Improving Patient Care
The Implementation of Change in Health Care
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SECOND EDITION

EDITED BY
Richard Grol, Michel Wensing, Martin Eccles and David Davis

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Introduction

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Friesland is the homeland of the famous black and white Friesian cows, and the land of milk and cheese. For centuries these cows were milked by hand, which meant the farmer and his family awoke at 4 or 5 o’clock in the morning. Around 1890, reports of successful experiments with a milking machine appeared in the regional newspapers; according to the experts this machine had been shown to be both efficient and cost-effective. It milked cows with udders of different sorts very well. How quickly would this new technique spread among Friesian farmers?

The first machines were introduced in 1910, but it was not until the 1950s that they were adopted widely (Mak 1996). Why did farmers prefer to rise at the crack of dawn, even though everyone knew about the new machine? That it was the personal relationship they maintained with their cows is probably too romantic. The way to understand the reasons for this, and what a successful implementation program should have been directed towards, is to examine the farmers’ motives and their living and working conditions at that time. One of the main reasons for non-adoption was that the milking machine cost money, whereas manpower provided by the family was free. At that time farmers were, for the most part, self-sufficient and their work involved little exchange of money. Perhaps more important was their system of standards and values: the most important aim of a farming enterprise was to guarantee the continuity of the family business, not to make a profit. Taking risks was therefore at odds with their mission; following a set routine developed by their forefathers was seen as a guarantee of success. According to Mak (1996), it was not until World War II, when these standards were subjected to enormous modification, that farming practices in Friesland changed. An earlier effective introduction of milking machines would have required changes at different levels: changes in standards and values, greater skill in dealing with money, increase in farm size, and changes to milk and cheese production in factories. In short, changes in the entire process from cow to consumer, a complete change in culture at all levels.

This example demonstrates that if one wants to introduce an innovation successfully, it is crucial to have a clear understanding of, and insight into, the target group’s living and working conditions and standards and values, as well as of the issues involved in the implementation of an innovation itself. Simply publishing (or otherwise distributing information on the innovation’s usefulness) the effects or efficiency is usually not enough to guarantee successful adoption. The real obstacles must be sought and tackled in a systematic way with a variety of appropriate methods and measures that have proved to be effective in practice. This is the message being delivered in this book.

In the field of healthcare an enormous number of valuable insights, procedures, and technologies become available each year. They derive from well-planned scientific research or from careful experiments and evaluation in everyday practice. Only a small proportion of these methods and technologies are, in the short term, adopted into the daily practice of patient care. Thus patients, clients, and care users could be needlessly deprived of effective care or receive unnecessary, outdated, or, even worse, harmful care. Of course, not all innovations are improvements, but it is a general observation that in healthcare the situation is often one of “underuse, overuse and misuse of care” (Bodenheimer 1999). Therefore, it is important that great care be taken not only to develop innovations and
scientific insights but also to take care that valuable insights and procedures are adopted into daily practice; in doing so, an important contribution can be made to the improvement of the quality of patient care.

Adopting valuable insights and procedures frequently occurs with difficulty and incompletely. Implementation of new insights or improvements in healthcare may only be partially successful and at times completely unsuccessful. Consequently, the intended results for the patients – recovery from an illness, improvement in health, better quality of life, more efficient procedures, or better collaboration between providers – are often not realized. There are many possible reasons for this, such as the nature, the effectiveness or the applicability of the (new) proposed method of working, the professionals who need to change, or the setting in which the intended change is to take place. However, there may also be structural, financial, or organizational obstacles. Equally, the way in which the change is implemented may be ineffective. Given that scientific knowledge on effective implementation and change in the practice of healthcare is still limited, but increasingly growing, it is important to bring together this knowledge and to distil recommendations from it to aid implementation in routine patient care. That is, in sum, the purpose of this book.

The book is meant for care providers, healthcare managers, staff involved in quality assessment, policy makers, and researchers in healthcare who are concerned with the question of how to best design the implementation of valuable (new and existing) insights and procedures so that they contribute to optimal patient care. This book tries to answer that question by combining the now available scientific and practical knowledge.

**Which changes?**

The book is directed at the implementation of various changes and improvements in healthcare, including:

- adoption of well-researched or tested procedures and technologies, frequently new, but occasionally not; 
- adoption of well-developed guidelines and standards of care for use in practice, both those developed centrally and those developed within a local area or institution; 
- adoption of care protocols, multidisciplinary care pathways, integrated care programs and interventions that may lead to an improvement in patient care and that have been shown to work well (best practices); 
- preventing or removing unnecessary (therefore expensive), unsafe and harmful routines and procedures; 
- reducing undesirable variations in the care provided.

*In this book, we will use words such as innovations, new procedures, new insights, and changes in care provision. What we mean by this is the introduction of improvements in healthcare. Therefore, we make no distinction between quality improvement and the implementation of new insights.*

**Evidence-based practice and evidence-based implementation**

It is certainly not true to say that all new technologies, procedures, guidelines, or recommendations from scientific research signify real improvements in patient care. Nor is it the case that the improvement of care provision can arise only from scientific information being made available.

*In this book we concentrate on (new) insights and procedures based on scientific evidence, on careful evaluation, or on good experience in practice, and thus on innovations that are firmly established as being able to contribute to better, more effective, safer, more efficient and patient-friendly care or better health care results for patients.*

That does not mean that these innovations would be able to find their way into practice on their own, without further adaptation. In many cases active contributions from the target groups will be necessary to adapt an innovation to their own setting and experiences. The importance of such “two-way traffic between practice and science” (Health Council of the Netherlands 2000) will be often discussed in this book.
The book’s message

The messages delivered in this book can be summarized as follows:

• Take into account when developing a new working method, procedure, clinical guideline, or care protocol, from the outset, how these are to be implemented.
• Know and understand as completely as possible the target group and the setting in which implementation is to take place. Put yourself in the target group’s position, try to see their perspective and involve them in both the development and implementation of the innovation.
• Employ a well-planned change intervention with a diversity of cost-effective and well-tested strategies and measures. A well-organized implementation process will contribute to successful implementation, overcoming many barriers and unhelpful factors.
• Undertake careful, continuous evaluation of the actual care process and monitoring of the changes are also crucial in the ensuing success of the implementation activities.

The book’s basic principles

It is important for readers to keep in mind a number of principles that underpin this book.

• The book is about optimizing patient care; thus, it is about the quality and safety of care and about quality improvement. However, it is not a “manual for quality improvement.” Rather, the book limits its focus to the implementation of insights and procedures with a “proven” value.
• The emphasis lies on the improvement of the primary processes in care provision by doctors, nurses, and paramedics and the teams they work in. The patient is center stage. Changes in the organization of institutions or practices can be very important, but are discussed here predominantly in terms of whether they contribute to the improvement of direct patient care.
• The immediate reasons for implementation may be the availability of new scientific insights and/or the availability of valuable procedures, as well as experiences from daily practice that a certain care process is not effective, efficient or patient-friendly. Changes may be initiated and realized both top-down and bottom-up. Both perspectives will be applied in this book.
• The book takes the perspective of the implementer, meaning the agent of change, the person or team who is, or who feels, responsible for the implementation of improvements in care provision. Through the book, however, processes and implementation are often also looked at through the eyes of the target group (professionals, teams).
• Our target group for this book comprises care providers, executive staff, staff involved in quality assessment, healthcare managers, policy makers, and researchers who are responsible for or are involved in optimizing patient care.
• Apart from the importance of the new procedures having a “proven” value, it is equally important that the strategies and measures for the implementation of these new insights and procedures have been based as much as possible on robust research and careful evaluations. In this book we will show which approaches to implementation are evidence-based and which ones have been based on experience.

The organization of the book

The book is organized into a number of parts, each of which contains several chapters. With this organization, the book largely follows the model that will be discussed in greater detail in Chapter 3 (see Figure 0.1):

• Part I provides a general introduction, presents a set of theories on implementation and change in healthcare, presents a model for implementation (Figure 0.1) that is used throughout the rest of the book and ends with recommendations for the planning and preparation of the implementation project.
• Part II discusses the characteristics of new insights, guidelines, and procedures that can contribute to their ultimate implementation. The development of effective guidelines is then examined extensively.
New scientific information, systematic reviews, guidelines, protocols

Planning and organization of change

Problems in care provision identified, best practices in improving care

1. Development of proposal for change

2. Analysis of actual performance, targets for change

3. Problem analysis of target group and setting

4. Development and selection of strategies and measures to change practice

5. Development, testing and execution of implementation plan

6. Integration of changes in routine care

7. (Continuous) evaluation and (where necessary) adapting plan

Figure 0.1 The Grol and Wensing Implementation of Change Model.
• Part III is about measuring actual care provision as a basis for setting up concrete targets for improvement. It deals primarily with the development of good indicators.
• Part IV deals with the analysis of the target group and the setting, and discusses the range of factors that may play a role in implementation. Methods to carry out a “diagnostic analysis” are also presented.
• Part V describes existing dissemination and implementation strategies and current scientific knowledge of their effectiveness.
• Part VI outlines about the design of an effective implementation plan, organizing its implementation in daily practice and evaluating the effects. The last chapters clarify the distinction between small-scale improvement projects, evaluation and implementation studies and large-scale implementation programs.

References


PART I
Principles of Implementation of Change
CHAPTER 1

Implementation of change in healthcare: a complex problem

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Summary

• Many patients do not receive optimal care; improvements in clinical practice are required to bring this about.
• Different approaches to the implementation of change in patient care can be observed, each based on different assumptions and theories of human and organizational behavior.
• Combination of top-down and bottom-up approaches is often needed to achieve real and sustainable changes in practice.

Box 1.1: Unsafe cardiac surgery: the “Radboud Story”

In September 2005, details about the mortality rates at the Cardiac Surgery department of the Radboud University Nijmegen Medical Center got into the newspapers. The post-surgery mortality rate in 2004 was 6.7%, compared to 2.7% in other heart centers in the Netherlands. This situation initiated a process which led to major improvements in clinical practice within a few years. The Board of Directors initially denied the problem, stating that the high mortality rates were caused by case mix. However, after the situation had been intensively analyzed, by both an internal committee and an external committee (appointed by the Health Care Inspectorate), the conclusion was reached that in fact these high mortality rates reflected a serious problem. The high mortality and complication rates could not be attributed to more seriously ill patients (in fact, the situation was quite the opposite). Instead it was discovered that staff did not work according to recent evidence and protocols; there was little or no cooperation between the disciplines involved (for example, everyone used his/her own patient record); departments did not collaborate with each other; there were conflicts among cardiac surgeons; the management of the department had lost control of the situation; and little clinical efforts was expanded in the areas of quality improvement. The Board of Directors of the hospital was aware of the problem, but left it to the physicians to solve it among themselves. For a long time, the Inspectorate relied on the department’s explanations.

These findings led the Inspectorate to close the department. The Board of Directors was dismissed. The management of the medical staff and the head of the department resigned. Meanwhile, many patients looked for care elsewhere, resulting in a great many empty beds. This initiated a reorganization of the Radboud University Nijmegen Medical Center in general and the cardiac surgery department in particular. The reorganization led to operations being restarted after six months. The department’s mortality and complication rates are now far below the national average (around... (Continued)
1.1. Introduction

The number of new insights, procedures, programs, and techniques that have become available as a result of careful development and/or scientific research is enormous. It is estimated that around 2 million articles a year are published in medical journals (Mulrow 1994). The number of well-organized trials added to Medline, a large database of journals in the field of medicine, is gigantic. Subsets of this database – systematic literature analyses of clinical research studies or that portion of the literature capturing clinical guidelines – are growing at significant rates.

Knowledge about optimal patient care increasingly becomes obsolete, affected by both scientific and social developments. A great deal of knowledge that one absorbs over the years of training to become a doctor, nurse or paramedic is obsolete by the time training is completed. This is an old finding, as described in Box 1.2, but it reflects a new need – the ability to scan, absorb, and use the medical literature, described in subsequent chapters (Candy 2000).

Box 1.2: Development of knowledge, a not-so-recent example

In 1348, King Philip VI of France asked the medical faculty of the University of Paris for a scientific explanation of the plague epidemic, known as the Black Death, which killed about a third of the population of Europe. After extensive research, the Sorbonne came up with the cause – a threefold conjunction of Saturn, Jupiter, and Mars in the fortieth grade of Aquarius. For a long time, this was generally accepted as being the definitive explanation in both Europe and the Arab world (Achterhuis 1998).

What will we make of our explanations of the most important diseases of our time and the effectiveness of certain treatments 100 years from now?

The store of new knowledge about good patient care is also growing at an ever-increasing pace, but the percentage of valuable new insights subsequently introduced into routine patient care is considerably lower. Taken at face value, this fact would imply that investing time and means in clinical research and clinical guidelines would seem to be a useless exercise. This was the case in the past; it
may still be the case today. Although Semmelweis had demonstrated the importance of antiseptics in the 19th century, many surgeons operating after 1900 still used their bare hands, with adverse consequences. Even today, many institutions pay too little attention to washing and disinfecting hands before and after medical or nursing interventions, with huge consequences for patients and healthcare costs (Teare et al. 2001; Bolon 2011).

1.2. The implementation problem

The adoption of new ideas in a more modern information age, with new media and tools to transfer knowledge, is probably taking place faster than it did in the past. Nevertheless, clinicians, researchers, and policy makers have noticed that it takes a long time before research results or insights relating to effective, efficient, safe and patient-friendly care find their way into daily practice. In many cases healthcare professionals only learn and adopt new information gradually, which is understandable considering the overabundance. Almost two decades ago it was estimated that the average doctor would have to read about 19 articles a day to keep pace with the literature. However, even enthusiastic academics only spend 2 hours per week, at the most, going through recent articles (Haines 1996).

Even if clinicians are informed about new insights on optimal patient care, no changes necessarily take place within their daily routines. The scientific literature is replete with examples from which it would appear that patients are not given the care that, according to recent scientific or professional insights, is desirable. A representative analysis of clinical care given to almost seven thousand patients in the USA showed that on average less than 60% of the patients received the care they should receive, based on best evidence. (McGlynn et al. 2003; Asch et al. 2006) In primary care in the Netherlands, reliable data on the implementation of guidelines, developed by the Dutch College of General Practitioners show that on average performance is better than in the USA, although there is still room for improvement (NHG, Box 1.3 Brasperning et al. 2004).

In what follows you will find some data from studies, which will give you an idea of the nature and the extent of the implementation problem in specific fields of healthcare.

Effective care

There are many examples, world-wide of the need for clinical improvement. In the United States, for example, the overall acute myocardial infarction 30-day mortality rates remain high, having only declined from 18.8% in 1995 to 15.8% in 2006 (Krumholz et al. 2009), while Canadian rates have decreased from 13.5% in 1995 to 10.6% in 2003 (Johansen et al. 2010). While demonstrating significant reductions, a portion of these deaths remains preventable. In 2001 11% of patients in the Netherlands with an acute myocardial infarct died within 30 days, in 2005 more than 8%, slightly below the OECD average (10%). The percentages for cerebral infarction were 16% in 2001 and 9% in 2005, also well under the OECD average (10%). The 5-year survival rates for various types of cancer are better in countries such as Finland, Norway, and Switzerland than in the Netherlands. The 5-year survival rate for breast cancer was slightly over 83% in the period 2000–5; for intestinal cancer this was 57% (Westert et al. 2008). Finally, in 2007, the breast cancer death rate in the USA was 22.9% (AHRQ 2010).

Improvements are also possible in the treatment of the chronically ill. For example, a study among diabetes patients at outpatient clinics of internal medicine showed that only 23% of the patients

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**Box 1.3: Adherence to guidelines in primary care in the Netherlands**

In a National Study of Primary Care, 104 primary care practices were studied to determine their adherence to guidelines developed by the Dutch College of General Practitioners (NHG). In total, data was compiled for 58 indicators. Although the average overall score for the indicators was 74%, wide variations existed between clinical problems, the nature of the performance (for example the score for prescription of medication was 62% and for referral 89%) and among primary care practices.
managed to have the target value of HbA1c. The average score for a set of process indicators was 64% (Dijkstra et al. 2004). In this study, care and care outcomes improved considerably when the clinic provided structured multidisciplinary care and (specialized) nurses. Similarly, in 2007, a US study found that only 34% of hypertensive patients received adequate treatment to maintain the recommended blood pressure (Ardery et al. 2007).

**Efficient care**

While it is true that best evidence care is occasionally not offered to patients, it is frequently the reverse that holds true: unnecessary, expensive, and out-of-date care is also offered or provided. These inefficient clinical actions have considerable consequences in terms of personal and societal costs. Bodenheimer (1999) estimated that in the USA between 8% and 86% of operations are unnecessary. Confirming the presence, if not the actual percentage of surgical overuse, Null et al. (2005) indicate that 7.5 millions unnecessary surgical procedures are undertaken yearly in the US, in a country which sees approximately 53.3 million procedures annually (Cullen et al. 2009). In about 20% of their decisions, physicians in the Netherlands made unnecessary actions (Braspenning et al. 2004). The types of action concerned were inappropriately prescribing antibiotics for acute ear infections (30%), referral to a physiotherapist for acute back pain (20%), not prescribing the first-choice medicine for stomach complaints (25%), or unnecessary prostate-specific antigen (PSA) testing for men suffering from micturition problems (71%).

**Safe care**

Patients may be unnecessarily harmed by such suboptimal or inefficient care processes, not to mention the frustrations or costs that are incurred. Figures from the USA reveal a high number of deaths (45–99,000 deaths per year) as a result of poor practice and medical (mis)management (AHRQ 2010). Studies have been performed in various countries investigating adverse events for patients in hospitals. A systematic analysis of the results of those studies (employing an analysis of 75,000 files) showed an average percentage of 9.2% of patients suffering from adverse events, of which more than 40% were said to be preventable (De Vries et al. 2008). In the Netherlands, 8,000 patient files in 21 hospitals were analyzed for adverse events, showing a percentage of 5.7% of patients suffering from adverse events (Zegers et al. 2009). Every year 42,000 patients die in Dutch hospitals; of which an estimated 4% were preventable – an alarming 1,735 deaths per year. The HARM study indicated that there are 40,000 hospital admissions every year through medication errors in ambulatory patients in the Netherlands (Van den Bemt 2002); 6.7% of patients contracted an infection in hospital in 2009 (PREZIES data 2009). The scope of this problem is global. For example, 7.5% of Canadian patients contract a nosocomial infection (Baker et al. 2004); between 3% and 20% of US patients suffer some form of hospital-related adverse event (Institute of Medicine 2000). Similar results are found in Australia and New Zealand (Wilson et al. 1995; Davis et al. 2002).

One important factor in this is insufficient hand hygiene. Although clear evidence exists in this area, stipulating when hands need to be cleaned, compliance – most notably by physicians – is known to be poor. A study of 47 wards in three hospitals, in which nursing performance was closely observed (3,500 observations) showed an average rate of adherence per hospital to the infection prevention guidelines of 37%, 33%, and 19% (Brink-Huis et al. 2010). In the USA, a score of 48% compliance in hospitals was found (Pittett et al. 1999). Needless to say, there is a lot of room for improvement.

There is also room for improvement to avoid other aspects of unsafe care, for example patient falls and nutrition. Every year the University of Maastricht measures the prevalence of decubitus ulcers, patient falls and malnutrition in a large number of institutes in the Netherlands. The percentage of patients suffering from poor nutrition was 26% each in general hospitals and in nursing homes and 19% in home care (Halfens et al. 2008). Fourteen percent of patients suffered a fall in the past 30 days in general hospitals, injuring more than half of them. Nursing homes and home care
showed a lower percentage: 10% and 11%. Similar figures can be found in almost all developed countries. In 2004, 11% of nursing home residents in the USA had pressure ulcers (Park-Lee and Caffrey 2009). The Australian Institute of Health and Welfare (2011) reported that in 2009 and 2010 there were 2.4 falls per 1000 separations.

**Efficient and timely care**

Efficient and timely care is also well-organized care – patients are cared for quickly with little time lost or energy spent on unnecessary treatments or other aspects of care. Wait times and times for diagnosis or treatment are important indicators of efficient care (Box 1.4, Schouten et al. 2010). For instance, a study by El Sharouni et al. (2003) about wait time outcomes for radiotherapy for cancer patients showed that the average waiting time was 80 days in the Netherlands. This resulted in 41% of the patients who went from having a possibly curable illness to having a possibly incurable illness.

**Box 1.4: Organization of care for patients suffering from breast cancer**

Quick diagnosis and treatment of breast cancer can prevent aggravation of the situation. Schouten et al. (2010) mapped the times to treatment of 1,600 breast cancer patients, who were treated by 20 different teams:

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Spread (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission time for the first appointment (advice max. 5 days)</td>
<td>6.8 days</td>
<td>6.2 days</td>
</tr>
<tr>
<td>Time between first outpatient visit and diagnosis (advice max. 1 day)</td>
<td>5.4 days</td>
<td>8.6 days</td>
</tr>
<tr>
<td>Time between diagnosis and operation (advice max. 21 days)</td>
<td>18.5 days</td>
<td>16.5 days</td>
</tr>
</tbody>
</table>

Apart from the fact that diagnoses can be made much quicker in a lot of places, the huge variety among institutions is remarkable. Also, a lot can be gained by multidisciplinary deliberation of patients (average 25%) and preoperative counseling of patients (average 55%).

**Patient-centered care**

Patient centeredness is about the delivery of treatments and information based on best evidence, in a manner which involves the patient in decision making, and puts him or her center stage when dealing with his or her problems. In a study in 10 European countries, 17,400 patients from primary care were asked for their experiences of care, using a validated questionnaire (EUROPEP, Grol et al. 2000). Scores were collated in on two dimensions: communication and information from the physician, and organization of care. On average, patients were very positive about their primary care physician: 87% (varying between 80% and 93% between countries) was positive or very positive about treatment, communication, and information, as well as the amount of time which had been reserved for the patient. They were slightly less satisfied with the organization of care: 80% of the patients held positive views, although this percentage varied between 68% and 91% across countries (Engels et al. 2006). Most notably, countries with a system in which practices compete with each other for patients (for instance Belgium and Switzerland) received positive scores.

**Variation in the provision of care**

Studies often point to an enormous variation in performance; in some regions or hospitals, chances are much higher that a patient will undergo surgery for back trouble, or removal of the uterus, or surgical reduction of the prostate than in other regions or hospitals. While much care is given based on best evidence, it is clear that a considerable number of patients do not receive the recommended care, or, worse, receive unnecessary or possibly even damaging care. A survey of 276 patients suffering from lung cancer in hospitals in the east of the Netherlands measured the organizational quality of care on the basis of carefully constructed indicators (using scientific literature, guidelines, expert panels, and patient panels). Considerable variation was noted in patient throughput among the participating hospitals. For example, regarding finalizing the diagnosis within the recommended 21 days, the scores among hospitals varied between 58% and 73%. Regarding the start of the therapy
as recommended (within 35 days after the first visit), scores varied between 38% and 66% (Ouwens et al. 2007).

Variation is also found between healthcare systems in different countries. In 2008, a survey among nearly 10,000 chronically ill patients in eight countries showed that the percentage of diabetic patients that received recommended care (including frequency of HbA1c measurement, examination of feet and fundi, and blood pressure measurement) varied between an average 35% in France and up to 60–65% in England and the Netherlands (Schoen et al. 2009). Likewise, the percentages of adults in the USA who had received an HbA1c measurement, retinal eye examination, and foot examination in the past year were 79.4%, 66.7%, and 64.6% respectively. (Coffey et al. 2004)

1.3. Various approaches to the implementation of improvements in patient care

Partly on the basis of the figures presented above, there is a high level of agreement between all parties involved in healthcare that care given could be improved in a number of ways – offering more effective, more efficient, safer, and more patient-centered care. However, when it comes to how this can be achieved, opinions differ.

Various parties and disciplines propose a variety of approaches (Grol 1997, 1999). Health professionals are often inclined to take improvements into their own hands and to promote continuing professional development and achieve consensus for and among themselves. Epidemiologists more frequently classify, rate, and catalogue scientific developments within a field, making this information available to professionals through systematic reviews or clinical guidelines. Healthcare researchers, often working on behalf of the government or formulating policy, map out health system and professional performance, indicating variations between care providers, institutions, and regions. Quality of care is measured with the help of “performance indicators”; this information is then channeled back to care providers as feedback or “mirrored information” and increasingly made public. Experts from the world of organization and management study how care processes can be optimized and how organizational conditions for optimal care can be created. Patient representatives, ethicists, and lawyers argue for the central role of patients, defending their right to better information provision and a more influential role in decisions about their illness. Insurers and governments, frequently assisted by health economists, are accountable for improving the overall quality of care, while at the same time controlling its costs. This is often done by selectively budgeting, financial incentives, or regulations and by making rules for tariffs and volume.

Thus, in the daily practice of optimizing patient care, different parties are inclined to opt for different strategies to improve care. A pressing question is which strategy is the most effective? We need a better understanding of these strategies in order for us to choose the right method, for the right setting, at the right time. This book intends to provide assistance in this process.

These different approaches or strategies are an expression of the different assumptions that concern the effective implementation of improvements in patient care – i.e., different beliefs concerning changing human behavior and the functioning of groups and organizations. Research in the field of quality improvement and implementation needs to focus on the validity of these kind of assumptions and to test the value of the various hypotheses for an effective change of the care provision (see cardiac surgery example in Box 1.1).

A number of approaches to the improvement of clinical practice are described below, highlighting the assumptions on which they are based (Grol 1997) (Table 1.1):

- The cognitive approach regards professionals (and patients) as people who make decisions on the basis of considering and weighing rational arguments. If care providers do not adopt a particular working practice, it is because they lack sufficient or convincing information about its effectiveness. Therefore, in this approach, the most important strategy is to provide them with this information in
the form of summaries of scientific literature and evidence-based guidelines that can bear the scrutiny of criticism, as well as in the form of computerized decision support in clinical practice.

• The motivational approach is based on the assumption that change is mainly created by internal motivation to achieve optimal competence and performance of care providers (and patients). Strategies to improve clinical practice therefore emphasize intrinsic motivation, for instance by basing them on experiences and problems that professionals are faced with in their daily work or which are experienced by patients. “Problem-based learning” and “bottom-up” methods fit in well with this approach.

• The management approach is directed less towards influencing individuals and more to creating the organizational conditions essential for change; here the assumption is that poor quality care is a “systems problem.” Changing the system, redesigning the care processes, or changing roles and tasks, improving the internal culture, and continuously monitoring and improving care are increasingly considered as reasonable methods required to optimize patient care. Examples of this approach are quality and safety management.

• Control and compulsion best describe the final set of measures, based on the power of external pressure, control, and compulsion to change people’s performance. Many people do their utmost to avoid negative consequences of their actions and are sensitive to what happens to them in terms of earnings or privileges. Legislation and issuing rules, relicensing, recertification and compulsory accreditation, budgeting and contracts, and complaints procedures and disciplinary jurisdiction fit this type of approach to implementing improved care.

Obviously, there are other approaches, a large number of which are described in this book. Each of these is based on various hypotheses and theories about behavioral change. Some theories emphasize changing the behavior of the individual professional; others are more directed at organizational and material contexts and processes. Some assume that change must come about from inside an individual, e.g., from an inner need or motivation, whereas others assume that external influence or pressure from above produces the optimal result. Likewise, some theories put the emphasis on self-regulation and personal responsibility for those who have to change, whereas others take a critical stance and assume that this approach rarely leads to the desired result.
Principles of Implementation of Change

Many terms for realizing improvements in practice are used internationally, such as innovation, implementation, dissemination, diffusion, adoption, knowledge transfer, education, quality improvement, and care modernization. A survey in nine countries among organizations providing grants on terms which were used for “implementation of knowledge in the policy and practice of care” showed a range of different terms, each with its own definition (Box 1.5; Tetroe et al. 2008).

The definitions of the terms most used also vary widely. In Canada, for example, terms such as “knowledge translation” and “knowledge transfer” are frequently employed to indicate the adoption of knowledge into policy and practice. Further, the term “knowledge exchange” is enjoying increasing popularity; it represents the two-way traffic between researchers and professionals in the field of practice and policy. In Europe and the USA, the term “implementation” is in widespread use, although other terms are also employed. The diversity in terms reflects the variation in thinking in scientific circles and in the policies that cover this

In Chapter 2, we provide an overview of theories in the field of change in healthcare, useful when designing and evaluating implementation strategies. The problem is that, as far as optimizing quality and safety of patient care is concerned, there is no convincing evidence that any one of the described approaches is more effective than another in any particular situation; the evidence for some approaches is limited or lacking. For this reason, the focus of this book is not on one specific approach, but on an integration of different approaches within a practically applicable implementation model or framework (see Chapter 3).

### 1.4. What is implementation?

Implementation can be described as “a planned process and systematic introduction of innovations and/or changes of proven value; the aim being that these are given a structural place in professional practice, in the functioning of organizations or in the health care structure” (ZON 1997).