“SDM:HOSP” – A Generic Model for Hospital-Based Implementation of Shared Decision Making

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Research

Keywords: Shared Decision Making, Implementation, Patient decision aids, Leadership, Training of clinicians

Posted Date: January 31st, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1259969/v1>

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Abstract

Background: Shared decision making (SDM) is a core element in the meeting between patient and healthcare professionals, but has proved difficult to implement and sustain in routine clinical practice. One of the five Danish regions responsible for public health care set out to succeed and to develop a model that can ensure lasting SDM based on learnings from large-scale real-world implementation initiatives that go beyond the 'barriers' and 'facilitators' research approach. This paper aims to describe this process and the development of a generic model, SDM:HOSP for systematic implementation of SDM at somatic and mental health care hospitals.

Methods: This project was carried out in the Region of Southern Denmark with five major hospital units, including mental health care service. Based on existing theory of SDM, SDM implementation, implementation science including the System of Profound Knowledge and The South Danish Improvement Model, a process of four phases were described; development of conceptual elements, field-testing, evaluation, and development of the final implementation model. The conceptual elements developed aimed to train leaders, teach clinicians to become SDM teachers, clinicians to perform SDM, support development of patient decision aids (PtDAs), and support systematic planning, execution and follow-up of the implementation. Field testing was done including continuous participant evaluations. After one year of implementation, an overall evaluation was done.

Results: Data from field testing and learnings from the implementation process, illustrated the need for a dynamic and easy adjustable model. The final SDM:HOSP model included four themes; i) Training of Leaders, ii) Training of Teachers and Clinicians, iii) Decision Helper, and iv) 'Process', each with details in three levels, 1) shared elements, 2) recommendations, and 3) local adaption.

Conclusions: A feasible and acceptable generic model for implementation of SDM across hospitals and departments that accounts for different organizations and cultures was developed. The overall design can easily be adapted to other organizations and can be adjusted to fit the specific organization and culture. The results from the ongoing and overall evaluation suggest promising avenues for future work in further testing and research of the usability of the model.

Contributions To The Literature

- Grounded in evidence based knowledge of SDM, implementation science and real-life field testing we propose a generic model for implementation of Shared Decision Making (SDM) across hospitals and departments
- Based on a systematic approach the model SDM:HOSP accounts for different organizations and cultures, and yet provides knowledge of needed shared key elements when implementing SDM
- The SDM:HOSP model of implementation can support hospital stakeholders in the complex intervention of implementing SDM

Background

The contact between patients and the healthcare system is characterized by decisions. Aside from the more acute contacts where it may be time challenging, all significant healthcare decisions should be based on a dialogue that incorporates both the healthcare professional's experience and expert knowledge of illness and health, as well as the patient's experience, values and preferences for their own lives. This overarching premise should apply in all situations where a healthcare professional meets a patient.

Shared Decision Making (SDM) is an approach that describes a simple fact: Patients are no longer just recipients in healthcare, and healthcare professionals are not transmitters. The patient is the one for whom the treatment has the greatest consequence and a paternalistic approach is no longer perceived adequate. SDM is an essential element of patient engagement in own treatment and care, a new way of thinking in healthcare, which is about involving the patient more in treatment (1, 2). It is an approach that leads to better-informed decisions that to a greater extent align with what matters most to patients (3). In doing so, SDM not only contributes to better patient outcomes but also supports a growing recognition that patient involvement is a moral obligation.

Implementing new cultures in healthcare is difficult. Despite good intentions and policy statement describing better and broader implementation of shared decision making principles into clinical routine practice, this has not occurred (4–7). Recognition of cultural and practical barriers have partly explained this difficulty, e.g. lack of accessible knowledge, skills and experience about SDM methods as well as lack of adaption to clinical systems and workflows, missed opportunities to activate and engage patients and insufficient strategies for implementation (8–11). Moreover, research projects rarely change clinical practice if there is no systematic effort and management of how to implement and spread the efforts that took place in the research project. Therefore, the development of generic models that systematically describe the necessary parts of a successful SDM implementation process is needed. Models that can form the basis for

lasting change of future initiatives and that can help clinical teams, hospitals and other healthcare organizations to better understand what implementation of SDM might look like outside of a research setting.

SDM can be defined as a collaboration between the patient and the healthcare professional when decisions have to be made about screening, diagnostics, treatment, care and follow-up to the extent and in the ways that the patient wants. SDM implies that the patient receives the best available information about the possible different options, their advantages, disadvantages and uncertainties, and is provided support to identifying his or her values and preferences and in choosing the option that best matches his or her preferences. SDM is a patient-centered approach that asks the question "what matters most to you when thinking about the different choices."

SDM is important as part of improving patient involvement in practice. SDM is also difficult to implement. Nevertheless, one of the five Danish regions responsible for public health care has set out to succeed and to develop a model that can ensure lasting SDM based on learnings from large-scale real-world implementation initiatives that go beyond the 'barriers' and 'facilitators' research approach(12). It is this process and the results in the form of a generic model that are described in this paper.

The aim of the real world large-scale and wide-spread regional implementation project was therefore to implement SDM across hospital sites, medical specialties and clinical departments, evaluate the process and results, and make recommendations on how to implement SDM in real-world settings.

This paper aims 1) to describe the development of a generic model for systematic implementation of SDM into routine clinical practice at somatic and mental health care hospitals and 2) to present the final model SDM:HOSP.

Methods

This quality improvement project was conducted with a pragmatic approach well supported by research-based expertise, to combine the best from two worlds.

The aim was to create a strong concept with thoroughly tested elements, a strong organization and, a possibility to work with and learn from the clinical real-life improvement work, to establish a mutual frame and model for successful long-term change in a health care organization.

The final model, SDM:HOSP was developed based on evidence-based knowledge and real-life learning (field testing) including ongoing evaluation and revision of the different elements.

The paper is written using the Standards for QQuality Improvement Reporting Excellence (SQUIRE guideline 2.0) (13). Please see additional file 1 for Squire Checklist.

Context

Denmark is a relatively small country (5.6 Mio. citizens) characterized by a tax-based health care system. The hospital-based health care is organized in five regions making room for regional adjustment of services within the financial and national regulatory framework. This project was carried out in the Region of Southern Denmark (1.2 Mio. citizens) with five major hospital units; one covering mental health services (PSY) and four covering the somatic health care, Odense University Hospital (OUH) Hospital of Southern Denmark (SHS), West Jutland Hospital of Southern Denmark (SVS) and Lillebaelt University Hospitals of Southern Denmark(SLB) (figure 1).

Figure 1 – Hospital units in the Region of Southern Denmark

The hospitals in the Region of Southern Denmark have 25,000 employees, mainly physicians, nurses, therapists, midwives and other health care professionals.

Several contextual elements were considered important for the project. Regarding implementation of patient involvement in individual health care, the program leaders of Lillebaelt Hospital University Hospital of Southern Denmark were pioneers when pointing out a "patient first" philosophy in 2011 (14). As another important step, a Center for Shared Decision Making (CFFB) was launched in 2014 (15) at one of the hospitals (Lillebaelt Hospital), primarily as a research center focusing on SDM, Patient Decision Aids (PtDAs) and patient-reported outcomes.

In the Region of Southern Denmark, there has been a basic focus on working with improvements. There has been developed a "Lean for Leaders" course that all managers in the Region of Southern Denmark complete, to be able to support the improvement work and the change it causes. This "lean for leaders" concept is called "The South Danish Improvement Model" and is highly inspired by cooperation between Virginia Mason Medical Center in Seattle, USA and the Region of Southern Denmark (16).

In line with national health care plans (17, 18) and convincing results from several regional research and demonstrations projects (6, 19–23) it was decided by the regional council of the Region of Southern Denmark to implement SDM at all five hospital units from 2018/2019. This regional implementation initiative was given high priority. A steering committee was granted the overall responsibility for the process. Beyond a member from the executive board of the Region of Southern Denmark and executives from all regional hospital units, the committee included a representative from the Patient and Relatives Council at each hospital unit and the CEO and COO of CFFB (figure 2).

To improve the process of implementation, each hospital recruited a SDM consultant to support local implementation. CFFB was declared a center of regional center of shared decision making and upgraded with three employees.

Figure 2 - Regional organization

Theoretical Framework

The policies, theory and research of SDM call for pragmatic real-life solutions to implement SDM successfully in today's health care, and this project took outset in existing theory of SDM and SDM implementation, implementation science including the System of Profound Knowledge and The South Danish Improvement Model.

W. Edward Deming's System of Profound Knowledge (SoPK) is defined as "the interplay of the theories of systems, variations, knowledge, and psychology" (24). In 2020 Waldron et.al described a set of key mechanisms detected through a realist synthesis and described a program theory of SDM, which could assist health care professionals, policymakers and patients when practicing and implementing SDM (25). These key mechanisms and earlier described barriers of implementing SDM (9–11) would all be affected by using the principles of SoPK when leading improvement. When using this system, it is also recognized that there is a relationship between improvement and change and that improvement comes from the action when developing, testing and implementing changes. When understanding the underlying premise of "every system is perfectly designed to deliver the results it produces" (24), understanding the variation, build knowledge and recognize the human side of change, a pragmatic and assessable way of implementing SDM would emerge.

Interventions

The elements towards a final model were conceptualized and described within a process of four phases: development of conceptual elements, field-testing, evaluation, and development of the final implementation model (figure 3).

Figure 3 - Timeline with activities

Phase 1: Development of Conceptual Elements

Phase 1 was the development of the conceptual elements, which were developed in cooperation between CFFB and the Regional Steering Committee. These elements aimed to train leaders in their roles, teach clinicians to be SDM teachers, clinicians to perform SDM, support development of PtDAs, and support of systematic planning, execution and follow-up of the implementation

Training of Leaders

Training of leaders at various levels of hospital departments aimed to provide knowledge and comprehend key elements of SDM and awareness of the important role of leadership during the SDM implementation process. A three-hour course, with a workshop format and a limit of 30 participants to ensure interactivity, was deemed feasible. It included evidence of SDM, overall goals of the implementation strategy, time for reflections of the relevance and applicability of SDM in own department and discussion on how to apply their specific roles as SDM leaders. The content of the training draws on general knowledge of leadership in improvement and project settings (26), but also specifically on the importance of leadership when implementing SDM (27).

Training of Teachers

Training of teachers aimed to prepare clinicians to train own colleagues in SDM and in the use of PtDAs. At the same time, it provided every department with clinicians who possess special competencies and responsibilities within the department implementation. The training of teachers is built on the principle of training the trainers, which has been a recognized method at Lillebaelt Hospital when training clinicians' general communicative skills (28, 29). The SDM course was developed as a two days course, with fourteen days between the course days. In this period, participants had homework, where they were asked to study their own practice within the perspective of SDM. The content of the course was mainly knowledge of SDM (day one), training and simulation of patient/clinicians conversations using an adapted version of

Glyn Elwyn's Three-Talk-Model (30) (day one and two), and preparing the trainers to develop their own teaching-class (day two). SDM as an approach to patients and relatives was highlighted as not only a way of communication, but as an approach – a concept that targets involvement of patients in medical decision making to a higher extent (day one and two). There was a limit of 16 participants on the course, to ensure individual profit of the course. After training the teachers, they were provided with different supporting materials to plan their teaching of colleagues.

Training of Clinicians

The training of clinicians aimed to provide all clinicians with basic knowledge of SDM as a platform to further develop skills and behaviors in individual patient consultations. The new teachers were supported by the local implementation consultant in the process of planning local classes and taking on the responsibility as facilitator of courses. It was recommended, that a clinician course should make up at least a full day, but no hard rules of this were adopted.

Patient Decision Aids (PtDAs)

Acknowledging that high-quality PtDAs (31) are strong facilitators of SDM, this conceptual element was integrated into the process. PtDAs were developed multidisciplinary in working groups including clinicians, patients and/or relatives, and an expert from CFFB. To support the development process, health care professionals had access to an online platform hosting a template for systematic building of PtDAs. This template, the "Decision Helper" (32) was developed according to IPDAS criteria (33) and has been tested through research studies (19, 21 – 23). It offers step-by-step guidance to build and print individual decision aids, making it intuitive and easy to work with and providing healthcare professionals the opportunity to build and develop PtDAs tailored to their specific needs. CFFB offered various degrees of support during the development and test phases.

Systematic planning of the implementation process

For both leaders, teachers and clinicians the question of HOW to practically implement SDM into routine clinical practice was substantial. A systematic approach of planning was obvious and manifested in different materials and support systems. A load-bearing element was an 'implementation starter kit', based on methods from System of Profound Knowledge and The South Danish Implementation Model. The implementation starter kit consisted of a one-year process plan with a fixed series of meetings with leaders and selected key persons from the department, standard agendas for these meetings, information to department managements, and PowerPoint slide-kits with information on SDM and information about the regional implementation task and goals. The process plan also included the other conceptual elements, i.e. Training of Leaders, Training of Teachers, Training of Clinicians, and development of a Decision Helper (optional). It was highlighted that the implementation starter kit was an example of how one could plan the local implementation, not how one should plan it. It gave room for local adjustments and alternative methods and feelings of ownership, and it furthermore provided learning for all involved.

Support from Center for Shared Decision Making

From the very beginning, leaders and staff members from CFFB played important roles in the processes described. Besides being responsible for the development of the conceptual elements, they took active part in the different activities, disseminated knowledge on SDM and implementation, initiated and supported a network between local implementation consultants, developed learning activities like an E-learning program and animated videos for use among professionals, and designed all evaluations of the process and collected results to develop the final implementation model. With an implementation effort of this size, several support systems are crucial. CFFB was responsible for integration of all elements and outcome measures in the existing regional and local workflows and IT systems, to secure quality and accessibility.

Phase 2: Field Testing

Field-testing of the different elements was conducted during local implementation of SDM as part of quality improvement of routine clinical practice. Two to three first-mover departments at each of the five regional hospital units took part. Based on local decisions on which departments to include first, these pioneers covered a variety of departments including maternity wards, gynecology, oncology, kidney diseases, eating disorders, hematology and a team of clinical dietitians.

Each department carried out its prioritized and locally adapted activities during a period of around one year. They were continuously supported by the local SDM implementation consultants and individuals from CFFB.

During the field-testing phase, formal participant evaluations of the conceptual elements were given high priority to obtain first-hand evaluations from the clinicians participating in the first mover departments. It was sought to learn as much as possible during the project. Ongoing inspiring discussions were important for the understanding of feasibility and working mechanisms and led to important learnings during the implementation process.

Phase 3: Evaluation of activities and overall implementation

For evaluation of activities, three surveys were developed; i) Participants at the 'train the leaders course' were invited for a survey after one month covering the aims of the course ii) Participants of the teach-the-teachers course were asked to evaluate each course day separately and an overall evaluation, covering the overall perception of the course, the course content and general gain, and iii) one participant from each of the PtDAs groups evaluated the process on behalf of the whole group, including perceived relevance of the different elements of the process and satisfaction with the support from CFFB.

By the end of the first year of field-testing, a separate fourth questionnaire covered evaluation of the implementation process in itself as well as the implementation starter kit. Participants of the overall evaluation were leaders, key persons and clinicians in the first-mover departments. This evaluation was performed by CFFB. A questionnaire was developed where questions were answered on a 5-point Likert scale and included open questions about the overall implementation, respondents' specific role in the implementation process and the specific activities, which they had participated in.

The questionnaire was sent out electronically using SurveyXact (Ramboll Management Consulting, Aarhus, Denmark).

Phase 4: Development of the final implementation model

The results from the participant evaluations in the field-testing phase and the overall evaluation in phase three were themed within every conceptual element, to achieve a full view of all details of the concept, elucidated by different stakeholders and perspectives of the process. As overall responsible for the implementation process, the steering group committee took part in a three-hour virtual workshop, to further discuss the results and reach a consensus on specific elements and the need for local adaption. The virtual workshop consisted of a presentation of important evaluation data from every conceptual element, a "fish-bowl" discussion between two members of the steering committee followed by a group discussion to make the final decisions. The workshop was facilitated by CFFB. After the virtual workshop, the first draft of the model was developed. A few elements needed to be discussed further, which was done in a steering group meeting and resulted in minor adjustments of the implementation model before final approval.

Analysis

We had a relatively small number of survey participants and the statistical analysis was restricted to simple descriptive methods using SurveyXact. Of the 5-point Likert scales, 4 and 5 were defined as 'top-scores'.

Ethical Considerations:

All respondents of the surveys gave consent within the survey to the use of data during further development of the implementation model.

According to the National Danish Consolidation Act on Research Ethics Review of Health Research Projects, Consolidation Act number 1083 of 15 September 2017 section 14 (34) approval of questionnaire surveys and medical database research projects to the system of research ethics committee system is only required if the project involves human biological material. Thus, the study was conducted without approval from The Committee on Health Research Ethics, as approval for this kind of study is not required according to Danish law.

Results

Development of conceptual elements

As a result of the initial development phase, the conceptual elements included in the field testing were: Separate courses targeting 1) training of leaders of departments, 2) clinicians who should take on the responsibility of teaching and training own colleagues, 3) clinicians who should learn about SDM and change their clinical practice, 4) development of PtDAs and, 5) elements and decisions related to the local implementation process including the implementation starter-kit with process plan, teaching materials, etc. Moreover, the level of support from CFFB was part of the field-testing.

Training of Leaders

Sixty-one department leaders participated in the leader training. All first-mover departments assigned leaders to the course. The majority (54%) were nurses, 33% physicians and the rest represented midwives, psychologists, therapists and other groups of leaders.

The evaluation surveys reached a response rate of 51%. Ninety-three and a half percent of the responders found the course relevant to some extent or a great deal. Seventy-one percent gave the course a top score (Additional file 2).

Training of Teachers

Eighty-four clinicians took part in the Teach-the-Teachers” course. Fifty-seven percent were nurses and 31% physicians. All first-mover departments assigned clinicians to participate in the course. Each first-mover department educated 1-4 teachers.

The evaluation survey had an overall response rate of 61%. Table 2 in the supplementary materials shows that there is a slight difference in the number of respondents from day one, day two, and the overall assessment. This is explained by sickness or other absences from day to day, or the incapability to evaluate on location. After the course, 96% felt prepared to plan and perform training of their colleagues. Ninety-three and a half percent gave the course a top score (Additional file 3).

Training of Clinicians

The 84 clinicians who had participated in the Teach-the-Teachers course, achieved to teach and train 547 clinicians during the first year. No systematic evaluation was performed of this element.

Patient Decision Aids (PtDAs)

During the implementation process, the development of 19 Decision Helpers was initiated, involving 19 working groups with 37 members in total. Ten working groups had finalized their Decision Helper at the time of survey, nine were still in progress. Although COVID-19 led to restrictions for meetings and especially those with patients and relatives, eight of the 11 groups succeeded to conduct a user-involving workshop with participation of both patients, relatives and clinicians.

Six out of eight groups found it greatly relevant to involve patients and relatives in workshops when developing a Decision Helper, and seven out of eight groups would recommend doing a workshop when developing a Decision Helper (Additional file 4).

Support from Center for Shared Decision

Eight out of ten responders from the regional steering committee and the local implementation consultants reported the support from CFFB to be useful in the local implementation to a high extent or very high extent. Eighty percent of clinicians found support from CFFB to be sufficient when developing a Decision Helper and/or in the implementation process (additional file 5). Ninety-six % of participants in Teach-the-Teachers course reported that the trainer from CFFB was well prepared (Additional file 3).

Overall evaluation

An overall evaluation of the implementation process was conducted (Additional file 5). Activities from the field-testing phase and elements of the implementation starter kit were included in this overall evaluation. Eighty-seven members of the steering group committee, implementation consultants, and health care professionals from the implementation first-mover departments participated in the evaluation. The participants from the group of health care professionals had different roles in the implementation and were only asked questions relevant to their role. This explains the various numbers of respondents to the questions in additional file 5. Only questions with a number above 20 respondents are included in the table.

Sixty-one percent had been using a process plan from quite a bit to a lot, 89.5% reported that pre-meeting with department leaders were useful and 74% agreed that a series of fixed meetings were relevant. Majority of responders thought that the elements “teach-the-teachers”, Training of leaders, training of clinicians and development of a Decision Helper were useful from quite a bit to a great deal.

Learnings from the implementation process

As illustrated in figure 4, the field-testing phase was characterized by a high level of learning, adjusting, and sharing experiences. Elements were adjusted, both locally and on a regional level. Adjustment at the regional level, i.e. across local entities (departments/hospital units) always included reflections and decisions of the regional steering committee. Local adjustments were made to customize the process to the specific local workflows and culture, but with the overall perspectives in mind, to ensure similarity in the process across the Region of Southern Denmark.

Figure 4 - Learnings from the implementation process

Development of the final implementation model

During the final revision of the model, it was agreed to keep the three themes i) Training of Leaders, ii) Training of Teachers and Clinicians, iii) Decision Helper, and to add a fourth theme entitled 'Process'. Next, it became clear that there were three different levels of elements within each theme; shared elements, meaning that all hospitals should include these elements in their implementation of SDM, recommendations to be aware of during implementation if possible, and at last elements that could be locally adjusted. The final model therefore ended with the three levels of elements, 1) shared elements, 2) recommendations, and 3) local adaption.

After a last revision, the final model was described in detail and illustrated graphically (figure 5)

Figure 5 – the final model SDM:HOSP

Details of Training of Leaders, Training of Teachers and Clinicians, Decision Helper and the theme Process are shown in additional file 6. A full overview of the model in a table edition can be seen in the additional file 7.

Discussion

The SDM:HOSP model of implementation of SDM presented here is the primary outcome of the SDM implementation process that has taken place in the Region of Southern Denmark during the last 2½ years. The model emerged from fieldwork highly inspired by the literature, theoretical frameworks and systematic processes with a high level of user involvement.

When working with the implementation of initiatives that require change of culture and attitudes as well as sustainable change management, the challenge is often to prove that the effort has led to improvements. SDM implementation does not deal with the implementation of a new diagnostic test or a new pharmaceutical drug where clear and well-known improvement measures such as improved sensitivity, positive predictive value, or altered number of events exist. Implementation is the result of complex interventions and initiatives. Alternative outcomes may cover processes rather than results, and result outcome measures are often complex, reflecting various factors than the specific effort one is trying to evaluate. Patient experienced level of SDM is an example. In the current implementation initiative, it was therefore prioritized to systematically collect evaluations from all kinds of course participants (leaders, teachers, clinicians), steering group members and the local implementation consultants. In addition, several other process measures were collected (e.g. number of trained leaders, teachers, clinicians and developed PtDAs) as well as some performance goals, which, however, are outside the scope of the present paper as they only exist at a specific department level.

This Danish initiative on SDM implementation is not unique; other organizations have also worked with large-scale SDM implementation like us, for example the national effort in Norway where "Samvalg" is the Norwegian term for "shared decision making" (35), or the "Share to Care" initiative at the University Hospital Schleswig-Holstein, Campus Kiel in Germany (36) who recently published a German-language systematic methodology report (37) on their website. Furthermore, there has been a major effort in the UK where the Health Foundation in the UK commissioned the MAGIC (Making Good Decisions in Collaboration) program to design, test, and identify the best ways to embed SDM into routine primary and secondary care (9). This initiative likewise used quality improvement methods.

A common feature of these efforts is they all point out how important it is to increase understanding of what SDM entails and how it differs from current clinical practice. They all include a common denominator that deals with training of clinicians, often in workshops based on role-play-based training or as feedback on real-world video recording of the participating clinician's consultations with real patients from their practice. These are also key elements of our clinician training program. Another common denominator is the development and implementation of PtDAs. It is well known that both policymakers and many clinicians believe that a decision aid will itself enable SDM and believe that a tool to provide to their patients is essential. A key learning point from the MAGIC program was that "skills trump tools, and attitudes trump skills." These are findings that we also recognize from our implementation. One of the four themes of our final model was therefore 'Training of leaders'; they are key opinion leaders that shape the culture and attitudes in an organization. We cannot emphasize enough how important this is. The leaders will need to both 'talk the talk' and 'walk the walk' putting action behind their words to secure that SDM can be effectively implemented in a large organization like a hospital.

There is no doubt that PtDAs are often a great facilitator of SDM implementation processes in general. As part of this, clinicians who participate in the development often gain much greater interest and insight into what SDM means and how it e.g. can be practiced with the use of a patient decision aid. In other words, participation in the development of PtDAs helps to change a culture and the discussions that PtDAs give rise to among the clinicians who help to develop them are often very fruitful. As part of a process updating evidence for the International Patient Decision Aid Standards Collaboration (IPDAS) Checklist, a rapid realist review was conducted in 2020 and described recommendations that point in the same direction as ours including training clinical teams, co-production of PtDAs, measurements, senior-level buy-in and in preparing patients to participate in SDM (38).

We would therefore strongly recommend involving – and supporting - the clinicians who are going to use PtDAs in the development process of those and not to outsource it to external developers. In addition, at the same time be aware that PtDAs cannot stand alone.

The latter, patient activation in the format of preparing patients for their individual participation in SDM, has not been a targeted systematic effort in our implementation process. However, we have consequently involved patients in the designing of the PtDAs, in raising awareness and disseminating the concept of SDM based on patient campaigns in Vejle Hospital in Denmark (39), and in the production of an animation video targeted at patients describing what SDM is and why it is important (40). We fully recognize that education and activities targeting how to prepare patients to engage in SDM are essential, as this is a serious practical barrier for SDM implementation.

During this SDM initiative it became clear how organizational and cultural differences including the various hierarchical models of communication and decision-making at department and hospital level constituted contextual factors of importance to the ongoing processes and local adaptation. Even though The Region of Southern Denmark is a relatively small area with approximately alike demographics and living conditions for the citizens and an executive board that applies the “rules” of health care, the five hospital units applied very differently. This called for a very flexible and adaptable support from CFFB and the need for a flexible model for future use. While some hospital units wanted to mostly decide as much as possible on their own, others wanted a more strict and united framework. To secure feasibility across entities and similarity on the main elements of implementation, we introduced the different levels ‘shared’, ‘recommended’ and ‘adapted’

If the four themes conceptualized by the three levels are applied to hospital settings when implementing SDM, one would hypothesize that the implementation includes the most important elements and working mechanisms and address the most crucial barriers, thereby improving SDM in clinical practice.

We, therefore, suggest that our adaptive model (SDM:HOSP) will be of value when implementing SDM across departments within one hospital and/ or when implementing SDM across hospitals sites and can make a feasible framework for SDM implementation, both inside the borders of Denmark and possibly also internationally.

Strengths and limitations

It is a strength that the model was developed during a rigorous process taking outset in routine clinical practice across different hospital settings. Second, it is a strength that all steps of the process included a high level of user involvement and systematic evaluation including different perspectives and both qualitative and quantitative methods. Third, the model was developed across hospital units including both mental and somatic units, clinical departments representative of different clinical problems, medical specialties and both nurses and medical doctors. A fourth strength of this work was the possibility to work in a big “living lab”, with different organizations and cultures. This means a high level of learning of what is needed in different contexts when implementing SDM, and a realization that activities both need to be shared, but not so tight that activities cannot be adjusted according to the local context. There are several limitations to this work. First, the design of the intervention is pragmatic to be feasible to real-life practice, and this means that there have been several adjustments, both regionally and locally, during the intervention. Secondly, it is a limitation, that the usefulness and effectiveness of the final model have not yet been tested.

Perspectives

As always when implementing SDM, it is a challenge to provide measures to detect if the effort results in an actual improvement and change. This calls for an innovative approach to support leaders and clinicians, for example by developing a tool for setting goals of implementation, choosing implementation activities and measuring improvement and progress of implementation. This would be a practical and usable add-on to SDM:HOSP, where SDM:HOSP would function as the overall framework and a supportive tool for the above purposes would make the implementation of SDM a much more practical oriented process. Development of such a supportive tool is an ongoing project in CFFB,

Conclusion

To our knowledge, this is the first feasible and acceptable generic model for implementation of SDM across hospitals and departments that accounts for different organizations and cultures. Although the details of the model are adapted to a Danish, regional context, the overall design with the four themes and three levels can easily be adapted to other organizations, and the generic touch of details in the themes and levels can be adjusted to fit the specific organization and culture. The results from the ongoing and overall evaluation suggest promising avenues for future work in further testing and research of the usability of the model.

Declarations

Ethics approval and consent to participate: Not applicable – please see section on ethical considerations

Consent for publication: Not applicable

Availability of data and materials: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests

Funding: No funding for this project was obtained except for institutional funding for the salary of the involved participants.

Authors' contributions: KDS, CS, KE, SL, PSG, PF and AM all were part of designing the elements of implementation. KO were leading the real life implementation. KDS and KO performed evaluations of all activities and analyzed data to provide sufficient knowledge to CS, KE, SL, PSG, PF and AM to be able to discuss and reach consensus on the final model. KDS, DGH and KO wrote the manuscript. All authors read and approved the final manuscript

Acknowledgements: We sincerely thank the implementation consultants and employees at Center for Shared Decision Making for their great contribution to all of the elements described in this quality improvement project. We extend our appreciation to the patient-relatives from the steering committee, who provided feedback and questions to adjust accordingly to their preferences. We also acknowledge the first mover departments in the Region of Southern Denmark, who all willingly participated in the project and made it possible to get experience and learnings to develop the final model of implementation.

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Figures

Figure 1

Hospital units in the Region of Southern Denmark

Figure 2

Regional organization

Figure 3

Timeline with activities

	2019 PHASE ONE	2019-2020 PHASE TWO	2020 PHASE THREE	2020-2021 PHASE FOUR
	Development of conceptual elements	Field testing Concurrently participant evaluations	Evaluation Overall evaluations and learnings	Development of final implementation model
Training of leaders	<ul style="list-style-type: none"> Leadership workshop conceptualized and tested by Center for Shared Decision Making to ensure professional standards Execution of leadership workshops managed by Center for Decision Making at all hospital units Leaders should be provided with knowledge of SDM on a level of comprehension Leaders should have the possibility to discuss and plan implementation strategy, barriers and facilitators in their own department Participant evaluations should be performed to monitor if leaders profit from the course 	<ul style="list-style-type: none"> Leadership workshop gave leaders a much-needed chance to reflect on their own practice and department culture Leaders had the perception that they and their clinicians are either good at involving patients in decisions or that SDM is not suitable in their practice Some implementation consultants wanted to supplement course material with local process plans 	<ul style="list-style-type: none"> Leadership workshop should be mandatory for as many leaders as possible and leaders of all levels After participating in Leadership workshops, leaders discovered that SDM is feasible in own department and that they did not involve patients in decisions in a structured way 	<ul style="list-style-type: none"> Evaluation of Leadership workshops confirms the relevance of training of leaders Training of leaders should include obligatory course material at all leadership workshops The concept developed requires at least a three-hour course Execution of Leadership workshop should be performed by local SDM implementation consultants to balance resources and local ownership
Training of teachers	<ul style="list-style-type: none"> Teach-the-Teachers course conceptualized and tested by Center for Shared Decision Making Teachers should be provided with knowledge of SDM on a level so they can apply the knowledge to own practice, and in the long term, analyse, and synthesize their own strategy for teaching their own colleagues Simulations of patient consultations are of high priority to ensure a high level of understanding SDM Participant evaluations should be performed to monitor if teachers are sufficiently prepared for the role as a trainers of SDM To supplement physical attendance courses, E-learning material was requested 	<ul style="list-style-type: none"> A need for obligatory, identical course material to clinicians, to ensure uniform and high quality level of SDM knowledge and skills A need to explicitly make clear that physicians must be part of teach the teachers training Simulations of patient consultations were perceived as the least rewarding way of practicing in an expectations alignment questionnaire before the course and the most rewarding after the course Teachers had the perception that they were either good at involving patients in decisions or that SDM was not suitable in their practice at the first day of teaching. By the second day, 14 days afterwards, they discovered that SDM was seldom done in their department and they became aware of several areas where SDM could be newsworthy 	<ul style="list-style-type: none"> Teach-the-Teachers courses were an overall success Simulations of patient consultations in both Teach-the-Teachers and clinician courses were of great value Leaders became conscious of the need to train a sufficient amount of teachers to make the department system robust Developed E-learning material were relevant as an add-on to the physical attendance courses 	<ul style="list-style-type: none"> Training of teachers should include obligatory course material Teachers in departments should function as more than teachers in departments, and have key roles in implementation
Training of clinicians	<ul style="list-style-type: none"> A one-day course is recommended with a mix of SDM theory and training through simulations Courses are planned by local teachers and local implementation consultants with minimum of support from Center for Shared Decision Making 	<ul style="list-style-type: none"> A need for obligatory, identical course material to clinicians, to ensure uniform and high quality level of SDM knowledge and skills Clinicians expected that they were already good at involving patients in decisions Clinicians were convinced that other departments can make a lot of SDM, but there are no situations in their own department that are relevant 	<ul style="list-style-type: none"> Simulations of patient consultations in both Teach-the-Teachers and clinician courses were experienced as valuable Leaders found it difficult to plan time for a one-day SDM course for all clinicians When leaders prioritize the daily workflow over SDM courses, they omit simulation training and settles for a short education class with SDM theory Some clinicians realized they did not involve patients in a structured way Some clinicians discovered that SDM is feasible in own department 	<ul style="list-style-type: none"> Training of clinicians must include obligatory course material, that can be combined with department specific clinical knowledge If simulation training should be prioritized, new possibilities that helps leaders plan SDM training in a more flexible way, must be developed
Patient Decision Aids	<ul style="list-style-type: none"> A need for an easy and fast-track development process of Decision Heipers, but at the same time make sure to comply with IPDAS criteria To ensure patient involvement in developing Decision Heipers, a workshop with patient and relatives were made a mandatory part of the development process Departments made responsible for development of Decision Heipers and setting the timeline for the process 	<ul style="list-style-type: none"> Not all departments chose to develop a Decision Heiper 	<ul style="list-style-type: none"> Developing a Decision Heiper was a facilitator of understanding SDM Departments who had not developed a Decision Heiper experienced it difficult to detect if something had changed in the short run Departments needed a lot of support to develop Decision Heipers to ensure progress Workshops with patients and relatives worked well, but some situations called for an alternative, for example interviews or questionnaires 	<ul style="list-style-type: none"> Developing a Decision Heiper need to be highly supported by Center for Shared Decision Making to ensure progress The way of involving patients in developing Decision Heipers is optional, but patients need to be included in the process Since developing a Decision Heiper is rewarding for the implementation process, the development of at least one are made mandatory
Systematic planning of implementation process	<ul style="list-style-type: none"> Already known methods from the South Danish Improvement Model required to ensure recognisability An implementation starter kit developed to guide local units in planning the implementation process Two three pilot departments chosen, as an opposite to beginning with all departments at one time To learn as much as possible, no criteria applied for becoming a pilot department Overall result measures difficult to select. Two shared measures chosen Overall process indicators selected to monitor progress 	<ul style="list-style-type: none"> Difficult to make departments set goals and find ways to measure Outcome measures should require as few resources as possible An estimate of resources needed to be made available and explicit to make departments understand the number of resources needed to implement SDM Departments with many sub-units and many employees are more difficult to "move", than smaller departments Despite recommendations of including patients in implementation groups in departments, this was seldom done 	<ul style="list-style-type: none"> Departments needed a high level of support from SDM implementation consultants to set goals and to measure outcomes, including highest leader level in pre-meetings prior to the implementation effort was of great value A fixed series of meetings was a good facilitator of the process When leaders, teachers, and clinicians had been educated, there was still a need to facilitate activities that translate knowledge into action 	<ul style="list-style-type: none"> A need for shared elements, in contrast to mandatory elements, to ensure similarity across regional implementation and to signal unity instead of instructing A need for a possibility to locally adapt specific elements A need for recommendations about several elements, as a guideline to implementation consultants Consensus of the mode being dynamic and changeable when new knowledge or experience occur A need for developing a sustainable plan to ensure future focus Measures should be done for the purpose of the wanted focus in departments, and not for the purpose of measuring an overall effect of SDM

Figure 4

Learnings from the implementation process

Figure 5

the final model SDM:HOSP

Supplementary Files

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- [Additionalfile1SQUIREchecklist2.0.docx](#)
- [Additionalfile2TrainingofLeaders.docx](#)
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