

CHAPTER 8

Implementation of Innovations in Routine Clinical Practice

Principles and Challenges

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New knowledge, as the product of scientific research and practical experience, does not automatically lead to its use in routine clinical practice in health care generally and in mental health care in particular. According to Davis and Taylor-Vaisey (1997), *implementation* in general means the introduction of an innovation into routine clinical practice. It requires effective communication strategies and the removal of barriers to change through the use of educational and policy techniques (Davis and Taylor-Vaisey 1997). Implementation in this context is a “behavioral” change, an active process, and includes not only planning change but also carrying it out and realizing it. Generally, many people have had great plans, ideas, and dreams, but only a few are able to realize them. Hulscher et al. (2000) described implementation in health care as “a process-based and planned introduction of innovations and/or improvements (of proven value) with the aim of giving these innovations a structural place in (professional) acting, in the functioning of organization(s) or in the structure of healthcare.”

This chapter is about the implementation of innovations and leading people into a new process, with a mission and a vision. It is about the introduction of a new work-

The chapter is based on previous research of the doctoral thesis of the author (Buwalda 2013) and the book *The Practical Guideline on Outcome Measures in Mental Health Care* (Buwalda et al. 2011).

ing method, which means not only executing it in a managerial way but also creating a cultural change, especially when it concerns professionals. Implementing, as already noted, is an active process (Swinkels and Buwalda 2011). In this chapter, I describe the different general aspects of implementing an innovation, illustrated with a practical example: the implementation of measurement instruments in routine clinical practice with the intention of enhancing the quality of the individual treatment process of the patient. In this chapter, readers are introduced to a variety of interlocking conceptual models such as the plan-do-check-act (PDCA) and plan-do-study-act (PDSA) cycles, GroL and Wensing's (2006) six-phase implementation model, the SMART (see "Phase II: SMART Plan of Implementation" subsection for description) plan of implementation, and Vissers and de Vries' (2005) operations management model. Each model plays a role in the unfolding of this chapter.

Empirical Cycle, PDCA Cycle, or PDSA Cycle: A Process of Continuous Quality Improvement

In medicine, implementation is an iterative process of continuous evaluation and adjustment because practice and theory are constantly evolving. Medicine is an empirical science in which almost everything is subject to change, and a practice that is being implemented or learned will be changed again or may need to be adjusted to be improved. Refresh, change, and implement is a continuous cycle, captured in the quality improvement circle, the PDCA cycle, or the PDSA cycle (Swinkels and Buwalda 2011).

Mental health professionals constantly seek to improve the quality of their treatment. They apply interventions of treatment(s) and want to know whether they have achieved the desired effect or whether better effects can be achieved. This continuous way of evaluating professionals' actions occurs in the empirical cycle that investigates whether better results can be achieved (Kerlinger 1986).

The empirical cycle involves

- A subject or problem that is specified in clear language
- Concepts and relationships that are defined in between
- Specified outcome variables
- Measurement instruments that are chosen and appropriate research design
- Appropriate collection, management, and analysis of the data
- A discussion of the results with the aim of finding a solution to the problem and answering whether further research and theory are required
- Respecification of the subject or the problem

The cycle then repeats itself.

The empirical cycle is a reliable path to ensure that the results found are valid, deliver relevant answers, and contribute to theory. With the use of modern technology and advanced methodology, the empirical cycle can be accelerated. In different fields—economic, management, operational, and sociotechnical research—the empirical cycle has been used successfully (Swinkels and Buwalda 2011). The empirical cycle is reflected in simplified form in the Deming (1982) PDCA cycle, which is the

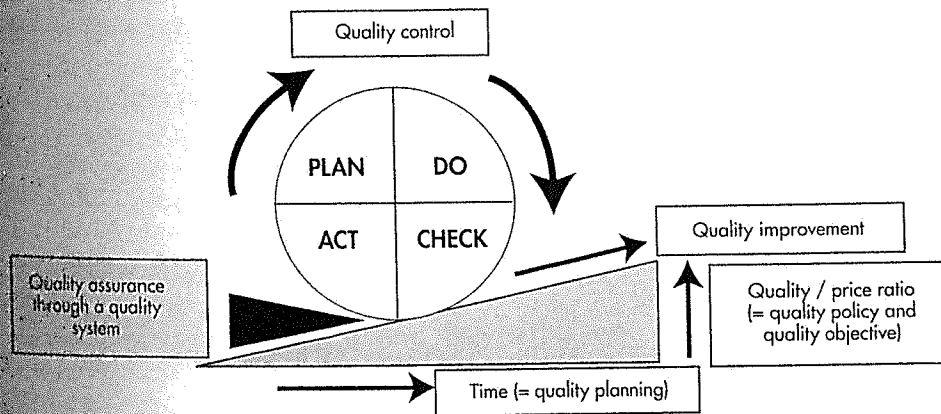


FIGURE 8-1. Plan-do-check-act (PDCA) cycle.

Source. Reprinted from Deming WE: *Out of the Crisis*, PDCA Cycle. Cambridge, MA, The MIT Press, 1982, p. 148. ©2000 Massachusetts Institute of Technology. Used with permission of The MIT Press.

basis of systematic work on quality improvement in routine clinical practice. This PDCA cycle consists of four steps: planning (*plan*), executing (*do*), reviewing (study/*check*), and improving (*act*) (Figure 8-1). These steps together form the continuous quality improvement process. Organizations plan their activities in line with their explicit objectives (plan and do). The activities are carried out and tested in accordance with explicitly agreed-on quality characteristics and standards (study or check). The evaluation of the results leads to the adjustment of the implementation or, when appropriate, of the objectives or criteria (act and plan). This continuous process of quality improvement can be executed on every level (micro, meso, and macro levels).

As mentioned earlier, the implementation of measurement instruments in routine clinical practice is used as an example to illustrate how a process of implementation of an innovation can take place. In general, during the PDCA cycle, measurement instruments are mainly used in the check phase and sometimes also in the plan phase to clarify the problem. For the treatment process of an individual patient, outcomes of measurement instruments at the beginning of the treatment process can be used as co-starting points to measure the progress of the treatment process and to measure the reach of the aims and purposes of the treatment plan. In addition, the interim follow-up and final measurements are in the check stage, which determines the extent to which the objectives are achieved during the treatment process. This is the PDCA cycle at a micro level. Data from, for example, the treatment plan will answer the questions of to what extent, how fast, and why the patient recovered or did not progress. At an aggregated level, data from a group of patients can be part of the assessment of whether and to what extent a department or organization achieved its objectives; it is called the PDCA cycle at the meso level. If the data are to be used to differentiate between different institutions in a PDCA cycle, it is at the macro level (Swinkels and Buwalda 2011).

As described, the PDCA cycle is used in the implementation process of measurement instruments as an innovation in the primary care process of an organization. First, in the plan phase (P), the measurement instruments are selected. These instru-

ments then become part of the treatment plan and are integrated into the working course of the primary care process. In the do phase (D), the use of the selected instruments is implemented in the workflow. In the check phase (C), administrators examine and determine if everything is going as planned and whether it makes a continuous process of monitoring possible. In the last phase, the act (A) or adjustment phase, the results of the process are evaluated and weighed. This determines the necessary follow-up steps. If no improvement is found during the check phase, then it is important to determine what went wrong and whether the theory of improvement is still valid (Swinkels and Buwalda 2011).

The Deming cycle is the foundation of evidence-based thinking and acting. Evidence is not proof, not something fixed, but probability knowledge that is more likely to be true than false.

Three Ways of Implementing Novelties

Generally, there are three ways of implementing novelties in an organization: 1) top down, 2) bottom up, or 3) a mixture of both. The implementation of measurement instruments is also used in this paragraph as an illustration. When the implementation of measurement instruments is forced, for example, by the board of directors (*top down*), without shared certainty of their added value, these instruments may be used badly or not at all by the organization's workforce, the professionals. This will result in a psychological reluctance, a sham resistance (Swinkels and Buwalda 2011). In principle, one might not be opposed to the implementation of the instruments, but rather to the pressure of using them against one's approval. In this case, the probability of implementing measurement instruments successfully into an organization by a *bottom-up* approach is much higher, but even this can fail, partially because it is not consistent with the organization's objectives. Even in this situation, the benefit of the introduced measurement instruments must be clear. It also must be clear why and how the organization will facilitate their use. It is essential for management to remember that they will be infringing on the work domain of the professional. The professional also must agree that measuring has added value. A *mixed* implementation process that considers the collaboration of the executive board of an organization with its professionals will be most likely to ensure the success of the implementation process.

Theory of Implementing Innovations

Grol and Wensing (2006) have extensively described the various theories on improving implementation. In several theories, the individual professional, social context, structure of the organization, and economic impact play a role. In the next subsection, different phases of Grol and Wensing's (2006) implementation model are discussed.

Phases of Implementation

Grol and Wensing (2006) described a six-phase implementation model: first is the preparatory phase, describing the proposal for change. Important at this stage is the

systematic planning of the entire implementation process through, for example, project management (professionals in different aspects of the primary care process will lead the process of implementation). Second is the diagnostic phase, in which the actual state of care is described. In the third phase, the analysis of the target group and setting is begun. An analysis of the context, the characteristics of the target group, and the promoting and obstructing factors of the proposed change is initiated. The fourth phase is the selection of the desired change to be introduced. This concerns mainly dissemination, such as knowledge dissemination, creating interest and fostering a positive attitude and willingness to change, and implementation, the initiation of the change that is the actual implementation of the plan. Grol and Wensing later added a fifth phase to their previous model from 2000, in which the implementation activities are tested and executed. Finally, the sixth phase focuses on the evaluation and justification of the plan. In Figure 8-2, this implementation model is shown schematically.

This chapter merges the six phases into three phases and again mainly focuses on the implementation of measurement instruments in these phases. Phase I includes the preparatory phase and the diagnostic phase, which encompass the analysis of the care to be changed and the expected problems. Phase II includes the design of an implementation plan along with the development and selection of strategies and, when appropriate, testing in which the actual implementation takes place. In phase III, the plan is evaluated and adjusted when necessary (Swinkels and Buwalda 2011).

Phase I: Preparation and Diagnostic Phase

In phase I, the preparation and diagnostic phase, an analysis of the changes and challenges related to the implementation of measurement instruments is addressed.

This phase consists of the following activities:

- Addressing questions: What does the clinician want to change? What measurement instruments does the clinician want to introduce?
- Identifying the process globally through a project plan
- Choosing one or more measurement instruments
- Defining and determining the goals and interests of all participants involved in the implementation of the chosen measurement instruments: Why are they useful and necessary?
- Identifying the contributing and obstructing factors in administering the measurement instrument in routine clinical practice

It is important to identify the promoting and impeding factors in the implementation: the team's willingness to orient and to identify knowledge, their insight with regard to their own work and desire to participate, and their willingness to introduce and maintain the change. Professionals must try to map the entire process to get an impression of the tensions that are involved in the implementation of the change and its possible benefits and streamline the process when possible.

The following factors can play a role in the implementation of the chosen measurement instruments:

- Do the measurement instruments reflect the questions that arise during clinical practice and help the clinician to make more correct decisions?

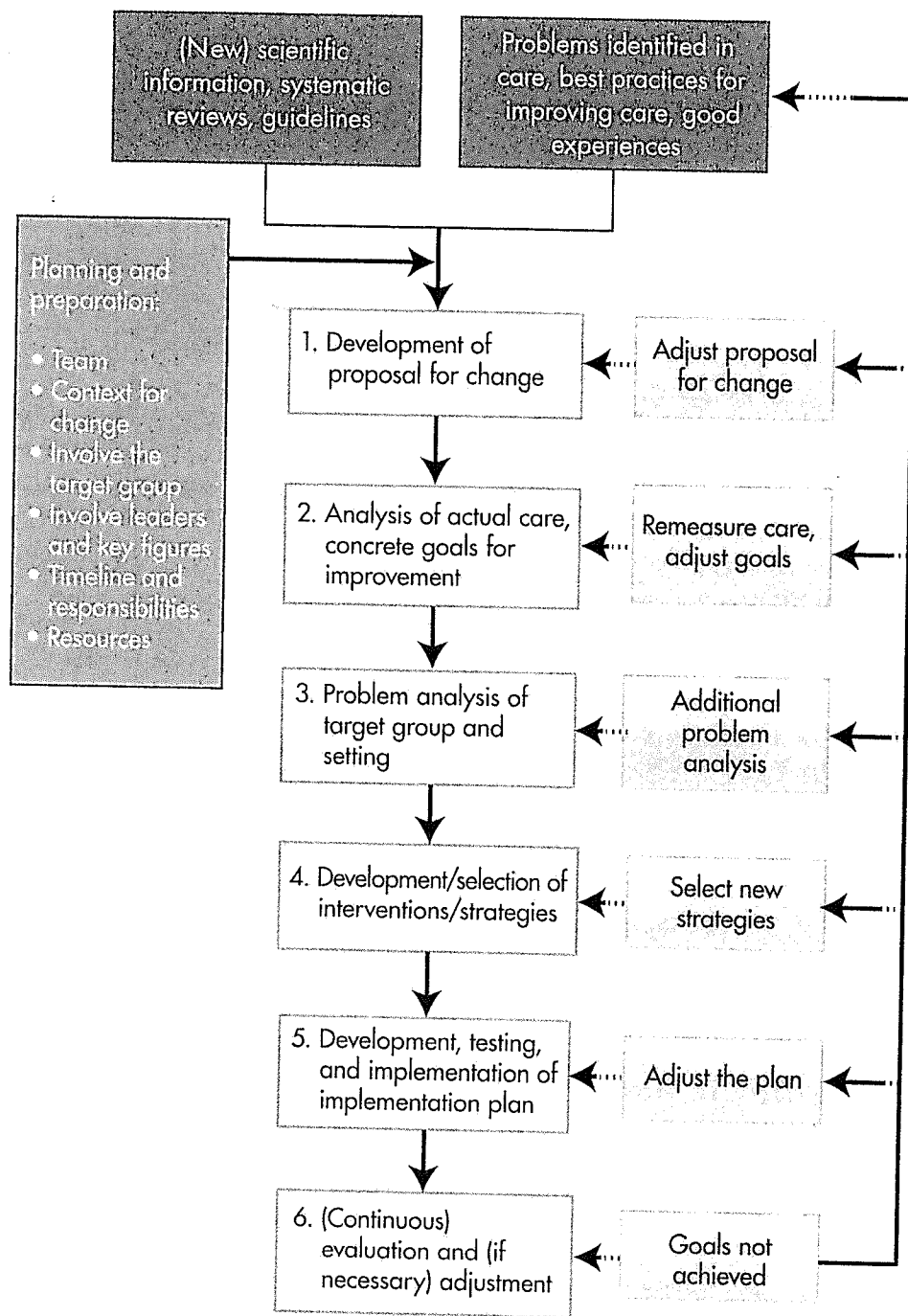


FIGURE 8-2. Model of implementation.

Source. Reprinted from Wensing M, Grol R: *Implementatie: Effectieve Verbetering van de Patiëntenzorg*. Houten, The Netherlands, Bohn Stafleu van Loghum, 2017. Used with permission.

- Are the measurement instruments easy to use, and have they demonstrated their usefulness over other measurement instruments?
- Who initiated the introduction of the measurement instruments? Is it the professionals' desire, or is it preferred by a third party familiar with the clinical problem?
- What are the scientific qualities of the measurement instruments? And do the measurement instruments have appropriate psychometric properties?
- How widely applicable are the measurement instruments? Do they say anything about the individual patient and the group?
- Has the choice of the measurement instruments sufficiently considered the challenges faced by the various professions, as well as the patient's wishes, preferences, and degree of personal therapy?
- Are the measurement instruments unequivocal (single question) and formulated in an understandable way? Do they include multiple-choice questions, and are items scored on a Likert scale on which one can indicate dimensions by a numeric variable?
- Are the measurement instruments flexible enough to make determinations about the complexity of the caseload, for example, or the distribution of labor (practical utility)?
- Are the measurement instruments attractive, well designed, and presented in a way that encourages their use? Is the professional persuaded to use the instruments daily?
- Is the implementation of the measurement instruments demonstrable in continuing training and quality improvement pathways, for example, as a basis for teaching material?

During the implementation of measurement instruments, it is necessary to analyze the promoting and obstructing factors that may occur, in relation to the target group and the setting, to subsequently adjust the instrument accordingly. Several strategies are possible in the analysis, such as research into the background and context of the data subjects (i.e., the users and target group of the measurement instrument). Which factors of care are the most eligible for change? Which measurement instruments are most appropriate? Who are the early adopters, and who are late adopters in the target group? Other promoting and obstructing factors need to be addressed in relation to the caregivers and patients, the organizational setting, and the social environment. The promoting and obstructing factors can be identified with Table 8-1 (Swinkels and Buwalda 2011).

The handout shown in Table 8-1 detects the promoting and obstructing variables, understanding that all these variables are not strictly distinguishable from one another. After the diagnostic phase, the measurement instruments are chosen, the logistics process is mapped out globally, and the most important promoting and limiting factors are identified. The second phase follows: the execution of a well-thought-out plan of implementation.

Phase II: SMART Plan of Implementation

In the execution plan, the process of the "how," the "what," and the "when" are accurately described. This means that there is a "concrete and complete SMART plan of implementation" (www.twijnstragudde.nl) to be executed. SMART stands for

- *Specific*—The characteristics of the desired situation are precisely defined, and clear and obvious targets are formulated. For example, a measurement instrument

TABLE 8-1. Promoting and obstructing factors for implementation

Characteristics	Promoting	Obstructing
Attitude toward their work	<input type="checkbox"/>	<input type="checkbox"/>
Context variables	<input type="checkbox"/>	<input type="checkbox"/>
Structural factors	<input type="checkbox"/>	<input type="checkbox"/>
Organizational factors	<input type="checkbox"/>	<input type="checkbox"/>
Economic factors	<input type="checkbox"/>	<input type="checkbox"/>

Source. Swinkels and Buwalda 2011.

is introduced to monitor the symptoms of depression to see if treatment is progressing according to expectations.

- *Measurable*—Every goal should be made as measurable as possible with an objective method of measuring that is acceptable to those most involved; for example, with what percentage of patients who have been treated for depression has a measurement instrument been used?
- *Acceptable*—Those involved are willing to focus on their efforts to pursue their goal. Most people want to commit to goals that they see as useful and through which they can pursue some personal goals.
- *Realistic*—Those involved can achieve their goal. The targets are not so high that people are discouraged before starting; this can be better assessed with a self-rating questionnaire instead of a clinical observation scale to minimize the administration burden on the professional. It determines to what extent the defined targets are attainable.
- *Time-bound*—Those involved can follow up their results to see to what extent they are approaching their goal(s), phased in time. The current status is regularly announced concerning the realization of the goals set. The measurement instrument is introduced for a definite period of time, and the percentage of patients in whom the instrument has been used is determined.

A SMART objective is directional: it specifically indicates which results must be achieved and when, and it directs the behavior of the professionals and the initiator of the change. Even when the SMART objectives are clearly formulated, changes in routine clinical practice are difficult to enforce.

Ideally, the management facilitates the professionals in their development and keeps them enthusiastic and engaged to introduce and secure the necessary change successfully. At this stage of implementation, strategies are drawn up per department or setting for the dissemination and implementation of the measurement instrument with the aim of stimulating change. It may be advisable to test the activities of implementation on a small scale and make necessary adjustments in an early phase. It is essential to involve the professionals in the test and implementation phase as well as in the consideration of adjustments.

Phase III: Evaluation Phase

In the evaluation phase, the course of implementation is evaluated with the data collected during the process of implementation. Also, when appropriate, adjustments

are made based on the process outcome. The Deming cycle, similar to the empirical cycle, is followed. As a variant of the Deming cycle, Berwick (1996) and Langley et al. (1996) in the 1990s introduced the PDSA (plan-do-study-act) cycle, meant to improve processes in health care.

The Langley cycle also includes the idea that knowledge grows through the introduction of changes and the evaluation or reflections of those changes. Completing one cycle is usually insufficient. Improvements in a system require cumulative changes and continuous cycling (Grol and Wensing 2006; Langley et al. 1996). In the Netherlands, the PDSA cycle is used for so-called breakthrough projects. The aim of these projects is to bridge the gap between theory and practice by implementing existing knowledge and optimized care practices. Figure 8-3 reflects the breakthrough model globally.

A breakthrough project consists of several multidisciplinary composite teams, derived from different health care institutions or regions in the Netherlands, which, for the duration of a project, temporarily work together in a kind of partnership. All these teams work to optimize care. They formulate their own objectives. During the breakthrough project, the teams are guided by substantive and methodological experts. Much attention is paid to how to measure the outcome via indicators. In the breakthrough projects, field experts systematically collect knowledge from the *best practices* in each area. This knowledge, centrally collected, is presented at work conferences and is used for optimal knowledge sharing within the various collaborative institutions. Within a breakthrough project, measurement instruments are collected with the aim of measuring effects during the clinical care process. During these processes, various human and organizational issues, as outlined earlier, play a role in the project's introduction. It is important to preserve the changes that have occurred from the breakthrough project. These should be part of the daily routines and practices of each institution or organization that participates in the breakthrough project. It is also important to anchor the changes in such a way that it is noticeable if the new working method is not followed.

Clinicians' and Patients' Effect on the Implementation Process

Clinicians' Attitude and Support

The involvement of the professionals in the implementation process of an innovation such as a newly introduced measurement instrument(s) is essential. Professionals are among the most important contributors to the implementation process. In practice, it appears that if professionals do not agree with the implementation process and the innovation has not shown any significant professional advantage, the chances of success are low. The professionals will not use the instrument in routine clinical practice. If the professionals do not support the innovative manner of working, management will be challenged.

The implementation process distinguishes three types of practitioners (Rogers 1995, 2003). The first is the early adopters, who are keen and willing to apply the new interventions in the treatment process. The second type is the early majority, who

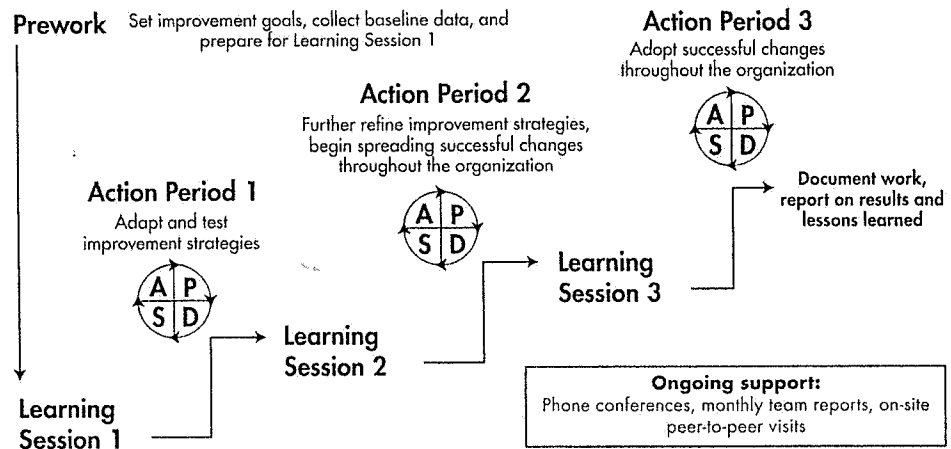


FIGURE 8-3. Use of the PDSA (plan-do-study-act) cycle for breakthrough projects.

Source. Reprinted from Institute for Healthcare Improvement: Plan-Do-Study-Act (PDSA) Worksheet. Available at: <http://www.ihl.org/resources/Pages/Tools/PlanDoStudyActWorksheet.aspx>. Used with permission of the Institute for Healthcare Improvement (IHI), ©2022.

want to see what will happen before implementing. They will decide at a later stage whether they will adapt to the intervention to be implemented. The third type is the late majority, the practitioners who have the most resistance to the change. Rogers (1995) speaks in his *Diffusion of Innovations* of a distribution of 2.5% innovators, 13.5% early adopters, 34% early majority, 34% late majority, and 16% laggards or conservatives when introducing changes. This latter group is further divided into 13.5% laggards and 2.5% persistent skeptics.

To successfully implement measurement instruments woven into a software program, it is important to investigate and analyze the attitudes of the staff and, if possible, positively influence their attitude. Clinicians must not think that a new working method is being forced on them; rather, they need to be trained in how to use the innovation and given enough time to learn and adopt the new technology (Rosen and Weil 1996).

Buwalda et al. (2009) investigated the experience of professionals with a computer program for measurement instruments by using a self-developed questionnaire. The study showed that the acceptance by the professionals of the measurement instrument system was adequate. But in practice, the willingness of the professionals to use the measurement instrument-supported program was low (Buwalda et al. 2009). Apparently, not only their attitude was important but also their willingness to change their behavior. This matches the findings cited earlier in this chapter. Also, Trauer et al. (2009) are in favor of training the professionals adequately and facilitating their ability to use the new way of working. Another study (Close-Goedjen and Saunders 2002) showed that if this support was given for a particular duration and then stopped, the professionals became less inclined to use the measurement instrument program. So adequate training and regular follow-up are critical issues for the success of implementing new elements in the primary care process.

Implementation of an innovative technology may be more successful if a solid foundation of support is first built among young(er) professionals, who are more accepting of new technologies, rather than older professionals, who have more difficulty adapting to new technologies. Also, motivational gatherings and regular presentations of the benefits of the new workflow, such as decreasing the administrative burden for the clinician, will motivate the early and late majorities of the professionals to adapt to the innovation.

Sufficient approval and support should be fostered among professionals for the measurement instrument application to produce a positive breeding ground. The creation of a solid foundation of support is necessary if major changes are at stake, especially if these changes have consequences for people (professionals) personally. Common issues for which support is important include organizational changes and the introduction of a new computer system. It is a human tendency to prefer the old trusted and well-known system and to hold on to it. Most people are reluctant to adapt. That is why innovations often evoke resistance to change when too much needs to be done. If people are involved in the process of change at an early stage, for example, by being included or able to participate in an implementation project, they offer much less resistance. At that time, a support base for the change, plan, or decision arises.

To give the innovation a chance, an investment has to be made in the creation of a solid support base among professionals, especially the early adopters and young professionals. Thereafter, one can move on to senior professionals, who are likely to be among the most resistant. Ideally, the enthusiasm of early adopters may tip the balance and persuade the senior professionals.

Patients' Guidance and Empowerment

Another important task is to motivate patients to support the introduction of an innovation (e.g., the use of measurement instruments in routine clinical practice). Patients are often asked to fill out questionnaires on a computer or laptop. A study on patient experiences in completing questionnaires by using a computer program provided a relatively positive result (Buwalda et al. 2009). Later, during treatment, when patients were asked again about their experience using the computer program, the result was more favorable than their first response. Patients were informed that the aim of using measurement instruments during treatment was to make the treatment process more transparent and insightful. This enabled their clinician to adjust the treatment intervention based on the results of the assessment if needed. In addition, the effect of the clinical intervention is clearly visualized in outcome graphs. The use of this tool might improve the efficiency of the treatment as well as the quality of the treatment process. The feedback of the treatment results might have a positive effect on the patients' motivation for the treatment. It is important to be aware of the possible response burden on the patients based on the number of items. The following key factors may affect patients' willingness to fill out questionnaires:

- *Clear information on the procedure and the questionnaires to be used.* When useful information is provided, the patient may make a clear choice about whether to participate, and it is more likely that he or she will make a positive contribution to the treatment process (Lyons et al. 1997).

- *The degree of volition (compulsory or voluntary).* Voluntary participation creates more space and stimulates an internal *locus of control* compared with compulsory participation. When patients believe that they bear significant responsibility for the success or failure of their treatment and their choice to commit to transparency and effectiveness, their attitude toward the measurement instrument application seems more positive.
- *The patient's psychiatric problems.* The nature of symptoms and severity of symptoms also seem to play a role in patients' attitudes toward the measurement instrument application. The degree of feeling pressure, feeling of helplessness, locus of control, vulnerability, and endurance all influence the patient's willingness to participate.
- *Attitude of the practitioner(s) toward the measurement instrument application.* In practice, it appears that the attitude of the practitioner toward the measurement instrument application affects the patient's willingness. In a therapeutic patient relationship, the therapist may play a steering and directive role. If the practitioner is positive about such an intervention, it will encourage the patient to cooperate.

Patients now have the ability to use different applications and devices to support the management of their psychiatric disabilities. The ownership of smartphones rose exponentially in recent decades and gave patients the ability to become more responsible for their own treatment in order to have a better quality of life (V.J.A. Buwalda, unpublished data, June 2016; Torous et al. 2014, 2015, 2016). Also, the desire of patients to use digital health technology to support their treatment program is growing exponentially (Accenture Consulting 2018). According to the literature, they also want to be more involved in the implementation process (Happell 2008a, 2008b), which is in line with the shared decision-making method of Deegan and Drake (2006).

Case Study of the Theoretical Aspects of Implementation in a Routine Clinical Practice and the Lessons Learned

Introduction of the Case Study

Buwalda (2013) and Buwalda et al. (2011, 2016) described a study of the introduction and implementation of the Routine Outcome Monitoring (ROM) system in the Netherlands. ROM systematically measures the psychological condition of patients before, during, and after treatment through routine outcome measurement. In the Netherlands, the ROM system is supported by a user-friendly software program with scientifically validated measurements (Buwalda et al. 2011; de Beurs et al. 2011). This systematic measurement of ROM enables the medical professional to evaluate the treatment together with the patient on a regular basis and to correct or improve treatment policies wherever necessary.

An instance in which an implementation may be hampered is illustrated by 1) a case history with case setting, 2) the implementation of ROM as support for the clinical care process, and 3) the added value of an operations management perspective as an illustration of how to improve the overall organization of the clinical care process as well as the quality and efficiency of its delivery.

Case Setting

The case setting is an outpatient clinic in a psychiatric hospital in the Netherlands in a city with 250,000 inhabitants. The clinic treats about 2,000 new patients annually for anxiety or depression (American Psychiatric Association 2000). The treatment is delivered by 90 clinicians (consultant psychiatrists, specialist registrars in psychiatry, clinical psychologists, and psychotherapists). In 2006, ROM was introduced in this outpatient setting to support the clinical care process. An implementation team, including psychologists, was established with a psychiatrist as project leader. The general psychologists conducted the measurement of patients before, during, and after treatment and filled in the assessment forms (Buwalda et al. 2006). They provided feedback on the results of the treatment to the clinicians, who discussed the results of the treatment with their patients.

Clinical Care Process and Related Responsibilities

Besides defining the content of care, it is essential to describe the process of clinical care in outpatient treatment. The process consists of four phases with corresponding tasks and persons responsible for fulfilling the tasks. In Figure 8-4, these elements are shown in relation to the ROM points of measurement and how the clinical care process might take place.

Phases of the Clinical Care Process and the Responsibilities of Individuals

Phase I: registration phase. The patient is referred to the outpatient clinic, for example, by a primary care physician. After acceptance of the referral, the patient receives a written invitation to attend the clinic for a diagnostic interview.

Phase II: intake phase. This includes the initial consultation with the intake staff, the resident in psychiatry, or a clinical psychologist supervised by a psychiatrist. The interview consists of a case history and a psychiatric examination. The results of the intake are discussed by a team of clinicians who decide whether the patient can be treated.

Phase III: treatment. Treatment is limited to a defined period. Participants in this phase are the psychiatrist and residents in psychiatry, who are supervised by the psychiatrist. The clinical psychologist can be involved for therapeutic interventions and the social-psychiatric nurse for supporting consultations.

Phase IV: termination. A patient's treatment is stopped after he or she is free of symptoms of anxiety or mood swings for more than 6 months. A discharge letter is sent to the referring physician. The participants in this phase are the patient and the clinician.

Patient. When ROM is implemented and embedded as a supporting component of the clinical care process, special attention must be paid to the patient in the process. The patient receives a brochure explaining why treatment is being monitored, with information on the ROM procedure and its enhancement of the quality and efficiency of treatment. During the completion of the self-report questionnaires, the patient is assisted by one of the psychologists on the implementation team.

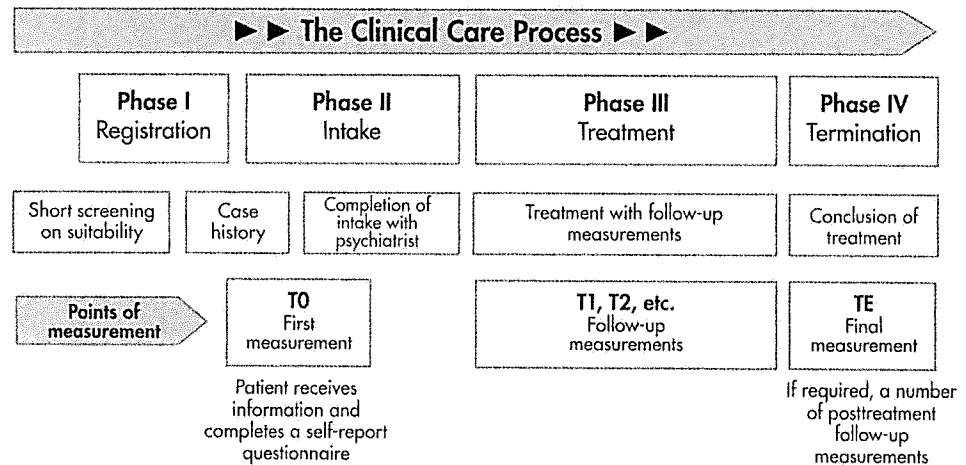


FIGURE 8-4. Clinical care process in outpatient mental health care.

Source. Reprinted from Buwalda VJA: "Implementation of Instruments in the Short-Term Outpatient Treatment," in *Outcome Measurement in the Mental Healthcare, Part I: A Guideline for Usage and Implementation of Measuring Instruments*. Edited by Buwalda VJA, Nugter MA, Swinkels JA, Mulder CL. Utrecht, The Netherlands, Boom Publishers Amsterdam/De Tijdstroom, 2011, pp. 103-120. Used with permission.

Project leader and implementation team. A project leader is appointed to guide the ROM implementation team of psychologists and monitor the process. The project leader has an advisory function to the general manager and is not formally a member of the multidisciplinary team.

Responsibilities

In this case, the dual management team, the leading clinician and the manager, had the responsibility to discuss the plan from the basis (i.e., implementing ROM with all the clinicians to develop sufficient support for its implementation). The broader the support, the more clinicians will be motivated to accept the innovation and be willing to implement it. Of course, this cannot be done without proper management support (Buwalda 2011).

The general manager must ensure that the staff responsible for patient care are sufficiently qualified to carry out the change. Intensive collaboration in dual management is essential.

Analysis of the Case History From a Theoretical Point of View

The problems during the difficult departmental implementation of ROM in this case study can be linked to flaws in the process and to ambiguities in the roles and responsibilities of the participants.

- The process of registration, intake, and treatment was poorly organized. In dual management, the general manager should take on the task of supervising the supporting staff, who are indispensable to facilitating the clinical care process. The general manager organizes support staff when necessary (Figure 8-5).

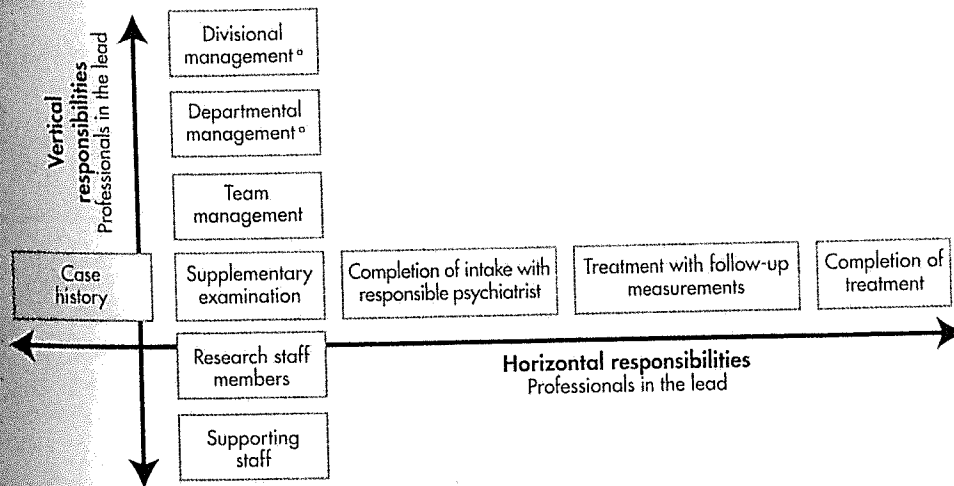


FIGURE 8-5. Structure of responsibilities in the clinical care process.

*Often a shared or dual management role: a leading professional responsible for content to guide clinicians and a general manager to guide supporting staff who are in charge of finances.

Source: Reprinted from Buwalda VJA: "Implementation of Instruments in the Short-Term Outpatient Treatment," in *Outcome Measurement in the Mental Healthcare, Part I: A Guideline for Usage and Implementation of Measuring Instruments*. Edited by Buwalda VJA, Nugter MA, Swinkels JA, Mulder CL. Utrecht, The Netherlands, Boom Publishers Amsterdam/De Tijdstroom, 2011, pp. 103-120. Used with permission.

- The lack of a record of the increasing number of treatments per doctor can be partially explained by the increasing pressure to provide better quality for less money. During the implementation phase, the psychiatric hospital (and all the other hospitals) had a budget cut and tried to lower costs. In most treatments, the medical doctor (resident in psychiatry or the psychiatrist) had the final responsibility for the correct execution of the treatment plan. Another problem was the simultaneous introduction of electronic patient files, especially for reimbursement of the treatments. Together with the introduction of ROM, this was too much to ask of the clinicians.
- The project leader did not have hierarchical responsibilities and was therefore not able to formally influence the implementation process.
- Members of the implementation support team were young, newly graduated psychologists. The turnover among these staff members was high, which threatened the continuity of the project.
- At the same time, other research and implementation projects were also carried out by the organization. Because of insufficient coordination, various projects called on the same clinicians at the same time, and the projects interfered with each other. Again, no leadership had the authority to guide clinicians and allocate tasks.

Care analyses made it clear that several problems arose during the process of implementing ROM. In looking at ways in which this could have been avoided, we can consider an alternative view of the clinical care process, that from an operations management perspective. The following section elaborates on this perspective to illustrate the interdependency of the content and organization of the clinical care process and how both can be optimized.

The Health Care Operations Management Approach, an Integrated Management System

The term *operations management* refers to the planning and control of processes that transform inputs into outputs. Operations management in health care is defined as the analysis, design, planning, and control of all the steps necessary to provide a service for a patient. In other words, health care operations management is concerned with identifying the needs of patients and designing and delivering services to meet these needs in the most effective and efficient manner possible (Vissers and Beech 2005).

Vissers and de Vries (2005) apply this operations management perspective to the organization of care and supporting processes in health services settings. In optimizing the process of clinical care for the patient, it is a priority to coordinate all the contributions by clinicians during the clinical care process. However, giving attention to the clinical care process is not sufficient; managing the process always requires an alignment of content and organization (Figure 8-6). Continuous evaluation through feedback from monitoring is required to measure whether objectives and targets are being realized (as is common in clinical care pathways). Vissers and de Vries (2005) also describe conditions that need to be fulfilled at an institutional level to optimize care processes. The care that must be delivered within a specific period should match the available resources, and reimbursement should cover the costs of services provided (Vissers and de Vries 2005).

Figure 8-6 shows the process a patient experiences during various encounters with clinicians and administrative staff. The process describes a care pathway that defines the content of care (what services will be delivered and how services are delivered), including the monitoring of outcomes. Aligning the clinical care process with the operations management determines how the process is structured, when an activity takes place, and how much capacity is available for it.

For this monitored process, one can distinguish an organizational learning cycle and a content-of-care learning cycle. The organizational learning cycle is concerned with organizing and carrying out processes well, with short intake periods and waiting times, throughput, and efforts according to targets with little no-show. If these targets are not met because of organizational barriers on an institutional level, then processes must be adapted or redesigned. The content-of-care learning cycle has the objective of realizing the goals of treatment that lead to a positive outcome. If these targets are not met, then clinicians must determine whether the content of treatment needs to be revised. By using clinical guidelines, it may be possible to identify when the content of care offered did not match state-of-the-art thought with respect to diagnosis and treatment. This must then be implemented within the organization and translated into the proper operations management of the clinical care process.

The treatment process of the patient is a crucial factor in how care is perceived by the patient and how effectively and efficiently it is offered. The performance of this process for patients with a particular problem can be expressed in criteria from both the content and the operations management of care and in terms of financing by diagnosis treatment combinations (DTCs)¹ relevant to this group of patients. There may

¹ The DTC is the Dutch variant of what is widely known internationally as the diagnosis-related group (DRG) system, including ambulatory care and professional costs.

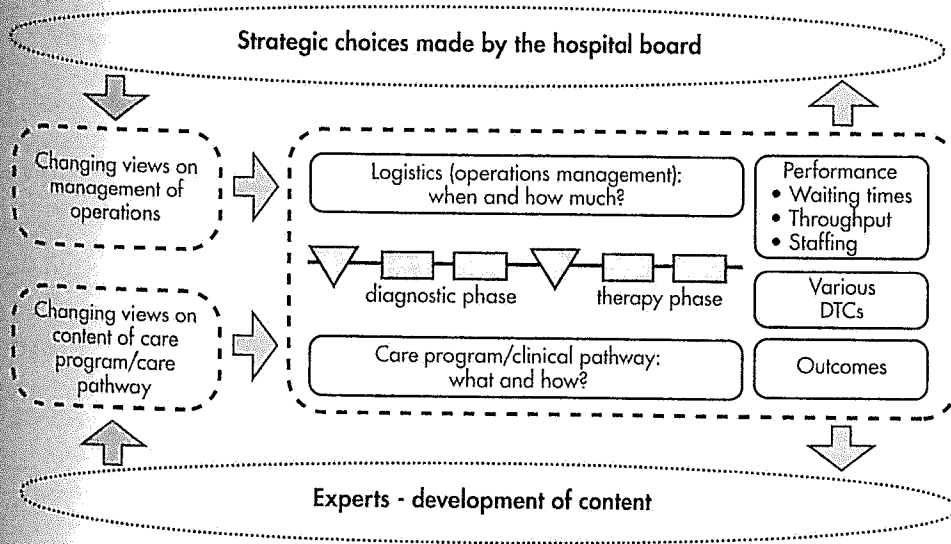


FIGURE 8-6. Relationship between the development of content and the operations management of the care process.

DTCs=Diagnosis treatment combinations.

Source. Reprinted from Vissers JMH, de Vries G: *Sleutelen aan Zorgprocessen: Een Visie op Zorglogistieke Bedrijfsvoering*. Beleid en Management Gezondheidszorg van het Erasmus MC, faculteit van de Erasmus Universiteit, Rotterdam, 2005. Available at: www.eur.nl/sites/corporate/files/Oratie_Jan_VissersGuus_de_Vries_Sleutelen_aan_Zorgprocessen_0.pdf. Accessed November 3, 2021. Used with permission.

be various DTCs within one clinical pathway, depending on the intensity of treatment. In other words, the clinical care process for a particular group of patients leads to several clinical pathways, directing the actions of clinicians; this results in a sequence of care services that can be described in a few DTCs.

Applying the operations management perspective to the case of implementing ROM, the following observations can be made: the case clearly illustrates that there was no alignment between organizing the content of the care and organizing the clinical care process from the perspective of the patient. More specifically, the ambiguity in roles and responsibilities between the clinicians and the support staff and between the general manager and the project leader was the main cause of this lack of alignment. This could have been avoided if the patient's process had been taken as the starting point for all contributions by clinicians and supporting staff.

Lessons Learned From the Case History

The case history demonstrates how a lack of support among clinicians, the absence of leadership and ambiguity in roles and responsibilities, and the lack of an overview of the organizational part of the process hampered an adequate implementation of ROM in the clinical care process. A more integrated approach requires the combining of the organization of the content and the organization of the process of clinical care. From an operations management perspective, the patient is seen as an involved client and as the starting point of the clinical care process. An overview of the entire care pro-

cess, including all contributions from clinicians and support staff and a balance between the need for capacity for delivering services and the availability of resources, is essential. This can be achieved by reducing uncertainties through increased effective planning and predictability of standardized care processes (Visser and de Vries 2005) and by increasing flexibility with the use of sufficient personnel.

An operations management view of the implementation of ROM in support of the clinical care process can contribute to the process and the embedding of ROM. To embed ROM, the following advice should be helpful:

- A participatory approach to the introduction and preparation of the implementation is a critical factor in achieving success, both in the quality of ROM and in the basis of its implementation. The relevant participants, clinicians, patients, and management, and the external participants, insurance organizations and government, are part of the development process. By involving participants in the process, a plan of action emerges that everyone can approve; it also gives the participants ownership of the process.
- The entire process must be monitored with specific targets and performance indicators to make any necessary changes, as in clinical care pathways.
- When ROM has been implemented and integrated into the clinical care process, it is important to appoint one of the clinicians as the process manager. The clinician should move constantly between the content and the management of the care, thoroughly understand the throughput of patients, know where obstacles can be found, and discuss the results with the other clinicians to solve the problems. The process manager provides guarantees that the outcomes are effectively used in treatment, that capacities of the professionals are more efficiently used, and that patient indicators are monitored. In this way, the clinicians are responsible together for a successful clinical care process, and the link between the content and the operations management of the care process can be enhanced by the introduction of ROM.

The framework of different aspects of implementation of an innovation, as described earlier, together with several lessons that can be learned from the case history, lead to the overall dos and don'ts when implementing measurement instruments.

Overall Dos and Don'ts When Implementing Measurement Instruments

Experience and research on implementation have shown that specific factors can promote or impede implementation (Swinkels and Buwalda 2011). The following points summarize these factors:

- The introduction of measurement instruments into routine clinical practice to enhance the quality of the primary care process was used as an example. Its characteristics were the measurement instruments' psychometric qualities and their ability to measure change. Measurement instruments can assess a broad horizon of things. Even the subjective can be measured objectively. Many good and reliable self-rating scales and observation or expert rating scales are available for assess-

ment of psychiatric disorders, living conditions such as quality of life, psychology, and psychopathology. The first question will therefore be what instrument(s) will be implemented and how scientifically reliable and valid they are. Furthermore, it is important to know why the measurement instruments are implemented, by whom they are proposed, and what the consequences are of measuring.

- It is important to know the characteristics of the target group of the professionals who are going to introduce the measurement instrument(s). Their views and opinions, standards, and values and even personal characteristics are important here for a solid foundation of support.
- It is important to know the characteristics of the group of patients who are going to fill out the measurement instruments. It is also important to know what the patients' questions are about the measurement instruments, their usefulness in planning treatment, and if the response burden is acceptable for the individual.
- It is important to know the characteristics of the social context in which the measurement instruments are introduced and the culture of the social network. But the attitude of the professionals and involved employees, the opinion of thought leaders, and the way in which leadership is conducted are also important.
- Knowledge of the characteristics of the economic, administrative, and organizational context is also necessary. In community mental health agencies, they may be different from those in an academic department.
- It is important to know which strategy has been chosen for dissemination and implementation. Who conducts the process?
- There has to be a thorough training program for those who will be using the new system, and an explanation also must be available as to why the new innovation is beneficial for both the patients and the professionals.
- From an operations management view, there is a need for a participatory approach, a monitoring of the full process, and the appointment of a clinician as the process manager with knowledge of the whole primary care process and inside knowledge of the challenges of the process.
- Finally, and perhaps foremost, the patient has to be the central person in the new working method and, if possible, should participate in the workgroup for the implementation.

Conclusion

It cannot be taken for granted that clinical professionals will be best suited to take the lead in the implementation of innovations in the clinical care process. One must bear in mind that implementing innovations in a mental health organization is almost a profession of its own. Therefore, knowledge of the checks and balances of a general implementation process is a necessity. Essential ingredients for a successful implementation are an awareness of the implementation steps of Grol and Wensing (2006) and knowledge of the use of the Deming (1982) cycle, among other methods. The most knowledgeable professional who best understands the various implementation processes described in this chapter should lead the implementation process. In this new digital era in which patients have become increasingly digitally competent, it is important to include them as partners in the development and evaluation of the use of new innova-

tions in the clinical care process so that they become more motivated to own their treatment. There is progress, but many aspects need to be improved to enhance the quality of the clinical care process and to empower patients. The digital health transformation and the use of digital health devices in the clinical care process can be of help in designing effective implementations. However, much work remains to be done.

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