Chapter 1

General introduction and outline of the thesis
Background Pharmacy Practice in the Netherlands

Medication surveillance made a strong development in the last century. In the Netherlands patients can refill their prescriptions at any community or outpatient pharmacy. If patients refill their prescriptions in different pharmacies, a complete patient medication record is not easily accessible and, thus, proper medication surveillance will be difficult to achieve. Fortunately, most Dutch patients visit only one pharmacy. This creates an opportunity to keep medication records complete and to develop relationships with patients in order to improve patient safety.

The development of medication surveillance began in the 1960s. In 1977 the Working Group on Medication Surveillance was established, which formulated the definition of medication surveillance as “the collection and organization of information concerning the patient, including that of previously supplied medications, in order to judge whether the use of a particular drug: (1) carries the least possible risk for the patient, and (2) can result in optimal pharmacotherapy”1. Medication surveillance was conducted both by the general practitioner (GP) and the pharmacist. In the 1970s pharmacies used card-index systems to maintain their records, which became largely automated in the 1980s. This made prescription details dating back many years accessible for medication surveillance1.

On January 1, 2014 there were 1974 community pharmacies in the Netherlands. In total, an average pharmacy has 9.1 full time equivalent (FTE) employees (1.5 FTE pharmacists, 5.5 FTE pharmacy assistants, and 2.1 FTE other employees)3. On July 1, 2008, a fixed fee per prescription was replaced by flexible fees based on negotiations between pharmacists and healthcare insurance companies. Different fees exist for basic services (dispensing of regular and weekly prescriptions), and additional services (initial dispensation, pharmacy preparation, or dispensation during evening, night, or Sunday shifts). Most healthcare insurance companies nowadays have separate fees for performance, for example, for special services in addition to dispensing medicines, such as regular medication reviews for their clients with a potential risk for drug-related problems, like elderly persons with multidrug use3.

Pharmaceutical Care in the Netherlands

In the late 1970s, computer software was developed to document patient drug history files and to perform medication surveillance1. Counseling practices and medication surveillance became more integrated and patient-centered in the late 1980s, when individualized patient medicine information leaflets were introduced. In the 1990s, the electronic pharmaceutical patient record was introduced to document drug-related problems and needs, their evaluation, and subsequent interventions4. Pharmaceutical care in many countries began to develop, following the definition of Hepler and Strand (USA)5. In the Netherlands, the following definition was applied: “Pharmaceutical care is the structured, intensive care of the pharmacist for an optimal pharmacotherapy in which the patient and his condition are the primary concern. The aim is to obtain optimal Health Related Qual-
ity of Life”6-7. In the late 1990s, protocols and guidelines were developed focusing on developing professional standards for pharmaceutical care in the Netherlands. The definition of pharmaceutical care was rephrased by The Royal Dutch Society for the Advancement of Pharmacy (KNMP) as “the care of the pharmacy team for the individual patient in the field of pharmacotherapy, aimed to improve the quality of life for the individual patient”6. However, the time and effort expended by community pharmacists in providing this care was not reimbursed within the fee-for-prescription system. The SMOG controlled trial (SMOG [Screening Medicatie Oudere Geneesmiddelgebruiker, i.e. Screening Medications in the Older Drug User]) investigated whether a community pharmacist-led intervention could reduce the number of potential drug-related problems (DRPs) in those elderly using six or more medicines8. The study was a collaboration on the part of community pharmacists and one of the larger healthcare insurance companies in the Netherlands. Patients were randomly selected as well as matched (by age and gender) to control patients. Potential DRPs were determined from a patient’s list of medicines and discussed with the GP. They were grouped into three categories: (i) patient-related potential DRPs; (ii) prescriber-related potential DRPs; and (iii) drug-related potential DRPs. In this trial 174 patients were analyzed (87 in the intervention group and 87 in the care-as-usual group). After four months a significant reduction in the mean number of DRPs per patient was observed (mean difference -16.3%; 95% CI -24.3 to -8.3). The authors concluded that these results showed a positive influence on the part of the community pharmacist in reducing potential DRPs in the elderly, but at the same time they recommend that future interventions should also focus on actual patient outcomes, including quality of life, morbidity and mortality8.

In 2007, Dutch community pharmacists were recognized by law as healthcare providers with their own therapeutic relationships with their patients. This stimulated the development of more pharmaceutical care-related projects in pharmacy practice and research. It also initiated discussions on new developments in the reimbursement system. The publication of the HARM study (Hospital Admissions Related to Medication)9 caused a change in thinking about the need to develop more patient-centered practices. This prospective multicenter study screened almost 13,000 acute hospital admissions and concluded that 714 admissions (5.6%) were medication related. Almost half of these admissions (46.5%) were assessed as potentially preventable. The main determinants of preventable medication-related hospital admissions were impaired cognition, four or more comorbidities, dependent living situation, impaired renal function, nonadherence to medication regimen, and polypharmacy9. A follow-up was the pHARM study (Preventing Hospital Admissions by Reviewing Medication). Patients at high risk for a medication-related hospital admission received a clinical medication review, performed by the patient’s own pharmacist and GP, along with the development of a pharmaceutical care plan. The frequencies of hospital admissions related to medication were compared to patients receiving care as usual in order to assess its impact. More medication-related hospital admissions were observed in the control group as compared to the intervention group (10 vs. 6 admissions); however, no statistically significant outcomes were found for survival, adverse drug events, and quality of life10.
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Medication Review

It is important to have different healthcare providers involved to provide optimal pharmaceutical care. In the Netherlands, some pharmacies and GP practices are located in a multifunctional healthcare center with various healthcare providers. This makes it easy to discuss patient-related problems and needs in terms of drug use, such as adherence and persistence in medication use, and other issues concerning proper drug use, all in a multidisciplinary setting. Cooperation in the field of medication surveillance and sharing patient data between GPs and pharmacists has led to a subsequent step: a clinical medication review. Performing a medication review at the highest level, a clinical medication review, is an example of pharmaceutical care where there is cooperation between the various healthcare providers and participating patients. The definition of a clinical medication review that is now accepted on a national level in the Netherlands is a structured assessment of issues relating to the patient's use of medicines in the context of his clinical condition performed by the patient, his/her GP and pharmacist, as well as access to patient’s notes and prescription medicines.

In order to perform a clinical medication review, it is important that participating healthcare providers share their patient data. A joint approach using technology to share and document patient data could be a first step towards shared decision-making in integrated care of the patient. This type of approach had not been used before and therefore was chosen as a starting point for this research.

Main objectives and outline of the thesis

Integrated data collection between pharmacists and GPs, along with the involvement of the patient, was suggested many years ago but has not yet become standard practice in all Dutch primary healthcare settings. This research focuses on the cooperation between healthcare providers, pharmacists, and GPs in primary care. We studied the development of a pharmaceutical care plan, formulated after a clinical medication review. Computerized data from the respective patient files were shared among the healthcare providers involved. The effect of this cooperation in terms of patient perspectives and patient outcomes is the topic of this thesis. The main objectives of this thesis are:

- to study how the chronic medication adherence of patients can be improved by involving them more in their treatment; and
- to study whether potential drug-related problems (DRPs) and pharmaceutical care issues (CIs) can be decreased by developing a method to integrate pharmaceutical care by healthcare providers.

The introduction to this thesis consists of a systematic literature review (Chapter 2). The review focuses on international studies, where pharmacists and GPs cooperated and patient outcomes were reported.
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The first part of this thesis concerns the patient perspective. Chapter 3 describes the application of patient self-completion concordance forms at the start of chronic treatment. Patients were asked to express their needs and concerns about a newly started chronic medicine. Second, the effect of these forms on adherence to chronic medication was studied. Chapter 4 continues with a European study, where the use of patient self-completion concordance forms was evaluated with respect to acceptance by pharmacists and patients, including a comparison between the Netherlands and Bulgaria. Chapter 5 describes patient beliefs about medicines and quality of life after a clinical medication review, including the development of a pharmaceutical care plan.

The second part of this thesis concerns the assessment of care issues in integrated pharmaceutical care. Chapter 6 focuses on medication reconciliation to resolve discrepancies in discharge documents after the patient has left the hospital. Chapter 7 describes the development of a web-based pharmaceutical care plan. This web-based application is used in a case-control study performed in eight primary care settings (pharmacist–GP cooperation) in the Netherlands. Older persons with polypharmacy and at least a “cardiovascular disorder” co-morbidity received a clinical medication review within the setting in order to develop a pharmaceutical care plan. Results on patient outcomes are described in Chapter 8.

Finally, the results of the studies described in this thesis are discussed and summarized in Chapter 9, the general discussion section. This is translated into conclusions, followed by recommendations for pharmacy practice and future research.
References


