although it was reduced with 2 days.

In another of the phase IV studies, focus group interview was used, and in agreement with the literature, we experienced that the qualitative approach was very suitable for uncovering both positive and negative aspects [37]. In the last phase of the process, interview and focus group interview will be included to a greater extent.

4.2. Relevance and application of including all five phases of the research process and the RE-AIM framework in health services research

The RE-AIM framework has proved to be suitable as a tool for evaluating a single phase of a research process when implementing health promotion programs [38,39] and when evaluating the internal and external validity [9,40,41]. The program described in this study shows how the framework can be used proactively in planning the entire research process, especially the validation of the external validity, the participation rate in the real-life studies, and the long-term maintenance.

Using the RE-AIM framework at this stage of the process gives us a unique opportunity to plan the large-scale project according to the recommendations for translation of research into clinical praxis [7,15,34] including assessing the policy relevance of this specific program [17].

If it proves to be relevant for the health professionals, for the decisions makers and for patients the model could be used at other hospitals to implement the same evidence-based communication course.

The clinical relevance of implementing evidence-based programs for improving patient–provider communication, like the one presented in this article is constantly being emphasized from different fields of communication research. For example the research showing that doctor–patient communication affect patient satisfaction with hospital care [42], the new neurobiological knowledge that indicates that patient–provider interaction is able to increase the effectiveness of medical treatment [43] and the research that suggest how neurobehavioral mechanisms can explain the association between communication and affect regulation outcome [44].

4.3. Conclusion

A proactive use of the traditional five phases of the research and implementation process, together with the RE-AIM framework, creates a unique opportunity to consider and include essential determinant of translation research on relevant stages of the research process.

The experiences from this implementation process show that the process has to be just as systematic and well-planned as the research process itself. To succeed in translating the research results into practice, long-term commitment is needed in order to create a conducive climate for the implementation.

4.4. Practice implications

Description of the communication course project according to the RE-AIM framework and the five phases of the research and translation process may inspire other researchers and decision-makers to use this model when planning, conducting, and evaluating other health research projects.

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Conflict of interest

No conflict of interest.

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