Summary
Nurses prescribe appropriately and in comparable ways to physicians. Yet the legal, educational and organisational conditions under which nurses prescribe medicines vary considerably across countries, from countries where nurses prescribe independently to countries in which prescribing by nurses is only allowed under strict conditions and the supervision of physicians. In the Netherlands, categories of specialised registered nurses have limited legal prescribing rights, while nurse specialists have more extensive prescribing rights. On the work floor, there is great diversity in the extent to which and way in which nurse specialists’ legal prescriptive authority has been implemented. Because of the prescribing protocols and formal and informal agreements in place, the jurisdiction that Dutch nurse specialists have on the work floor over prescribing is often much more limited than their legal prescriptive authority. Each chapter of this thesis is briefly summarised in the following pages.

Introduction
The general introduction (Chapter 1) describes the background and aim of this thesis. Over the past decades, the combined processes of task substitution and professionalisation within nursing have resulted in nurses taking up new positions and new tasks. One of the most prominent developments in this regard has been the partial substitution by nurses for doctors in the task of prescribing medicines. The number of countries that have introduced nurse prescribing has grown considerably over the past few years. In view of this development, important questions have been raised about whether nurse prescribing is safe and clinically appropriate. When nurses start prescribing medicines, they enter an area that has traditionally been the sole domain of the medical profession. This has consequences for the relationship between both professions and for the division of jurisdictional control over the prescribing task. This thesis addresses these issues from a sociology of professions perspective, taking Andrew Abbott’s (1988) work on jurisdiction as the starting point. According to Abbott, professions exist in an interdependent system in which they compete with each other for control or jurisdiction over tasks, in this case the prescribing of medicines. Jurisdiction is important for professions as it is their means of professional livelihood, which gives them status and power. Hence, professions compete with each other for jurisdiction, both legally and on the work floor, with various possible outcomes.
This thesis addresses the effects of nurse prescribing, the forces that have led to the introduction of nurse prescribing and the conditions under which nurse prescribing has been realised in Western European and Anglo-Saxon countries. In addition, the views and expectations of Dutch nursing and medical stakeholders, nurse specialists, registered nurses and physicians towards nurse prescribing are described as well as the ways in which nurse specialists prescribe in everyday clinical practice.

**The effects of nurse prescribing compared to physician prescribing**

Chapter 2 presents a systematic international literature review of the effects of nurse prescribing when compared to physician prescribing on the quantity and types of medication prescribed and on patient outcomes. Thirty-five relevant studies were identified. The results showed that nurses prescribe in comparable ways to physicians. They prescribe for equal numbers of patients and prescribe comparable types and doses of medicines. Studies comparing the total amount of medication prescribed by nurses and doctors showed mixed results. Clinical parameters were the same or better for treatment by nurses compared to physicians, the perceived quality of care was similar or better and patients treated by nurses were just as satisfied or more satisfied. However, conclusions remain tentative due to the methodological weaknesses in this body of research. Nonetheless, the overall generally positive findings indicate that nurses prescribe in similar ways to doctors. Hence, concerns about whether nurse prescribing is safe and clinically appropriate appear to be unnecessary and there is no reason, on clinical grounds, to prevent nurses from prescribing medicines.

**Forces leading to the introduction of nurse prescribing and conditions for nurse prescribing**

Chapter 3 reports on a second systematic international review of the literature. This review synthesises the available information on the forces within and outside the nursing profession that led to the introduction of nurse prescribing internationally and the ways in which nurse prescribing is realised in Western European and Anglo-Saxon countries. A comprehensive search of six literature databases and seven websites was performed, which identified 124 relevant publications. The results showed that a diversity of external and internal forces led to the introduction of nurse prescribing, such as the objective of creating quicker or more efficient patient access to medicines and meeting the medication needs of patients in remote areas who
were often suffering as a result of a shortage of physicians. The review also showed that the legal, educational and organisational conditions under which nurses prescribe vary considerably. In some countries nurses share jurisdiction over prescribing with the medical profession, for example in the UK, but in most countries jurisdiction remains predominantly with the medical profession, and nurses who prescribe are in a subordinate position.

To further study the conditions under which nurse prescribing was implemented internationally and the forces that have led to the introduction of nurse prescribing, an international survey was conducted among representatives of professional nursing and medical associations and government bodies. This study is described in Chapter 4. A total of 39 respondents from ten countries completed the questionnaire, with medical associations having a lower response rate. Respondents from nursing and medical associations cited different forces as being important for the introduction of nurse prescribing. Respondents from medical associations almost exclusively mentioned forces that made the nurse prescribing initiative a necessity, such as workforce shortages, while respondents from nursing associations frequently brought up reasons with less immediate urgency, such as the possibility to make better use of nurses' skills. This can be conceived as professional ‘problem construction’, often used for retaining or obtaining jurisdiction over tasks. For example, by solely stressing the forces that make nurse prescribing an inevitable necessity, the medical profession may have strategically tried to retain as much jurisdictional control as possible. The study also showed that the conditions under which nurses prescribe medicines vary considerably. Considerable variation was found across countries, for instance, regarding the level, duration and place that nurse prescribing training occupies within the various educational systems. Finally, much uncertainty was reported among respondents about the financial organisation of nurse prescribing. This is striking, as nurse prescribing is often introduced to increase cost-efficiency in health care.

**Professional knowledge claims**
While Chapters 1 to 4 are internationally focused, Chapters 5 to 9 study nurse prescribing in the Netherlands. Chapter 5 describes the results of semi-structured interviews with thirteen representatives of nursing associations, medical associations and other relevant parties in the field of nurse prescribing in the Netherlands. All interviewed parties agreed that the fact
that nurses were sometimes already prescribing medicines, a state of affairs termed ‘tolerance situation’ (in Dutch: *gedoogsituatie*) in which a formally unlawful situation is openly tolerated, was the main reason for starting a process for introducing nurse prescribing. This was different from the results we found internationally and remarkable in light of our theoretical framework, which predicts that professions would use and ‘construct’ the reasons for the introduction of nurse prescribing to their own advantage. The fact that all the parties involved openly spoke about the ‘tolerance situation’ may be a typical Dutch phenomenon and can be found in other Dutch policy areas as well.

The interviews also showed that representatives of medical associations were somewhat less positive about nurses’ impending prescriptive authority compared to representatives of nursing associations, and that they differed in their views about the conditions under which nurses should prescribe. Representatives from medical associations, for example, preferred nurses to prescribe within mandatory partnerships, including at least one physician, while representatives from nursing associations pleaded for independent prescribing rights. This shows that the medical profession wanted to retain as much control over prescribing as possible, while the nursing profession tried to obtain some of this control or jurisdiction over prescribing.

We completed our semi-structured interviews with an in-depth document analysis. Chapter 6 described the results of the resulting subsequent thematic analysis. It was shown that the medical and nursing professions used different so-called ‘knowledge claims’, claims of possessing unique bodies of knowledge and/or expertise, when it came to prescribing. In its knowledge claims, the nursing profession strongly emphasised the routine everyday character of the knowledge used in the prescribing task by asserting that nurses were already prescribing medicines, albeit on an illegal basis. Their second claim ran that the introduction of nurse prescribing would do justice to nurses’ skills and expertise. This is considered a strong claim in a quest for higher professional status.

Results also showed that the medical profession initially proclaimed that prescribing should be reserved for doctors as it is a task requiring medical knowledge. Gradually, however, the medical profession adjusted its claims and tried to reduce nurse prescribing to a task almost exclusively based on routine knowledge, in part by stating that nurses could prescribe in routine cases, which would generate little professional status. Moreover, the medical
profession increasingly emphasised that nurse prescribing should be based on protocols and guidelines that should be developed in part by doctors. Hence, instead of resisting the introduction of nurse prescribing, the medical profession aimed for adequate regulation and tried to preserve its intellectual jurisdiction over prescribing.

**Views and expectations regarding nurse prescribing**

Chapter 7 is based on survey research among Dutch registered nurses (RNs), performed in 2006 and 2012. There were 386 and 644 respondents to the 2006 and 2012 surveys, respectively. It was found that RNs’ support for nurse prescribing was stable but fairly cautious. The number of RNs feeling inadequately equipped to prescribe remained high (around 88% in both surveys), with insufficient knowledge to prescribe being the most important reason for feelings of inadequacy in both years. Moreover, two-thirds of the Dutch RNs in our survey who had already taken the prescribing module still felt they had insufficient knowledge to prescribe. Remarkably, the number of RNs who felt the support from their organisation to be insufficient for them to prescribe increased between 2006 and 2012 (from 26% to 40%). Overall, the prescribing views of Dutch RNs changed little between 2006 and 2012, despite several internal and external forces that might have changed them. This suggests that the debate within nursing about whether prescribing is something that nurses should be doing is still ongoing, which might affect the uptake of prescriptive authority.

Chapter 8 reports on the findings of surveys among national samples of Dutch RNs, nurse specialists and physicians that explored their views on nurse prescribing. A total of 617 RNs, 375 nurse specialists and 265 physicians completed the questionnaire. Their views on nurse prescribing were assessed using fourteen items on a five-point Likert scale ranging from (1) "completely disagree" to (5) "completely agree". The results showed that all groups agreed that nurse prescribing benefits nurses’ daily practice and the nursing profession. There were few concerns about the negative consequences for physicians’ practice and the medical profession. It was only on issues surrounding the quality of care and patient safety that doctors showed more concerns, albeit still mild, than RNs and nurse specialists. These results suggest that RNs, nurse specialists and physicians generally held neutral to moderately positive views on nurse prescribing, which is beneficial for the implementation and potential success of nurse prescribing in practice. Yet
concerns about the consequences of nurse prescribing for the quality of care and patient safety remained a point for attention, especially among physicians.

**Division of jurisdicational control over prescribing in the workplace**

*Chapter 9* reports on the findings of a multiple-case study that examined how nurse prescribing takes shape in the Netherlands in everyday healthcare practice and how jurisdictional control over prescribing is divided between nurse specialists (with a Master’s degree in Advanced Nursing Practice) and physicians in the workplace. This involved in-depth interviews with fifteen nurse specialists and fourteen medical specialists, non-participant observations of nurse specialists’ consultations and document-analysis. Great diversity was found in the extent to which and the way in which nurse specialists’ legal prescriptive authority has been implemented. There was considerable variability in the amount and range of medicines that nurse specialists were allowed to prescribe. Moreover, whilst prescribing, nurse specialists used a broad range of supporting documents, ranging from guidelines drafted by international professional associations to individual formularies developed by the nurse specialist herself/himself. Our study also found that the financing structure of nurse specialists’ prescriptions was opaque and confusing to most nurse specialists and medical specialists. The manner in which the prescribing process took place was fairly similar for all the prescribing nurse specialists: they regularly consulted medical specialists about their prescribing decisions, almost always in an informal way. These findings suggest that there is considerable discrepancy between the division of jurisdictional control over prescribing at the legal level and at the workplace level. According to Dutch law, nurse specialists are allowed to prescribe any medicine within their specialism and competence. The additional rules and formal and informal agreements with medical specialists on the work floor severely limit this legal prescriptive authority. At the same time, it should be noted that prescribing is a relatively new task for Dutch nurse specialists. It is possible that the variability across hospitals and wards found shortly after the introduction of nurse specialists’ prescriptive authority will diminish with time and a more ‘common practice’ may develop.

**General discussion**

Finally, *Chapter 10* provides a discussion of the main findings in this thesis as well as methodological considerations and implications for policy, practice
and future research. A plea is made for more policy attention to the financial aspects of nurse prescribing, as these often prove to be opaque and confusing. It is also recommended that policy expectations regarding the effects of nurse prescribing are made more realistic and adapted to the current situation on the work floor, in which nurse prescribing is progressing slowly and is being implemented in a more restricted way than the law permits. As considerable variation was found in the level and duration of nurse prescribing training and nurses were found to feel insecure about their prescribing knowledge, it is suggested that educational programmes pay more attention to how well their curricula fit nurses’ needs when prescribing in everyday health care practice. Because the number of prescribing nurses is expected to grow over the next few years, it is also argued that the support and supervision of nurse prescribers by doctors should become more structured and formalised. In view of the low level of organisational readiness for nurse prescribing at present, checklists should be developed to facilitate the implementation of nurse prescribing. Finally, more cost-effectiveness studies and long-term studies are recommended as well to properly monitor the development and effects of nurse prescribing.

**Conclusion**
Nurses prescribe appropriately and in comparable ways to physicians. Yet the conditions under which nurses prescribe medicines vary considerably across countries, from countries where nurses prescribe independently to countries in which prescribing by nurses is only allowed under strict conditions and the supervision of physicians. This means that in some countries, such as the UK, nurses share (full) legal jurisdiction or control over prescribing with the medical profession, but in most other Western European and Anglo-Saxon countries, the legal jurisdiction over prescribing remains predominantly with the medical profession. In the Netherlands, categories of specialised registered nurses (with a Bachelor’s degree) have limited legal prescribing rights, while nurse specialists (with a Master’s degree in Advanced Nursing Practice) have quite extensive prescribing rights. Dutch nurse specialists can prescribe any medicine within their specialism and competence. However, there is great diversity in the extent to which and way in which nurse specialists’ legal prescriptive authority has been implemented in everyday practice. Often, nurse specialists prescribe according to delimited protocols or in consultation with medical specialists. Hence, nurse specialists’ legal authority over prescribing is much broader than their jurisdictional control over prescribing.
on the work floor. As nurse prescribing in the Netherlands is still evolving, prescriptive authority on the work floor will presumably change and crystallise over the coming years. As it has been shown that nurse prescribing is safe and patients are generally satisfied with nurse prescribing, improvements in nurse prescribing education, financing and implementation in everyday practice can yield further improvements in the years to come.