

HOOFDSTUK 9

Samenvatting en algemene overwegingen

Er is een groeiende behoefte aan wetenschappelijk verantwoord medisch handelen. Om dit te ondersteunen worden richtlijnen opgesteld met behulp van de resultaten uit onderzoek. Dat dokters deze richtlijnen gebruiken, is echter niet vanzelfsprekend. Er wordt dan ook veel aandacht besteed aan manieren waarop artsen gestimuleerd kunnen worden deze richtlijnen te volgen. Dit proefschrift beschrijft diverse aspecten van dit proces. Het laatste hoofdstuk speculeert over hoe nascholing er in de toekomst uit zou kunnen zien. Wat zou de rol kunnen zijn van de grote databases bij kwaliteitsanalyses, medische besluitvorming, kennismanagement en voortdurende nascholing? Met dit hoofdstuk willen wij een aanzet geven tot het denken en discussiëren over de rol van grote gegevensbestanden en de Informatie Communicatie Technologie (ICT) binnen de gezondheidszorg.

In de toekomst zal er steeds meer informatie beschikbaar zijn over artsen en patiënten. Dit kan ernstige inbreuk maken op onze privacy en veel ellende veroorzaken. Het kan echter ook de gezondheidszorg ondersteunen, wanneer we daarvoor kiezen.

Uit onderzoek naar het gebruik van vernieuwingen blijkt dat deze nieuwe structuren nodig maken. Elke nieuwigheid beïnvloedt de bestaande processen. Zo volgde op de uitvinding van de auto een behoefte aan betere wegen, vervolgens kwam er de mogelijkheid om verder van het werk te wonen en veranderde uiteindelijk onze hele houding ten opzichte van mobiliteit. Zo zal ook nascholing veranderen en kunnen overgaan in voortdurende nascholing door de enorme toename van (beschikbare) informatie. Niet iedere keer dat uit onderzoek blijkt dat de behandeling van een aandoening verbeterd kan worden, zal hierover een programma worden opgezet. Er moet een soort continu proces van samenwerking, communicatie, kwaliteitsanalyse en kennismanagement ontwikkeld worden. Er zullen interdisciplinaire platforms van steeds wisselende samenstelling ontstaan, waarin voortdurend informatie beheerd en gewogen wordt. Hoe deze er precies uit gaan zien, weten we nog niet, maar het zal belangrijk zijn dat alle partijen (patiënten, zorgverleners, universiteiten, zorgverzekeraars et cetera) hieraan deelnemen en dat ieders belangen bekend zijn en gewogen kunnen worden. We zullen anders moeten omgaan met informatie, communicatie en samenwerking. We zien nu al dat ICT de wereld zal veranderen. Het internet forceert deze vernieuwingen, medische kennis en hulp, overal vandaan, zijn beschikbaar als nooit tevoren. Hoe de nieuwe gezondheidszorg er precies uit zal zien, zal blijken in de volgende decennia. Wat zijn de kansen en uitdagingen van deze nieuwe tijd? In de kakofonie van informatie waarin we terecht zijn gekomen, zullen behandelaars en patiënten hun onderlinge relatie moeten veranderen. Met behulp van richtlijnen, losse informatie

en individuele kenmerken moet steeds een passend behandelplan gekozen worden. Artsen en patiënten zullen samen, in een open dialoog, een keuze maken. Apothekers kunnen hier een belangrijke rol in gaan spelen. Hoe kunnen we in de toekomst alle informatie wegen? Iedereen kan zijn of haar ideeën via het internet beschikbaar stellen. Dat is één van de uitdagingen die er ligt in de toekomst: welke informatie is betrouwbaar? In dit verband is het in ieder geval een voorwaarde dat er geen verborgen belangen zijn. Daarnaast zullen de medische en de farmaceutische opleidingen zich minder moeten richten op het leren van feiten en meer op het leren wegen van informatie, en het ontwikkelen van een attitude van voortdurende reflectie en verbetering.

Hoe kunnen we zorgen dat ICT de gezondheidszorg ondersteunt? In de toekomst hebben we mensen nodig die graag informatie delen en met kritiek kunnen omgaan. Daarnaast moeten we een enorme hoeveelheid technische problemen oplossen; systemen moeten beter kunnen communiceren, gegevens en kennis moeten beschikbaar zijn voor iedereen, maar privé-informatie moet privé kunnen blijven. We moeten leren met een enorme hoeveelheid informatie om te gaan en goede zoekstrategieën te ontwikkelen. Als dat lukt kunnen kwaliteitsanalyse, communicatie, kennismanagement en het maken van een behandelplan samen gaan vallen.

Hoe is de relatie tussen grote databases, kwaliteit van zorg en het implementeren van vernieuwingen? Diagram 5 laat zien hoe we een overvloed aan informatie uit registraties kunnen gebruiken in een soort continu proces van 'inzoomen' en 'uitzoomen' om kwaliteitsprojecten te ondersteunen. Allereerst kan er op macroniveau gekeken worden wat er gebeurt en wat er opvalt. Vervolgens kunnen we zoeken naar gebieden waar kwaliteitsverbetering mogelijk is en deze specificeren. Daarna kunnen we het probleem kwantificeren en zo op de agenda van de betrokkenen proberen te krijgen. Daarbij kunnen we met behulp van data concrete doelen formuleren om een interventie te ondersteunen. Ook kunnen we de informatie voor de betrokkenen inzichtelijk maken op individueel niveau (zoals bijvoorbeeld prescriptierugkoppeling, maar iets dergelijks kan ook voor patiënten gemaakt worden). Dit laatste kunnen we dan ook gebruiken om te (laten) zien of de gestelde doelen bereikt zijn. Daarnaast kunnen we onderzoeken waarom we onze doelen al dan niet gehaald hebben, wat het effect op andere variabelen is en wat we van dit project kunnen leren voor toekomstige projecten.

Er zijn nog veel vragen over alle aspecten van kwaliteitsprojecten in de zorg. Hoe definiëren we optimale zorg? Op welke manier stimuleer je die? Hoe kunnen we de grote medische registraties onderhouden zonder de privacy in gevaar te brengen? Wat is de ideale interventie?

Laten we hier nog lang en kritisch over discussiëren.

9 Summary and Final Considerations

"When you wake up in the morning, Pooh," said Piglet at last,
"what's the first thing you say to yourself?"
"What's for breakfast?" said Pooh. "What do you say, Piglet?"
"I say, I wonder what's going to happen exciting to-day?" said
Piglet.

Pooh nodded thoughtfully.

"It's the same thing," he said.

A.A. Milne, *Winnie-the-Pooh*, 1926.

Chapter: We say Good-bye, page 144.

SUMMARY

There is a general trend to work towards a more evidence based medical practice. To support this, an increasing number of guidelines are being developed to translate new evidence to medical practice. The implementation of guidelines, however, is a complex process described in various behavioral models. These models have influenced health behavioral projects and pharmaceutical marketing and so found their way into academic detailing as used in this research. Still, doctors' compliance to guidelines varies widely and there is no general agreement about the most effective way to support doctors implementing new guidelines. This thesis compares two methods (individual visits versus group visits) aimed at improving the quality of pharmacotherapy. Reimbursement data were used to provide quantitative information to support the methods. We used the regionally organised, typically Dutch, peer review groups (PRGs) of primary care physicians and pharmacists to address professionals. In addition we included patient outcome measures to evaluate the effect of our program on both doctors' performance and patients' well being. Chapter 1, the introduction, describes the state of the art in the diffusion of innovations, the use of reimbursement data for research, and how to define –and how to measure– the quality of prescribing and how to measure patient outcomes. To optimally design the diffusion of an innovation, many aspects have to be taken in account. Chapter 2 is about the assessment of the quality and suitability of our data. We describe a systematic tool to test the appropriateness of a given database for specific research questions. It gives insight into data collecting and data quality, relevant for both researchers and interpreters of similar investigations. We describe in particular the potency and the pitfalls of reimbursement data and express our belief that these data need to be protected and valued more and should be handled with care. This is the challenge: striking the balance between reckless utilism and respect for the individual. Chapter 3 is the description of how we used the reimbursement data to assess the quality of prescribing of antidepressants to the elderly. At the time, much discussion went on about the advantages and disadvantages of the newer antidepressants and the vulnerability of the elderly to anticholinergic drugs. We used reimbursement data to assess whether physicians avoid prescribing highly anticholinergic antidepressants to the elderly. We therefore analyzed the drug choice for new users of antidepressants only (incident users) to avoid contamination of the results with patients that are "happy" with a drug, as it can be difficult for physicians to change medication for these patients. We have demonstrated that the elderly are still prescribed highly anticholinergic antidepressants and that it is possible to assess incident prescribing with reimbursement data. We decided to designate this a benchmark for our intervention on prescribing behavior. The incidence rates would be more illustrative for physicians than basic prescribing volumes. Chapter 4

compares the prevalence of complaints mentioned by users of anticholinergic antidepressants to a control group of former users of antidepressants in a population of ambulant elderly, in order to relate prescribing to patient outcome. Because there is evidence that highly anticholinergic drugs can be harmful to the elderly, we decided to assess patient related outcome measures prior to the intervention. We sent a questionnaire to all users of antidepressants over 60 years in the research area. This questionnaire inquired as to basic characteristics (sex, marital state, smoking, alcohol use etc.), medical condition and medical consumption. The Geriatric Depression List, the VROPSOM, Rand-36 and the COOP-WONCA Health charts were also included. Could we confirm results from randomized controlled trials in our study of the elderly? To our surprise, we found no evidence that elderly using highly anticholinergic drugs suffer more adverse events. Community-dwelling elderly using highly-anticholinergic antidepressants did not report more adverse events than elderly using less-anticholinergic antidepressants. Moreover, the number of adverse events in the antidepressant users was comparable with what can be seen in former users of antidepressants. Confounding by contraindication may explain these findings, as would be expected if prescribers were aware of drug-specific adverse event risks and avoided or discontinued use of problematic drugs in patients with such symptoms. In Chapter 5 we compared several rating scales to assess depression, since inclusion criteria are considered to be an essential element of good guidelines. (Under-)diagnosis of depression is mentioned to be a problem in several studies; therefore, we also used the questionnaires of the preceding chapter to evaluate depression scales. We were able to establish a comparison of various validated rating scales scoring depression in a group of ambulant elderly. The results show that the chance of a patient to be diagnosed as depressed depends heavily on the rating scale being used. It remains a challenge for future research to find new solutions as early diagnosis and treatment of depression is important to restore optimal levels of functioning, quality of life and independence, and to reduce societal costs. Chapter 6 describes another essential factor for the intervention: How are PRGs functioning in the area? The intervention design included validating the effect of individual visits versus PRG visits. Using the existing knowledge on PRGs, we designed a questionnaire including different aspects of organization, goals and preparation. We selected and evaluated characteristics of PRGs that were thought to be relevant for the effect of our outreach program. After the intervention we were able to demonstrate that these factors (use of feedback data, use of a formulary, level of binding consensus) did indeed modify the effect of our educational outreach program. When groups are addressed in an intervention, it is relevant to assess basic characteristics of these groups, either to use these for a block randomization or for correction in the subsequent analyses. Chapter 7 describes the intervention we undertook to reduce the prescribing of highly anticholinergic antidepressants in the elderly and its effect

on incident prescribing. The intervention was designed following insights usually referred to as academic detailing, an approach that has proven to be effective to influence prescribing, which is usually used in an individual setting. We added a group versus individual approach design, using PRGs. We have demonstrated that a group approach can effectively change prescribing as well. In our intervention, we found a 31% reduction in the incidence of initiation of highly anticholinergic antidepressants in the elderly and a 36% increase of the use of less anticholinergic antidepressants. Many countries are looking for models for continuous medical education. Addressing groups may be an important tool to support acceptance of new guidelines. More research in group-learning processes is needed to improve our understanding of continuing medical education. Chapter 8 compares the questionnaires of elderly using anticholinergic antidepressants, living in the intervention and control areas, to measure the effect of our intervention on a patient level. Besides the patient questionnaire mentioned above, we sent a similar questionnaire after the intervention. We found no indications that well-being, adverse events, severity of disease and quality of life had been changed unfavorably in patients living in the intervention arm areas, compared to patients living in the control arm area. Unfortunately, neither did we observe an increase in quality of life for patients in the intervention arm area. The scale of the study might not have been large enough to measure such a result on a patient level. Besides this summary, Chapter 9 includes some final considerations, in which we speculate on what continuous medical education might look like in the future. What will be the role of very large medical information databases in quality assessment and continuous education? It aims at stimulating to think ahead –and to take action– on employing ICT (Information and Communication Technology) for the benefit of health care.

FINAL CONSIDERATIONS

Future perspective; accumulated accessible information

New technological developments will open up opportunities to assess and analyze accumulated information on patients and doctors. This accumulated, accessible information can change the world into a nightmare of loss of privacy and intimacy, can result in inequality, and can make us alienated, cold and distant. But it can also support equal and accessible health care for everyone, if we want it to (1-4).

New insights require new organizations

Research on diffusion of innovations has evolved from examining natural diffusion of innovations through supporting diffusion and acceptance of innovations to individuals, to the organizational consequences of innovations. There is an increasing awareness that organizational variables act on innovation behavior in a

manner over and above that of the aggregate of individual members of the organization (5,6). The implementation of (technical) innovations in an organization amounts to a mutual adaptation of the innovation and the organization. Typically, each one changes during the subprocess of the implementation (7). "Innovations not only adapt to existing organizational and industrial arrangements, but they also transform the structure and practice of these environments" (Van de Ven, 1986).

From continuous to ongoing medical education

In the future we do not want to plan and design an intervention for each area of sub-optimal prescribing, or each time new knowledge or evidence results from research. We need to reorganize health care in such a way that health care providers and users (patients, clients) work together continually. We need to communicate, to share knowledge and to work on quality assessment and improvement of care as an ongoing process of information management (8,9). Interdisciplinary platforms of medical cooperation may communicate and work together rapidly in constantly changing platforms. Anybody can be the center of a platform at some time. Different people will be actively involved, depending on the topics discussed. Patients and doctors will be able to make well-informed, shared decisions (8-10). The exact structure and organization of these platforms will probably evolve over the next few decades. The role played by patients, insurance companies, the pharmaceutical industry and the government is not yet clear. All conflicts of interest (as there are always conflicts of interest) need to be revealed and handled in a systematic and open way (11,12).

ICT will change the world

A new attitude towards cooperation, communication, information and knowledge sharing will be accelerated by new developments in Information and Communication Technology (ICT). Already we can see some of the impact that ICT will have on medical care. In the decades to come we will have to shape and build this new style health care. It is not clear yet what it will look like, but the ICT revolution has passed its point of no return and will have an enormous impact on every aspect of our lives in the near future. The Internet creates transparency and equality and challenges historically grown hierarchical structures. Patients already have access to online medical journals and can exchange information and experiences. This has made medical information available to laymen as never before (13). This, combined with vanishing distances (consulting doctors from the other side of the world or discussing with patients suffering the same complaints wherever they are is easy), will change the patient-doctor relation dramatically (3). Any patient, certainly the one with the means to pay, will be able to withdraw herself from governmental control or the agreements and guidelines of the medical profession in her physical environment (13).

Opportunities and challenges

This new situation of total equal access to information will force a change in the doctor-patient relation (3). They have landed on a planet of cacophony, where they will need each other to decide on the best possible treatment strategy for each specific situation. This will include going through a complex process of risk assessment, taking into consideration ones set of genes, environment, character, social network, lifestyle and history (14). Computer-assisted execution of guidelines (including personalized patient information leaflets, checklists, prescriptions, documentation and laboratory protocols being processed after putting in a tentative diagnosis) and availability of information will change medical work into a combination of rapid routine jobs and advanced case management that will continuously update a doctor's medical knowledge (8,15). We will have to redefine what constitutes good medical care (including pharmacotherapy) in a world where everybody is an individual. At times, patient and doctor will be searching for and evaluating evidence and other information together and come to shared decision-making in an open dialogue (15). Even for lots of routine problems, this process will keep the doctor constantly alerted to new information and new guidelines (8,9). Some of this may seem scary; as we all know, anyone (any fool, idiot or professor) can find someone to agree with her or him. In the future there will be a website to support any awkward opinion. This will be one of the challenges before we can maximize the potential benefits of ICT to health care: we need ways to define and to give insight to credibility of (online) health information (13) (9). This requires at least a completely open system of decision-making where no hidden conflicts of interest are tolerated. In addition to the integrity of available information, we need tools to find our way in times of chaotic information overload (13). Every medical school, every patient organization and every governmental and non-governmental health organization will set up an online library of guidelines, key lectures, publications, discussion platforms and benchmarks (10). We need special medical search tools to find relevant and reliable information quickly (15). We need professionals that can help people to find their way. Pharmacists can play an important role here. Following this online consumer health information will not only bring difficult questions to the doctors' office; it can also bring us a well-informed and motivated patient. We need to shift the emphasis of medical training from learning data to learning to weigh information, to communicate, to achieve an attitude of continuous learning, self-reflection, collaboration and a desire for self-improvement (16).

A clear advantage of online education will be the accessibility of this information for doctors, pharmacists and patients in remote areas. An important condition to meet this advantage is equitable access across the globe. Everyone should be able to get online and all relevant information should be available online.

Tele-consultation will be another opportunity created by new communication

techniques, to combine improved patient care and continuous medical education. Another important challenge will be to balance privacy and connectivity, to protect the individual and support the community. Techniques that will enable secure and mobile data processing in health care have to be improved. We need quality control and intellectual property agreements. This will require new laws with international validity.

It may happen that online professionals will relieve the practitioner from some routine jobs, but differences between virtual and face-to-face interaction will never make a physician jobless.

How can we make ICT support health care?

In the future, good health care will be provided and supported by people with an open attitude towards information sharing and criticism. The speed of new developments, the complexity of medical decision-making and the high economic and emotional value of possible conflicting interests, all require a revolution to be able to provide rational health care for everyone in the near future (15).

Our great challenges are that: We will have to solve an enormous number of technical problems and to agree on definitions to make systems able to communicate. It is possible that in the future, all systems will be integrated. We have to find ways to make individual information accessible for all that are eligible to use this information and none that are not, balancing utilism and respect for individual privacy. We need to share health care and knowledge with the rest of the world (including all the poor). We have to find ways to deal with the information overload that will be a direct result of these developments and we will have to solve problems on credibility of information. We need new techniques for the retrieval of relevant and reliable medical information rapidly.

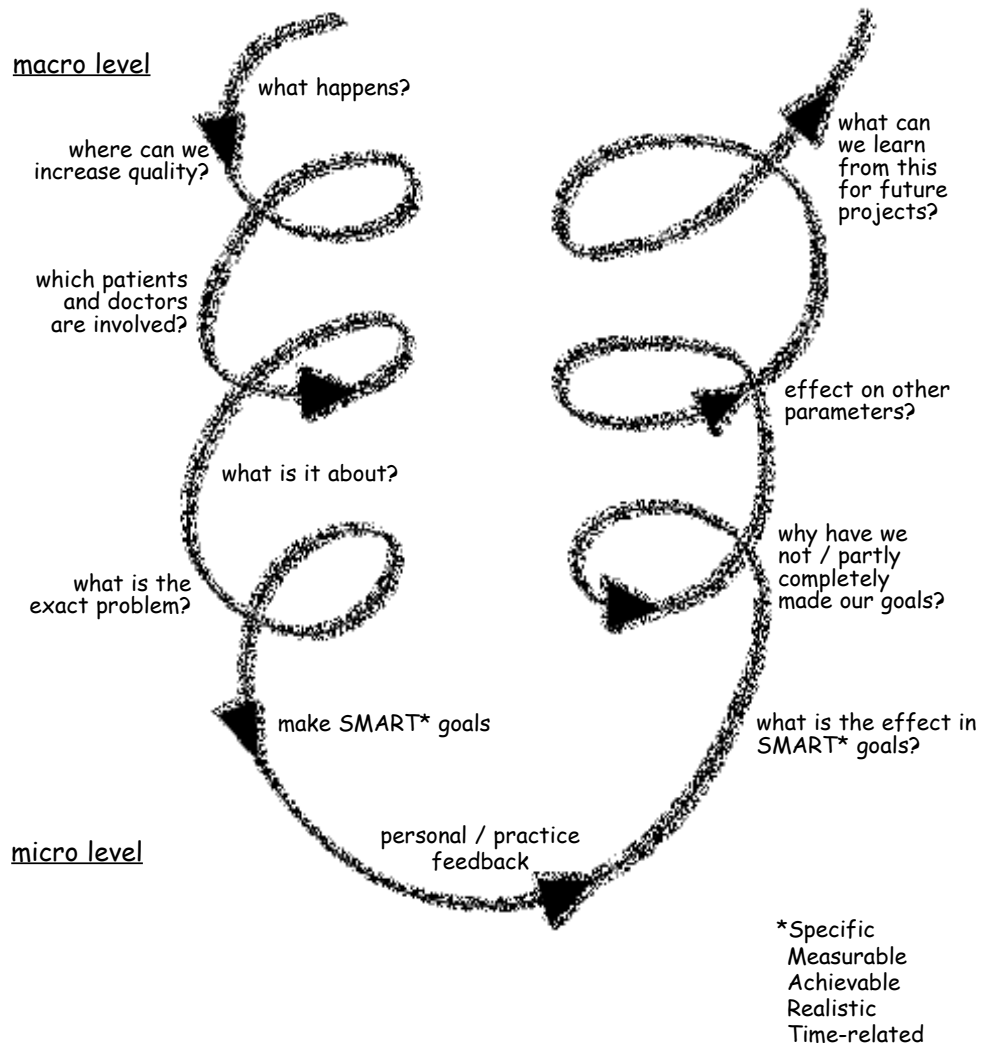
The greatest challenge of the new millennium will be to bring about a change of attitude that will make health care providers and consumers emphasize long-term goals and believe in equality of all parties involved. In this changing world, post-academic training will finally be continuous medical education in a true sense, where quality assessment, communication, case and knowledge management and shared decision-making meet.

Large databases, quality of care and diffusion of innovations

One of the initiating questions of this research was; how can we support quality of pharmacotherapy with the aid of reimbursement records? To achieve optimal medical care (including optimal prescribing) we need (among many things) good guidelines, which are evidence based, regularly updated and good programs for continuous medical education (17-36).

Medical registration, whether reimbursement data, questionnaires or other registrations, can support this in several ways. Diagram 5 sketches the relation of

diagram 5
The relation of large databases and diffusion of innovation



large databases and diffusion of innovations as a continuous multilevel quality project that requires drilling down and drilling up again and again, shifting between macro- and microlevel. Firstly, data can help us to monitor prescribing and analyze pharmacotherapy (what happens). Secondly, we can detect areas of sub-optimal care and locate specific problem domains (where can we increase quality and who is involved?) (8,37-43). After this, we can use these databases to help to quantify the problem and put it on the agenda of involved parties. Following that, we can use data to define SMART (= specific, measurable, achievable, realistic and time-related) goals and support an intervention by giving feedback (24) and to assess the effect of an intervention, on prescribing, on a patient level or on other parameters (44-48). Our study demonstrates that these data can support quality of care, but also that we need to protect our data to make this possible (carefully balancing the possible harm and benefit that can be done with these data) (49-67).

Alongside the reimbursement data, we used questionnaires to assess quality of prescribing at a patient level. This may add valuable information on the effects of medication when used in "real life". After assessing quality of prescribing both at a patient and a doctor level (expressed in SMART goals), why should we include patient outcome measures if the intervention is evidence based and scientifically proven to be the best for patients (effect on other parameters)? The evaluation on a patient level of an intervention to increase evidence based prescribing is in a way an evaluation of the guidelines themselves. Is this necessary? Yes- we think one should aim at evaluating the guidelines as well in an ideal intervention. Reasons for this are that constantly new knowledge will evolve, patient benefits can be measured on an endless number of levels, consumer populations are different from trial populations, and circumstances are constantly changing. All this may force us to update guidelines. Further, what is beneficial for individuals can be in conflict with what is best for all, as is the case for short and long-term goals. We need to aim at projects that will include quality assessment at all levels (8,68-77). How do the doctors, patients *and* the guidelines perform (what can we learn from this project)?

We conclude that many questions still remain on all aspects of the process of diffusion of innovations. What is the best way to improve quality of care? What actually is to be defined as optimal prescribing, in individual cases, on a population level, on the long and short term? Which methods of feedback are most effective? How do we maintain large medical databases without jeopardizing privacy? How can we use these databases in a preventive way (e.g. post-marketing surveillance)? What constitutes an ideal intervention?

Please enjoy my unfinished thoughts.

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