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Tailoring of the Tell-us Card communication tool for nurses to increase patient participation using Intervention Mapping

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ABSTRACT

Aims and objectives: To describe the tailoring of the Tell-us Card intervention for enhanced patient participation to the Dutch hospital setting by using Intervention Mapping as a systematic approach.

Background: Even though patient participation is essential in any patient to nurse encounter, care plans often fail to take patients' preferences into account. The Tell-us Card intervention seems promising, but needs to be tailored and tested before implementation in a different setting or on large scale.

Design: Description of the Intervention Mapping framework to systematically tailor the Tell-us Card intervention to the Dutch hospital setting.

Methods: Intervention Mapping consists of: (1) identification of the problem through needs assessment and determination of fit, based on patients and nurses interviews and focus group interviews; (2) developing a logic model of change and matrices, based on literature and interviews; (3) selection of theory based methods and practical applications; (4) producing program components and piloting; (5) planning for adoption, implementation and sustainability; and (6) preparing for program evaluation.

Results: Knowledge, attitude, outcome expectations, self-efficacy and skills were identified as the main determinants influencing the use of the Tell-us Card. Linking identified determinants and performance objectives with behaviour change techniques from the literature resulted in a well defined and tailored intervention and evaluation plan.

Conclusions: The Tell-us Card intervention was adapted to fit the Dutch hospital setting and prepared for evaluation. The Medical Research Council-framework was followed, and the Intervention Mapping approach was used to prepare a pilot study to confirm feasibility and relevant outcomes.

Relevance to clinical practice: This article shows how Intervention Mapping is applied within the Medical Research Council framework to adapt the Tell-us Card intervention, which could serve as a guide for the tailoring of similar interventions.

Keywords: Nursing, hospital, communication, patient participation, Intervention Mapping, MRC-framework, fundamentals of nursing care

Summary

What does this paper contribute to the wider global clinical community?

- The Tell-us Card intervention seems to be a promising intervention to enhance communication about patient participation between nurses and patients.
- Intervention Mapping is a valuable method and supports the phases of the MRC model when targeting behaviour in which patients and nurses are inexperienced.

- This study confirmed that nurses mainly view participation as supplying a patient with knowledge, while patients want to be listened to and be regarded as individuals.

INTRODUCTION

Caring for the patients' basic needs, also known as the essentials of nursing practice or fundamentals of care, is at the heart of the nursing profession (Kitson *et al.* 2010). These essentials of nursing care articulate aspects that are fundamental to all patients' health and wellbeing, regardless of diagnosis, cultural background or health care setting. To understand the complex interactions between personal self-care needs when healthy and fit, and how those needs change with illness and disability requires a specific range of knowledge which is assumed to be known, yet this is not the case (Kitson *et al.* 2010). In today's complex and fast changing health care environment the importance of these essential nursing care activities seem to have become undervalued, and form a rather neglected area in research (Schneider & Ruth-Sahd 2015). In the Netherlands a large project called 'Basic Care Revisited' has started in which three universities collaborate in eight intervention studies on the essentials of nursing care conducted in three different settings: (acute) hospital care, institutionalised long-term care, and homecare (Hamers 2016, Richards 2015, van Achterberg 2014). The themes addressed within this collaborative project are bathing and dressing, communication, mobility, and nutrition. The current paper focuses on nurse-to-patient communication aiming at enhancing patient participation in the hospital setting.

BACKGROUND

Patient participation in care is a concept which often is used interchangeably with terms such as patient-centeredness, shared decision-making, patient empowerment and person centred care. Various definitions of the term patient participation are used. Castro et al. (2016) define it as revolving around a patient's rights and opportunities to influence and engage in the decision-making about his care through a dialogue attuned to his preferences, potential, and a combination of his experiences and the professional's expert knowledge (Castro *et al.* 2016). Enhancing patient participation results in lowering patients' anxiety levels and enhancing adherence to treatment and advice (Aboumatar & Pronovost 2013, van Dulmen 2011), can increase patient safety (Vaismoradi *et al.* 2015, World Health Organization 2013) and shorten hospital stay (Ekman *et al.* 2012, Hansson *et al.* 2016). It also positively influences clinical outcomes such as decreasing the likelihood for obesity and smoking, and lowering systolic blood pressure and rehospitalisation rates (Greene & Hibbard 2012). Next to that, extensive (over)treatment can be prevented when patients are active participants in deciding when not to treat (Raats 2013). Patient participation can be seen as a strategy to make health care patient centred, and will make patients feel empowered (Castro *et al.* 2016, Kitson *et al.* 2013).

Eldh (2006) states that a prerequisite for patient participation is a patient–health professional interaction that includes communication characterized by respect, empathy, and recognition of the patient as an individual as well as a partner in the health care team (Eldh 2006). Respectful, emphatic and effective communication is essential in any patient-to-nurse encounter as daily care activities like bathing and dressing, eating and walking require frequent verbal and non-verbal communicative interactions (Fawole *et al.* 2013, Kitson *et al.* 2013, McGilton *et al.* 2012). Effective communication is defined as a pattern of exchanging information and ideas with others that is sufficient for meeting one's needs and life's goals (Herdman 2012). Through effective communication patients can participate in their care, for instance by setting achievable short term and long term goals to regain control over their bodily functions, but also to regain a sense of

personal integrity and sense of self (Kitson *et al.* 2013). Observational studies show that nurses use communication as a way to enact patient centred care (Tobiano *et al.* 2015b), but that quality communication is not always achieved, due mainly to the nurses' controlling approaches (Henderson 2003, Tobiano *et al.* 2016). Patients' participation in essentials of nursing care during hospitalization is often lacking as there is little dialogue between patients and nurses on what the patients expect or the way in which they want to participate (Eldh *et al.* 2006) and care and discharge plans often fail to take patient preferences into consideration (Aboumatar & Pronovost 2013). Effective nurse-to-patient communication forms the base of patient participation, but evidence on interventions to enhance patient participation in essential nursing care activities is limited.

A promising intervention to improve patient participation during hospital admission is the 'Tell-us Card' (Jangland *et al.* 2012, Sehgal *et al.* 2008, Sehgal *et al.* 2010). The Tell-us Card is a communication tool developed in Sweden which aims to facilitate communication between nurses and patients. Patients are invited to write on the Tell-us Card what is important for them at that moment or in preparation for discharge from the hospital. By means of this card, patients' preferences and needs can be elicited, and can be acted upon by nurses. Jangland and colleagues (2012) tested the effectiveness of the Tell-us Card in a population of patients admitted to a surgical hospital ward and demonstrated that the use of the Tell-us Card in this patient group resulted in significant improvements in patients' abilities to participate in decisions about their care. Jangland et al. (2012) recommended further research for improvement and implementation of the Tell-us Card communication tool.

Although the Tell-us Card intervention is seemingly uncomplicated, the use of this communication tool in daily nursing care can be considered as a complex intervention (Craig *et al.* 2013). The required behaviour is currently not practiced by nurses, and there is a wide variability of personalised outcomes on which nurses should be able to act. The Medical Research Council (MRC) framework for the development of complex interventions states that it is best practice to systematically develop interventions, using the best available evidence and appropriate theory before testing them in pilot studies (Craig *et al.* 2013). To do so, the Intervention Mapping (IM) framework (Bartholomew *et al.* 2011) will be used to systematically tailor the Tell-us Card intervention to the Dutch hospital situation. This framework is used for the planning, development, implementation and evaluation of health-related interventions, as well as for the adaptation of existing interventions to a different setting. As literature, theory and evidence give guidance how to successfully tailor and implement interventions, the IM framework offers steps and guidance when and how to use these components in program planning. This paper describes the tailoring of the Tell-us Card intervention to the Dutch hospital setting by using Intervention Mapping as a systematic approach.

METHODS

The process of IM consists of six steps and requires the involvement of target groups, as well as the use of evidence and theory. The full process of IM consists of: (1) identification of the problem through needs assessment and determination of fit with the problem; (2) developing a logic model of change and matrices; (3) selection of theory based methods and practical applications; (4) producing program components and piloting; (5) planning for adoption, implementation and

sustainability; and (6) preparing for program evaluation (Figure 1). Intervention Mapping is furthermore considered as an iterative process.

Step 1 Logic Model and needs assessment

Table 1 shows an overview of the individual and focus group interviews held to explore patients' and nurses' perceptions with regard to patient participation during hospital admission and the use of the Tell-us Card. Focus group interviews with nurses were additionally held to stimulate group interaction and encourage the nurses to explore and clarify their individual and shared perspectives on the topic (Holloway & Wheeler 2010).

All interviews were tape-recorded and transcribed and subsequently analysed independently by two researchers (EvB, MH), following the basic principles of grounded theory as the researchers wanted to collect and analyse the data to allow relevant ideas to develop, without a hypothesis or preconceived theories to be tested (Holloway & Wheeler 2010). No framework was used in the analysis as this might block the awareness of major concepts emerging from the data. All interviews were coded by line-by-line analysis, which were grouped together to develop categories. By constantly comparing incoming data for their fit with existing categories the concepts were critically looked at. These categories were reassembled through axial coding to form theoretical ideas and themes (Holloway & Wheeler 2010). Analysis was assisted by memos made during the interviews. The coding was done by two researchers and results compared and discussed before continuing on to further steps. Analysis was done by computer, using Atlas.ti (Development 1993-2016).

Step 2 Matrices of Change Objectives

In the second step, matrices were developed by the researchers in which identified performance objectives were crossed with determinants of behaviour in order to define the behaviour change objectives of nurses and patients. The formulation of program and performance objectives for the different target groups was conducted by the research group. Selection of determinants was based on the findings in step 1 and literature on behaviour change.

Step 3 Theoretical Methods and Practical Applications

Theoretical methods and practical strategies for behaviour change (Abraham & Michie 2008, Grol & Wensing 2015) were selected based on the finding in step 1 and 2. De selection of methods and practical strategies was conducted by the researchers (MH, EvB and JC) and strategies found were integrated in program components and material.

Step 4 Program production

The fourth step consisted of composing program materials and testing these with the patients and nurses described in step 1. The original author (Jangland *et al.* 2012) consented for the use and translation in the Dutch language. The final lay-out of the Tell-us Card was determined based on the original card and the comments of the nurses and patients with regard to the layout. Additional tools to assist implementation were developed in this stage.

Step 5 Adoption and Implementation

Adoption and implementation was addressed in all steps of the process. In the focus group and individual interviews specified in step 1, ward-specific barriers and facilitators as experienced by the nurses and patients were explored so they could be paid attention to in all following steps. Also, involvement of both patients and nurses in the designing of the intervention was expected to enhance intervention adoption and implementation with nurses (Grol & Wensing 2015).

Step 6 Evaluation Planning

In the final step of IM the effect and process evaluation of the intervention was planned. The process analysis will be prepared following the six steps described by Saunders et al. (Saunders *et al.* 2005), who describe a method in which evaluative data can be used to fine-tune the intervention (formative) as well as making a judgement about the extent to which the intervention was implemented (summative).

Ethical approval

According to the Dutch national legislation and as judged by the local Medical Ethics Committee, the CMO Arnhem – Nijmegen, the study is non-invasive and does not fall under the scope of the Medical Research Involving Humans Subjects Act (WMO) (Ministry of Health 2016). All patients provided written informed consent, while nurses provided oral consent. Data was handled anonymously and stored separately from respondents' personal information.

RESULTS

Step 1 Logic Model and needs assessment

Patients from the head/neck surgical ward (n=11) and from the cardiology ward (n=14) consented to participate in interviews. Most patients appeared to have some idea about the concept of patient participation, and mainly described it as being adequately informed, being able to ask questions, and being involved in decision making.

Respondents 2, 75-year-old female: "I appreciate it when doctors and nurses consult with me and that I am invited to ask questions. I would like to know why they do the things they do."

Respondent 4, 46-year-old female: "I've noticed a change in informing patients in the last few years. They explain a lot more, and ask for your opinion and your feelings. I think that's a good thing."

Patients expect their health care providers to take an active role in initiating participation, but most of them consider themselves able to initiate a conversation if they have urgent questions. Most patients wanted to use the Tell-us Card for being informed about their daily schedule and important appointments, and some patients wanted to use it as a way to communicate their questions or feelings. When asked about discharge, patients wanted to be involved in discharge planning, and wanted to be informed about the do's and don'ts at home. Patients also wanted their spouses or family to be more involved in their care. Most patients regarded the Tell-us Card as useful for asking questions and raising concerns easier.

The nurses described patient participation as a collaboration with the patient, in which the patient and the nurse both take an active role.

Nurse 6, Gynaecology and Urology ward: "[Participation is..] When I would let the patient do more himself, so to say. Because that is essentially what you aim at with patient participation"

Nurse 9, Head and Neck surgical ward: "For me, patient participation is the patient taking part in his own care process or healing. Specifically that would mean that the patient thinks along with us. He doesn't really have to do something, but that he thinks about what's best for him and how he can play a role in it."

Nurses saw informing patients as their main task with regard to patient participation, through which they hope to achieve a sense of awareness and stimulate patients to take responsibility for their health. Nurses also thought that patient participation would demand more time and effort, resulting in a higher workload, but were motivated to invest if it would benefit the patient. Nurses acknowledged the trend that patients want to be more involved in their care, and were positive about using the Tell-us Card to improve patient satisfaction and getting more insight in patient's preferences and needs.

Step 2 Matrices

Specific performance and behavioural objectives were formulated based on the literature and results from the individual and focus group interviews. The matrices specify what a program participant will have to do (performance objective), and are then examined in light of behavioural determinants to generate change objectives. These specify what needs to change in the determinants of behaviour in order to accomplish the performance objective. For example, (table 2, PO1): In order to give the patients a Tell-us Card on a daily basis it is required that the nurses' attitude towards the use of the card is that it is important to do so (A1), therefore the nurse needs to know why it has to be offered on a daily basis (K1), the nurse needs to be convinced that she is able to do so (SE1), and the nurse needs to be convinced that handing out the card and discussing its' content will improve patient participation in care and will lead to better outcomes (OE1).

Step 3 Theoretical Methods and Practical Applications

Based on the interviews and literature the change objectives deemed most important by the researchers were selected from the matrices. These were matched with theory and strategies on behaviour change methods (Abraham & Michie 2008, Kok *et al.* 2016) and implementation strategies (Grol & Wensing 2015) to achieve an evidence based approach on behaviour change. Table 3 displays an overview of this process, including the resulting implementation strategies. These strategies are: an e-learning module to meet the needs of the behavioural objectives regarding knowledge, the assignment of a core group of nurses as role models, visits to the ward for education, feedback, and encouragement, informational letters for patients and nurses for instruction and a kick off meeting to encourage and educate nurses.

Step 4 Producing program components

Combining the input from nurses and patients with methods for behaviour change and implementation led to the selection of program components, as shown in table 3. Digital registration forms were developed in collaboration with an ICT assigned nurse, the IT department and the researchers (MH & JC). An e-learning module was developed to inform and educate the nurses about patient participation, and the goal and use of the Tell-us Card intervention (see table 3 for

content). An e-learning module is easy accessible at any time or place and guarantees a uniformity of the knowledge delivery. It was developed by the researchers (JC & MH) of which one is a teacher and an expert in the development of electronic training modules for nurses. The training ends with a short questionnaire to assess self-efficacy, as an estimation of efficacy predicts how nurses will actually deal with the intervention (Bandura 1997) .

Step 5 Planning for Adoption, Implementation and Sustainability

Involving the target group is an important strategy for adoption and implementation of any intervention. The nurses in focus group interviews regarded good communication skills as a precondition to inform patients and elicit their needs. Perceived barriers focussed on practical problems such as the extra time it would take, the moment in time at which the card should be handed out and at what time the card could be discussed. The e-learning was adapted to address these barriers and the module underlined the importance of patient participation and the use of the Tell-us Card (table 3) by showing quotes from patients and thoughts from fellow nurses from the individual interviews. It furthermore showed benefits of patient participation and tackled some misconceptions raised during the focus group interviews ("you don't have to fulfil every wish or demand the patient has"). Also the nurses' concerns about dealing with issues or questions from patients upon which the nurses had no (immediate) answer was addressed.

Furthermore, at each ward a core group of nurses was formed to guide implementation, to stimulate the use of the Tell-us Card, and to provide feedback. This group was also asked to provide input on logistic. Visits to the ward were scheduled with these key nurses and ward management to give and receive feedback and encourage the team. In a kick-off meeting the intervention officially started with a celebratory moment to positively reinforce the nurses and to repeat instructions for using the Tell-us Card.

Step 6 Planning for Evaluation

Process analysis was prepared following the 6 steps described by Saunders et al. (2005). A description of the program (step 1) and a description of a complete and acceptable delivery (step 2) are mentioned in the previous IM steps. In step 3 the matrix (IM step 2) was analysed to see which program and change objectives were suitable for evaluation. Experiences of nurses and patients, content of the Tell-us Cards, actions formulated based on this content, and insight in numbers of patient using the Tell-us Card, were identified as important issues. With regard to process evaluation (4) it was decided that all Tell-us Cards would be collected by the researchers to examine the content and the number of patients reached with the intervention. Nurses were required to note what actions followed on the issue noted on the patients' Tell-us Card. Thoughts and experiences with the Tell-us Card are gathered in a questionnaire for nurses and additional observations will be carried out to register actual performance of the intervention. In step five (5) contextual factors of the wards which could have affected the intervention will be examined by discussing results with ward management. The last step (6) concerns finalising the process-evaluation plan.

To evaluate an effect pre-and post-intervention, the questionnaire for patients will include the "Quality from the Patient's Perspective - short form" (Wilde Larsson & Larsson 2002) to measure patients' perception of participation, the Individualised Care Scale (Suhonen *et al.* 2005) to explore the concept of personalized care, and the EQ-5L-5D questionnaire (Janssen *et al.* 2013) as a quality

of life indicator. Nurses perspectives will be assessed by using the Individualised Care Scale for nurses (Suhonen *et al.* 2010) and qualitative methods for fidelity to the intervention and nurses' experiences in the use of the Tell-us Card.

DISCUSSION

This article shows how the methodological framework of Intervention Mapping (IM) is used to tailor the Tell-us Card intervention to the Dutch hospital setting. As the MRC-model states that a systematical developmental phase is required before pilot testing the intervention (Craig *et al.* 2013), IM was chosen for its framework of six steps containing clear guidelines on which actions need to be undertaken in each phase. Combining needs and experiences of nurses and patients with evidence based knowledge about implementation and behaviour change theory are essential elements in this. It provided a useful framework which guided the researchers through a systematic process that considers the user input from nurses and patients, and the theoretical foundation upon which to build the intervention. It encouraged the assessment of thoughts and perceptions of the stakeholders throughout the process, which might enhance the optimal use of the intervention.

Patient participation in care is challenging as is stipulated in literature by Sahlsten et al. (2008), who described inexperience of nurses and patients with the full domain of patient participation. Congruent with other research (Eldh *et al.* 2006, Tobiano *et al.* 2016) there was a discrepancy between nurses' views, who would promote patient participation through dialogue and knowledge sharing, and the patients' who want to be listened to, and want to be regarded as individuals. As Eldh et al. (2006) discuss, supplying a patient with information about his condition does not automatically lead to the patient incorporating this knowledge in their daily lives and taking responsibility for their health (Eldh *et al.* 2006). Both, nurses as well as patients, regard the Tell-us Card to be a feasible tool to support patients in stating what is important to them, and to help patients discuss these issues with nurses.

Although nurses were positive about the intervention, most nurses regarded their already busy workload as a barrier. Previous studies indicate that a high workload (Sahlsten *et al.* 2005, Tobiano *et al.* 2015a, Tutton 2005) and a desire to maintain control (Henderson 2003, Wellard *et al.* 2003) might hinder patient participation in nursing. In the study conducted by Henderson et al. (2003) nurses stated to lack time for patient participation and that they purposefully asked closed questions or otherwise minimized the amount of contact between them and their patient when busy to avoid lengthy conversation. However, observations in that study showed that these nurses continued to use closed questions even when not busy, and that most nurses were not prepared to share their knowledge and decision-making power with patients. As the Tell-us Card intervention is based upon taking the time for patient participation and talking with patients, the perceived lack of time and attitude towards participation will demand attention during implementation.

An intervention like the Tell-us Card for improved patient participation during hospital admission might seem easy to accomplish. However, the thorough analysis and adaptation of the intervention based on a systematic approach like the framework of Intervention Mapping (Abraham & Michie 2008, Bartholomew *et al.* 2011, Kok *et al.* 2016) shows the complexity of the intervention and stipulates the importance of tailoring the intervention adequately to the specific setting. Understanding the underlying mechanisms that influence adoption of the Tell-us Card for enhanced patient participation in the Dutch hospital setting is an essential step before implementation and

assessing effectiveness. This will enhance the quality of further research and save time later on, as awareness of barriers for adaptation are identified and anticipated on (Grol & Wensing 2015). The development of a theoretical understanding of the likely process of change is also stressed by the MRC-framework, as it provides important information about the design of both the intervention and evaluation (Craig *et al.* 2013).

The purposive sampling of nurses, selected by the wards contact persons, might be regarded as a limitation for this may have resulted in a selection bias; for instance with regard to the attitude or motivation of the selected nurses to participate. However, the contact person and the researchers deemed the groups diverse enough to be representative for the ward. Also, the selection of patients during their admission to the hospital might have affected the patients' ideas about participation in care. Patients might have been more critical or have had the opportunity to think more independently when they would have been interviewed outside the hospital, sometime after admission (Wright *et al.* 2016). Also focus groups of patients in which participation during admission is discussed might have strengthened the input from patients (Crocker *et al.* 2016).

As this low-cost communication tool focuses on patient participation in the fundaments of care, the Tell-us Card intervention is likely to fit in other care settings as well. However, due to the inexperience (Eldh *et al.* 2006, Tobiano *et al.* 2016) in nurses with patient participation regarding discussing a patient's individual need and acting upon this need, the developmental and implementation phase of this intervention require close attention. To ensure an optimal fit to the health care providers and patients of other wards, a similar systematic approach in implementation is advised.

CONCLUSION

Patient participation is at the heart of nursing care. In the development of the Tell-us Card intervention nurses showed a basic understanding of patient participation and regarded effective communicating as fundamental in care. The Tell-us Card, a seemingly uncomplicated intervention, needs a thorough understanding and preparation. A pilot study is needed to confirm feasibility of the intervention. An overview of the methodological advantages of using the IM framework within the MRC-framework was given, which showed that following the IM framework is useful to grasp the full domain of tailoring the Tell-us Card intervention for enhanced patient participation in nurses and patients.

Practical implications

This article shows how the systematic approach of Intervention Mapping is applied to adapt the Tell-us Card communication intervention and could serve as a guide for the tailoring of similar interventions. The extensive steps of IM were successfully completed, guiding the researchers in adapting the Tell-us Card intervention to ensure a thorough developmental phase, as advised by the MRC-framework. As not many interventions exist aiming at enhancing patient participation in nursing care, we believe that the Tell-us Card intervention is beneficial for the basic care for patients in hospitals, and fills a need in patients and nurses for true attention to the patient.

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Table 1 Characteristics of interviews with nurses and patients

	Characteristics	**Sampling**	**Aim**
Interviews nurses (n=12)	Male/female: 3/9 Age: 36 (22-55)* Work exp.: 8 (1.5-37)*	Purposeful sampling for heterogeneity on: • Gender • Years of work experience	• Target group involvement for tailoring the intervention • Input for e-learning
Interviews patients (n=25)	Male/female: 14/11 Age: 64 (40-90)*	Convenience sample of: • Adult patients, • >24 hours care • mentally and physically able Approached by nurses, informed consent	• Target group involvement for tailoring the intervention • Input for e-learning
Focus group interviews (n=3) **1. Cardiology ward (n=7) 2. H&N surgical ward (n=4)** **3. H&N surgical ward (n=4)**	1. Cardiology male/female: 2/5 Age: 40 (25-58)* Work exp.: 21(13-25)* 2. H&N surgery male/female: 0/4 Age: 48 (34-56)* Work exp.: 14 (6.5–23)* 2. H&N surgery male/female: 0/4 Age: 44 (35-50)* Work exp.: 12 (1.5-34)*	Purposeful sampling for heterogeneity on: • educational level • personal characteristics (age, gender, work experience)	• Creating awareness • Target group involvement for tailoring the intervention • Input for e-learning

*in years, mean (range)

Table 2 Performance objectives, determinants and change objectives

Performance objectives	**Attitude**	**Knowledge**	**Self efficacy and skills**	**Outcome expectation**
Inviting the patient to use the Tell-us Card				
PO1. The nurse gives the patient a Tell-us Card on a daily basis	A1. The nurse states that is important to give the patient the Tell-us Card daily	K1. The nurse knows why the Tell-us Card has to be offered to the patient each day	SE1. The nurse states to be convinced that he/she is able to offer patients the Tell-us Card on a daily basis.	OE1. The nurse expects to improve patient participation when the card is handed out daily
PO2. The nurse actively invite patients to state on the Tell-us Card what is important to them or before discharge form the ward.	A2. The nurse states that it is important to invite the patient to tell what is important for him/her on that moment or with regard to discharge form the hospital	K2.1. The nurse knows why the patient needs to be actively invited to use the Tell-us Card K2.2. The nurse knows how the patient needs to be actively invited to use the Tell-us Card	SE2. The nurse states to be convinced that he/she is able to actively invite the patient to state what is important to them at that moment or with regard to discharge from the hospital.	OE2. The nurse expects to gain better insight in the patients' needs or wishes when the patient uses the Tell-us Card
PO4. The nurse tells patients that it is important to be actively involved in their care	A4. The nurse values patients to be actively involved in their care	K4. The nurse knows how to tell patients to be actively involved in their care K4.2 The nurse knows why it is important actively involve the patients in their care	SE4. The nurse is convinced that he/she can inform the patient that it is important to be actively involved in their care	OE4.1. The nurse expects to be an adequate informant OE4.2. The nurse believe that actively involved patients achieve better health outcomes

Table 3 Description of determinants, methods and applications

Determinant & Change objective	Methods	Applications	How context and parameters were taken into account
Knowledge			
The nurse knows that actively involved patients achieve better health outcomes	Provide information about behaviour-health link[1] by advance organizers[3]	E-learning in which information is provided	Context: E-learning can be accessed at convenient time. Parameter: schematic representations; an overview of current knowledge, adjusted to knowledge level shown in focus group interviews
The nurse knows how the Tell-us Card intervention has to be carried out	Model or demonstrate the behaviour[1] by modeling [3] and providing opportunities for social comparison[3] Provide instruction[1] by active learning[3], advance organizers[3], and cooperative learning[3] Educational meetings[2] by advance organizers[3], implementation intentions[3], and persuasive communication[3]	E-learning in which a video is shown of a nurse and patient demonstrating the use of the Tell-us Card intervention. Step-by-step written explanation of how the intervention must be carried out in the e-learning and on posters for the nurses' station, and on informational letters to all nurses. Presentations on ward meetings and during a kick-off event at the start of the intervention period.	Context: E-learning can be accessed at convenient time. Parameters: a role play video of the intervention as example and comparison with their own behaviour. Schematically displaying the intervention in the e-learning and on posters as a reminder. Introducing and discussing the Tell-us Card during meetings to encourage nurses toward the adoption of the intervention.
Attitude			
The nurse feels supported by her colleagues in using the Tell-us Card intervention	Provide information about colleagues' approval [1,2] by modeling[3] and information about others' approval[3] Stimulate discussion[2] between nurses by mobilizing social support[3] and guided practice[3]	E-learning in which quotes from peers are shown, and questions posed where nurses are prompted to discuss/solve the answer with other colleagues and are asked to try the intervention together.	Context: E-learning can be accessed at convenient time. Parameters: quotes from interviews with nurses to show positive and critical remarks of colleagues to motivate change and adoption. The interaction stimulates caring, openness and acceptance with support for behavioural change
The nurse has peers who set a good example in the use of the Tell-us Card intervention	Assigning role models[2] and prompt identification as a role model[1] by modeling[3], public commitment[3] and mobilizing social support	Forming a core group of nurses	Context: Number of nurses in core group are determined by ward size. Parameters: Engaged core group nurses are asked to perform and stimulate the correct use of the intervention and provide social support to colleagues.
The nurse values the patients' opinions and thoughts about their care	Provide information about patients' perspective[2] by shifting perspective[3]	E-learning in which quotes from patients are shown	Context: : E-learning can be accessed at convenient time. Parameters: Quotes from individual interviews with patients to encourage nurses to take the perspective of the patient to increase the adoption

Determinant & Change objective	Methods	Applications	How context and parameters were taken into account
Self-efficacy			
The nurse feels able to use the Tell-us Card intervention	Provide general encouragement[1], providing feedback on performance[1] by mobilizing social support[3], consciousness raising[3], feedback[3], and providing opportunities for social comparison[3]	Core group members report feedback from the team to the researchers, and wards are visited by the researchers	Context: core group members are easy approachable to colleagues to report feedback, and visiting the ward is a low-key approach in talking to the nurses. Parameters: Specific feedback is given, nurses are given the opportunity to talk about the use of the Tell-us Card, and their behaviour encouraged by the researchers.
The nurse is able to critically review the intervention and communicate his/her thoughts about it	Prompt barrier identification[1] and reviewing practice and feedback[2] by planning coping responses[3] and discussion[3]	Focus group interviews in which nurses are invited to think of barriers and facilitators, and meetings in which the use of the Tell-us Card is discussed	Context: Based on predefined characteristics for heterogeneity, nurses were asked to join the focus group on their ward. Parameters: While designing the intervention, nurses in focus group interviews identifies potential barriers and ways to overcome these. Reviewing of practice at ward meetings where nurses were encouraged to openly debate about the Tell-us Card intervention

[1] Abraham and Mitchie (Abraham & Michie 2008) [2] Grol (Grol & Wensing 2015) [3] Kok et al (Kok *et al.* 2016)

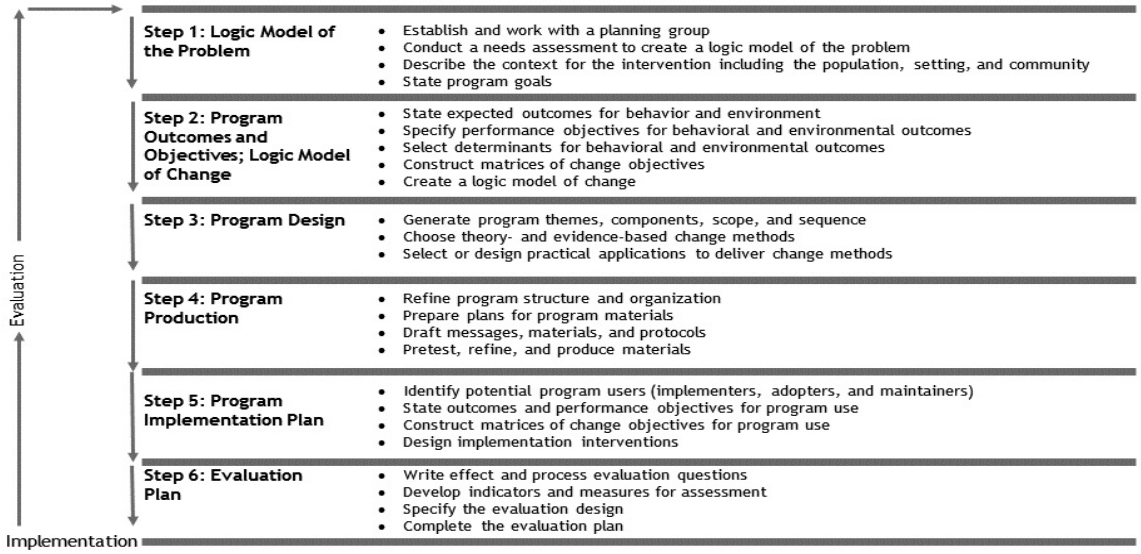

Figure 1 Intervention Mapping process