SUMMARY

A general introduction on treatment goals and treatment strategies in diabetes mellitus is described in chapter 1. The aim of this thesis was to reach a greater understanding in treatment goals and effectiveness of treatment strategies on glycemic control in people with T2DM in daily practice. Secondly, the evaluation of an intervention to improve patient involvement was described. Finally, the development of an intervention to optimize diabetes treatment was described.

In the first part of this thesis (chapters 2 – 4), we focused on the treatment of T2DM in the real world.

In chapter 2 we investigated the time to insulin initiation in people with T2DM not responding to oral glucose lowering agents and we evaluated long term outcomes, including glycaemic control, micro vascular complications and mortality. Our study demonstrated that two-third of the people with T2DM initiated insulin during follow up. The time to insulin varied from 1.2 years (range 0.3-3.1) in patients with HbA1c levels consistently ≥ 53 mmol/mol (7.0%) to 5.4 years (range 3.0-7.5) in patients with fluctuating HbA1c levels around 7.0%. Longer diabetes duration (HR1.04 95% CI 1.03-1.05) and lower age (HR1.00 95% CI 0.99-1.00) at baseline were associated with a shorter time to initiation. More insulin initiators had retinopathy compared to people with T2DM that remained on oral glucose lowering agents during follow up.

In chapter 3 we described subgroups with distinct HbA1c trajectories in insulin users. We identified four HbA1c trajectories. Most people were classified in a stable HbA1c trajectory of around 57 mmol/mol (7.4%) (88.7%). Only 24.4% of the people were ‘on-target’ to insulin, this was associated with lower HbA1c levels and higher age at the start of insulin treatment. Initiating insulin earlier improves the likelihood of achieving and sustaining glycemic control.

In chapter 4 we described subgroups with distinct HbA1c trajectories of the overall T2DM population. Four subgroups with distinct HbA1c trajectories were identified. More than 90% reached and maintained good glycemic control (subgroup one and two). Persons within the two subgroups that showed a more unfavorable course of glycemic control, were younger, had higher HbA1c levels and a longer diabetes duration at baseline.

The second part of this thesis focused on co-morbidities in T2DM management (chapters 5,6).

In chapter 5 we investigated subgroups with distinct trajectories of systolic blood pressure in the overall T2M population. Four subgroups with distinct SBP trajectories were identified. The largest subgroup (85.6%) showed adequate SBP control (at or around 140 mmHg) over time. The second
subgroup (5.6%) were hypertensive in the first years, responded slowly to BP management and eventually reached SBP control. The third subgroup (3.4%) showed deteriorating hypertension during the first four years, then showed insufficient response to BP management. The fourth subgroup (5.4%) showed deteriorating hypertension over time. People with T2DM within subgroups 2-4 were significantly older, comprised more women, used more antihypertensive medication and had a higher prevalence of retinopathy, microalbuminuria and CVD mortality.

In chapter 6 we described the use of antidepressants, anxiolytics and hypnotics in people with T2DM and determined the socio-demographic characteristics and T2DM medication associated with use. We demonstrated that from the 7,016 people with T2DM, 500 people (7.1%) used antidepressants only, 456 people (6.5%) used anxiolytics and/or hypnotics only and 254 people (3.6%) used a combination. Users were more often female, non-Caucasian and lower educated compared to non-users. Users of anxiolytics and/or hypnotics were older, had a higher BMI, and more co-morbidities compared to non-users. Moreover, antidepressant users more often used insulin (27.2% vs. 21.5%). Finally, glycaemic control did not differ between users and non-users (51-52 mmol/mol vs. 52 mmol/mol).

In the last part of this thesis, we described two interventions to improve patient involvement in their T2DM treatment and evaluate treatment strategies (chapter 7,8).

The study described in chapter 7 evaluated the feasibility of a web-based guided insulin self-titration program in people with T2DM. The most important lesson to be learned was to investigate the potential barriers that PCPs may face before implementing an e-health program in order to a) try to embed and tailor a program to the PCP organisation b) decide on not to implement if doubts exist about embedding or need is lacking. Other option is to change the setting of implementation towards a setting facilitating embedding or towards a setting with an existing need for e-health application.

The study described in chapter 8 described the development of a tool for clinical medication review to facilitate and support the periodic review of (older) patients’ medication by community pharmacists and primary care physicians. A structured, comprehensive and practical tool to assist pharmacists and general practitioners to perform clinical medication review including a list of potential drug-related problems in older patients with chronic disease, as well as a script for structured patient interviews, was developed.

Chapter 9 provides a general discussion based on main findings and future perspectives.