Outpatient HIV care in the Netherlands

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HIV is now, as a result of cART, a treatable condition. Sadly, as reflected by the large number of annual HIV-related deaths and new infections, managing HIV infection and curbing the epidemic has proven extremely challenging. To achieve world without HIV and AIDS, we need to ensure that all infected individuals have timely access to optimal outpatient HIV care. That is to say, outpatient care that facilitates engagement in care over a lifetime, addresses the comorbidities that are increasingly affecting people with HIV, and attends to patients’ overall quality of life. In the present project, the objective was to gain more knowledge on how outpatient HIV care can be improved, in order to attain and maintain the health and well-being of people with HIV. Using the results from these studies, we aim to provide healthcare workers and policy makers with more evidence based recommendations for designing outpatient HIV care.

This chapter provides an overview of our most important findings. Subsequently, a number of issues regarding our study setting and methodology are presented. The chapter ends with recommendations for professionals involved in outpatient HIV care.

7.1. Main findings

In short, the results presented in this dissertation support the notion that, in a setting with good access to healthcare in general, and expert HIV care in particular, it is possible to achieve good health outcomes in an HIV-infected population. More specifically, it is feasible to retain patients in care and to reach high levels of viral suppression in patients on cART. In addition, and in line with a large body of literature, our findings confirm that in people with HIV, mental well-being is often impaired and therefore deserves close attention in HIV care. Lastly, the results suggest that patients in the Netherlands greatly value expertise of their healthcare providers and are generally satisfied with the care they receive. Here, we present our most important findings against the background of the current literature. The results are organised into the following topics: (1) the cascade of care, (2) health-related quality of life and (3) patient preferences and experiences.
Chapter 7. General discussion

Cascade of HIV care

As introduced in chapter 1 of this thesis, the cascade of care can be used as a tool to reveal gaps in the continuity of HIV care. Unfortunately, at each step along the HIV care continuum from diagnosis to viral suppression, there is steady loss of people (attrition) to the point that globally, less than 40% of people with HIV are virally suppressed.\(^1\)\(^2\) In chapter 3, the objective was to examine the attrition in the HIV-infected population in the Netherlands after entering care. In addition, we assessed whether attrition varies across the treatment centres, and if so, to explore to which treatment centre characteristics these differences may be ascribed. To this end, we studied the association between health facility characteristics and the following cascade of HIV care outcomes: "retention in care", "cART initiation" and "viral suppression". Owing to our access to data of the Stichting HIV Monitoring, we were able to include all adult HIV-1-infected patients who entered care in the Netherlands between 2007 and 2013 in the study. The following health facility characteristics were assessed:

- Treatment centre size (i.e. no of HIV-infected patients in care)
- Disciplines in the HIV treatment team (separately: clinical pharmacologist, medical microbiologist, social worker, psychologist and/or psychiatrist);
- Policy/organisation plan (specifically for the HIV treatment centre);
- Separate HIV outpatient clinic (vs. jointly with other conditions);
- Internally organised audit in the 3 preceding years (evaluating performance of the HIV treatment centre)
- Voluntary accreditation (of the health facility in which the HIV treatment centre is embedded).

High retention in care and viral suppression

Long-term viral suppression, an essential goal of outpatient HIV care, requires that patients who start treatment, are retained in care. Our results confirm that it is possible to achieve high levels of retention. We saw that 97% of all patients who entered care in the Netherlands in 2007 or later had clinical evidence of being in care (i.e. a documented clinical visit or lab result) after January 1, 2012. This overall high proportion, together with the low variation of retention in care across the 26 treatment centres, suggests that the current health system and the organisation of HIV care delivery in the Netherlands provide a good basis for continued HIV outpatient care. It must be noted, however, that comparing our retention in care rates to those in other studies is complicated because of the great heterogeneity in methods for measuring retention in care. We will discuss this issue in more detail in the “setting and methodological considerations” section (7.2). Nevertheless, attrition in this step of the cascade appears to be less prominent in the Netherlands than in many other settings, where loss to follow up rates of 25–44% have been reported.\(^3\) In addition to favourable retention in care rates, we observed a high proportion of viral suppression in the HIV-infected population on cART. Ninety-five percent of patients on cART for at least 6 months had an undetectable viral load (<100 copies/mL). Across the treatment centres this proportion varied between 81–100%, which is high compared to results in other settings.\(^3\)\(^4\)
Our assessment of facility factors associated with retention in care and viral suppression yielded a negative association between having a social worker in the treatment team and viral suppression (OR: 0.62; 95% CI: 0.43–0.91). This counterintuitive observation may result from a tendency of treatment centres with a relatively complicated patient population (in which achieving and sustaining viral suppression is more challenging) to include a social worker in the team.

Several factors, unique to the Dutch setting, unquestionably contributed to the relatively low levels of attrition in the abovementioned steps of the HIV care cascade. Most importantly, all citizens in the Netherlands have good access to health care, HIV care and cART. In addition, the legal and social conditions for specific populations (i.e., injecting drug users and homosexuals), often disproportionately burdened by HIV, are relatively favourable. These two matters are discussed further in the “setting and methodological considerations” section (7.2).

Although this cannot formally be concluded on the basis of our data, it is also likely that the high levels of retention in care and viral suppression are in part a result of the fact that HIV care is delivered in specialised treatment centres that all meet specific criteria. These criteria, as presented in chapter 1, were developed by the Dutch Association of HIV treating physicians (NVHB) and were mainly based on expert opinion. Since then, the body of literature on how to improve the quality of HIV care has grown. Based on the evidence that is currently available, the following national criteria are likely to have contributed to the high level of retention and viral suppression in our setting.

First, in order to ensure expertise of the care providers, criteria regarding the training and experience of members of the HIV treatment have been developed. An HIV treatment team must consist of at least two medical specialists and one nurse consultant. The medical specialists are required to be trained as infectious disease specialists; and the nurse consultants must be registered as a specialised HIV nurses. Second, in order to maintain expertise of the care providers, criteria regarding the provider caseload (no. of patients being treated by a provider) have been defined. Medical specialists are expected to have a caseload of at least 80 patients, and to see at least 10 new patients per year. The benefit of professional experience in HIV care is supported by ample evidence. Our review in chapter 2, for instance, shows that patients treated by healthcare providers with more training and experience in HIV/AIDS care are more likely to be virally suppressed. Moreover, studies evaluating the care preferences of HIV-infected patients have consistently reported that patients greatly value having care providers with high levels of HIV-specific knowledge. In fact, in chapter 5 we see that our respondents consider the expertise of their care providers to be the most important aspect of HIV care.

Other efforts devoted to guarantee that care providers remain experts in their field are worth mentioning. For instance, all nurse consultants in the country are required to join the “The Dutch Association Nurse Consultants HIV (V&VN VCH)”. 

In addition, all medical specialists are encouraged to become members of the Dutch Association of HIV-treating physicians (NVHB). These two associations collaborate closely and organise meetings and refresher courses for their members. Moreover, the medical specialists are required to certify every five years. Finally, with regard to the rates of viral suppression, adherence to cART in the Netherlands may be relatively high due to the effort that is generally put into supporting adherence and managing adherence problems by the nurse consultants. In a study that was carried out to evaluate the role of nurse consultants in the Netherlands in 2006, all participants (i.e. nurse consultants) discussed adherence (difficulties) and management of the treatment regimen with their patients during follow-up visits. Moreover, 23 out of the then 24 treatment centres made use of adherence support devices.

**cART initiation**

Of the three measures ("retention in care", "cART initiation", and "viral suppression"), "cART initiation" varied the most across treatment centres (53–92%) and showed more, namely three, associations with health-facility level factors. First, the odds of cART initiation were higher in HIV treatment centres that were embedded within health facilities with a quality accreditation (OR: 1.62 95% CI: 1.18–2.23). Second, cART initiation was positively associated with the measurement of performance (i.e. internal audit) in the preceding 3 years (OR: 1.36; 95% CI: 1.02–1.81). These two results support the practice of certification, audit and feedback as a strategy to improve health professionals' performance. Third, the odds of cART initiation were higher in middle-sized (300–600 patients; OR: 2.00; 95% CI: 1.25–3.21) and large HIV treatment centres (>600 patients; OR: 1.80; 95% CI: 1.14–2.84) compared with centres with a small volume (<300 patients in care). This finding is in agreement with other studies assessing performance in outpatient HIV care. These studies report an increase in the likelihood of receiving indicated care with increasing HIV volume.

"cART initiation" differs from the measures "retention in care" and "viral suppression" in the sense that it reflects professional performance for the most part, rather than patient outcomes. Such measures are also referred to as process measures. Process measures are more directly under provider or system control, whereas outcome measures are largely impacted by patient factors, which is in keeping with our results. The large variation in cART initiation may in part be explained by the fact that the clinical guidelines were not uniform with regard to recommendations on when to start cART at the time of the study. Since then, a trend to prompt the initiation of cART continued, with current guidelines recommending to start cART in all diagnosed adults, regardless of CD4 count. Therefore, if we were to repeat the assessment with more recent data, it is likely that the rates of cART initiation would be higher and variation lower. Indeed, the most recent SHM report shows that the proportion of patients initiating cART within 12 months of linkage to care in the Netherlands is increasing over time. Other factors that were not accounted for in our analyses, may also have contributed to the differences across the treatment centres.
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These include confounding by patient factors that may play a role in the decision to postpone cART initiation (e.g. psychiatric comorbidity, active substance abuse, unstable housing and patient preferences), or by factors that may increase the urgency to initiate therapy (e.g. pregnancy, hepatitis coinfection). Nevertheless, the observed differences are interesting, and it is surely worthwhile to re-evaluate the variation in cART initiation, and identify the motivations for choosing not to start cART in the current “treat all HIV-infected individuals” era.

Health-related quality of life

In medical treatment, particularly of people with a long-term illness, health-related well-being is a widely acknowledged and ultimate goal of care delivery. The health-related quality of life (HRQOL) of persons infected with HIV is significantly lower than that of the general population. It is unknown, however, how the HRQOL of this patient population compares to that of people with other somatic chronic diseases.\(^{15}\) To assess this, we compared HRQOL in HIV infection with HRQOL in three other chronic medical conditions: diabetes mellitus (DM) type 1 and type 2 and rheumatoid arthritis (RA) (**chapter 4**). With the exception of a study that was carried out in 35 AIDS patients two decades ago,\(^{16}\) this is the only study we know of that compares the HRQOL in HIV-infected patients to that of people with other somatic long-term illnesses. The odds of having a poor physical HRQOL in the HIV-infected population were similar to those of the patients with diabetes mellitus types 1 and 2, and significantly lower than in the rheumatoid arthritis group. Considering the fact that RA is a musculoskeletal disorder, it was not surprising to find that patients from this sample were most likely to have a poor physical HRQOL. It is however interesting that the physical HRQOL of the HIV-infected sample was similar to that of the diabetes samples. Moreover, our physical SF-36 scores were considerably higher than those in previous studies in HIV-infected patients, for instance in Italy\(^{17,18}\) and France\(^{19}\). Several factors are likely to explain the higher physical HRQOL in our study sample. First, these studies also included patients who were not yet on antiviral therapy. Second, they were carried out in the beginning of the cART era, when treatment regimens had worse tolerability. Third, in those years, the immunological status of patients starting cART was generally poorer. Taken together, our data indicate that physical HRQOL of HIV-infected patients has improved over time and may be comparable to (or even better than) that of patients with other somatic chronic diseases.

By contrast, the odds of having a poor mental HRQOL were significantly higher in HIV-infected patients than in the other three groups. These results suggest that HIV infection may cause more psychological burden than a number of other somatic chronic illnesses (i.e. DM types 1 and 2, and RA). If so, this may in part be explained by stigma surrounding HIV/AIDS, which continues to be a widespread problem\(^{20-22}\) and is an important cause of psychological distress in people with HIV.\(^{23}\) Although perceived stigma has been reported in DM type 1,\(^{24,25}\) DM type 2\(^ {26}\) and RA,\(^ {27}\) it may be a more prominent cause of psychological distress/burden in HIV/AIDS.\(^ {28,29}\) An important distinction between HIV and many other chronic diseases, is the common view that people with HIV are responsible for acquiring their illness.
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Moreover, HIV is often associated with behaviour that is considered deviant in many settings, such as sexual promiscuity, injecting drug use or homosexuality.\textsuperscript{30} Additionally, despite evidence to the contrary, unreasonable fear for contamination is still very much present in the general population.\textsuperscript{20} As a result, HIV-positive people often face difficulties regarding when and how to disclose their status and how to cope with the possible negative consequences.\textsuperscript{31} Another factor that may contribute to the impaired mental HRQOL in HIV is the theory that socially disadvantaged people are particularly vulnerable to being exposed to HIV infection. There is evidence, for instance, suggesting that HIV risk behaviours are associated with poor education and unemployment.\textsuperscript{32, 33} Moreover, psychosocial health problems, such as violence and child abuse, have been linked to contracting HIV.\textsuperscript{34}

In addition to comparing the HRQOL of HIV-infected patients to that of patients with other chronic conditions, we aimed to assess patient factors that are associated with low HRQOL in the group with HIV. Although this has been thoroughly studied in the past, the continuous and rapid development of the treatment for HIV calls for a continued reassessment of HRQOL in HIV infection and its predictors. Within our sample of people with HIV, female sex, a route of transmission other than heterosexual or MSM, a past medical history of AIDS, longer time since initiation of cART and severe comorbidity (i.e. history of cardiovascular event, end stage renal disease, non-AIDS malignancy, and/or use of insulin therapy for DM) were associated with a poor physical HRQOL. These results are in agreement with previous literature. The increased likelihood of having a poor physical HRQOL in patients with severe comorbidity further underlines the importance of preventing and managing comorbidities in outpatient HIV care.

Originating from sub-Saharan Africa (SSA), and having a poor immunological status (CD4 count <350 cells/mm$^3$), were associated with poor mental HRQOL in the people with HIV. An explanation for this impairment in mental HRQOL could be that patients from SSA experience more stigmatization, as reported in previous studies performed in the Netherlands\textsuperscript{35} and France.\textsuperscript{36} People who experience high levels of HIV stigma are more likely to have mental health problems.\textsuperscript{35} Furthermore, difficulties related to migration and perhaps the circumstances that led patients to leave their country may have affected the mental well-being of this group. In conclusion, our findings confirm that HIV care providers should be attentive to mental health problems, especially among persons from sub-Saharan Africa. In addition, the association between a poor immunological status and a poor mental HRQOL, as well as the observed association between AIDS and a poor physical HRQOL, provide additional support for early initiation of cART.
Patient experiences and preferences

The importance of responding to patients’ needs and preferences (i.e. ‘patient-centred care’) when delivering health care has been widely recognized. The purpose of the study in chapter 5 was to identify aspects of care that are of importance to HIV-infected patients in outpatient care in the Netherlands, and to evaluate to which extent the received care meets their expectations. Being treated by care providers with specific expertise in HIV medicine was considered of greatest importance to the respondents. In addition, receiving adequate information about treatment options, and how the care provider treats the patient (taking the patient seriously, and a sympathetic/involved attitude), stood out as important aspects of care. Notably, confidentiality of HIV status at the outpatient clinic was a major concern for patients. Aspects concerning accessibility (flexibility in care and waiting times) were considered important, but evidently of lower priority in our study population than the items mentioned earlier.

Experiences were generally positive with regard to the themes that were addressed. However, there was room for improvement with respect to waiting times at the blood sampling departments, and provision of information regarding treatment (in particular: advantages and disadvantages, how to take the medication, and possible side effects).

In the final study, presented in chapter 6, we assessed whether HIV-infected patients in the Netherlands would be willing to switch from the simplified and convenient single-tablet regimens (STR), to multiple-tablet regimens (MTR), with the goal of reducing healthcare costs. Although preferences for STR have been reported previously, patients’ opinions in an economic context have hardly been assessed. Considering the expanding options for saving costs through MTR, an inquiry into patients’ attitudes towards this issue is important. Our results show that HIV-infected patients do not necessarily oppose the decision to prescribe MTR instead of STR to reduce healthcare costs. Furthermore, we found that duration of cART usage and region of origin may impact patients’ willingness to switch. Patients who had been taking cART ≥ 15 years were more willing to take MTR, possibly because they experienced the years in which cART regimens were far more complex. Conversely, non-Dutch respondents were less willing to take MTR. Our qualitative results show that patients (including respondents willing to switch) feel that switching to MTR is a step backwards. In addition, the most common concerns appear to be the dosing frequency, efficacy and tolerability of MTR.
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7.2. Setting and methodological considerations
This section addresses the study setting and methodological considerations that should be taken into account when interpreting our results.

Study setting
Structural factors, such as national resources, legislation, health system and culture, play a critical role in how a country’s HIV epidemic is shaped, and what the prospects of its HIV-infected residents are. The current project was based in a high income country, with several additional structural factors that are important to note:

Good access to healthcare in general
The Netherlands has a mandatory health insurance policy, ensuring access to HIV care and cART (without co-payments) for all citizens (see also chapter 1.3). In settings where this is not the case, lack of insurance, and co-payments are important barriers to engagement in HIV care. Furthermore, the small size of the country, together with the large number of specialised centres ensures a relatively small distance to care for all HIV-infected patients in the Netherlands. Living far away from HIV care facilities can be an obstacle to continued HIV care. These two factors are likely to have contributed to the overall high rates of retention and viral suppression observed in chapter 3. In addition, they may also partly explain why we found no association between socioeconomic status (SES) and our cascade of care (chapter 3) and HRQOL outcomes (chapter 4). Moreover, they may have affected our findings in chapter 6, in which we assessed whether patients were willing to switch from single-tablet regimens (STR), to cheaper multiple-tablet regimens (MTR). Had this assessment been performed in a setting where patients are charged co-payments, personal financial circumstances would have probably played a role in the respondents’ opinion on the matter.

Key populations
Historically, there have been groups of people who are disproportionately impacted by HIV. In addition to being at higher risk of contracting HIV, these ‘key populations’ are often less likely to have access to HIV testing and treatment services. Against this background, there are legal, societal and public health conditions in the Netherlands that are worth noting. First, the Netherlands does not have laws that penalize homosexual acts and the social attitude towards homosexuality is one of acceptance, or at the least, considerably less hostile than in many parts of the world. In countries where homosexuality is criminalised, fear of being persecuted or extorted may prevent MSM from accessing HIV prevention and care services. Second, illicit drug use is not a criminal act and harm reduction programs for addicts have been established for over 30 years. Harm reduction programs such as needle/syringe exchange programmes and opioid substitution therapy substantially reduce the spread of HIV among injecting drug users (IDUs). Indeed, in contrast to regions including Eastern Europe, Central Asia, North Africa, and the Middle East, where IDU is a major mode of HIV transmission, IDU only accounts for a remarkably low 3% of all HIV infections in the Netherlands. In fact, in 2015, IDU accounted for 0% of new HIV infections.
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National database
We were fortunate to have access to data of the SHM for the studies in this dissertation. This database contains data of all patients in care in the Netherlands, with the exception of a small proportion (approximately 2%) that opts out. This enabled us to include the entire HIV-infected population in chapter 3, instead of using a study sample, as has been the case in many other studies in which the cascade of care has been assessed. In addition, we were able to correct for many factors (clinical and sociodemographic) in our analyses in chapters 3-6.

Cascade of care
In chapter 3 we used measures that were derived from the cascade of care. Cascade of care measures have been used extensively in research but definitions often differ considerably. The first cascade of care step, namely the proportion of people with HIV that is diagnosed, is always an estimation and can vary according to the applied estimation or modelling technique. The retained in care measure, intended to reflect whether patients remain actively engaged in care, can also be calculated in various ways. The choice of definitions for the different steps will depend on the reason for laying out a cascade of care, and the (quality of the) available data. In a public health assessment, for instance, it can be interesting to use the estimated HIV-infected population (including those unaware of their HIV status) as the denominator. Herein, it is important to realise that the final percentage of virally suppressed patients can largely be affected by the method used to estimate the number of HIV-infected patients. This is especially relevant when comparing the cascade to other cascades. When the goal is to assess attrition in patients who are linked to care, or the quality of HIV care delivery, like in the present study, the population linked to care can serve as the denominator. We propose to start off with a simple cascade, using a cross-sectional approach for each step of the cascade. That is, to calculate the proportions of the linked to care population that: 1) has evidence of being in care (e.g. an outpatient visit or laboratory results) after a specific date ("retention in care"), 2) has initiated cART within the study period and 3) is virally suppressed. Given that patients not on cART will generally not have an undetectable viral load, it can be useful to repeat the last step, this time using the population on cART as the denominator (instead of the population linked to care). This proportion will give more insight into the adherence/treatment failure in the patients on cART. It is important to realise that the cross-sectional method of measuring retention in care does not account for time since linkage to care. After laying out this explorative cascade, the assessment can be extended by applying stricter definitions. For instance, time in between visits and missed visits can be included in the definition of retention in care. Another option is to perform sensitivity analyses, as we discuss later, in which the assumption of continued care and sustained viral suppression is explored.

In our study we defined retention in care as having clinical evidence of being in care, such as a documented clinical visit or a laboratory result after January 1, 2012. To explore the validity of our measure of retention in care, we assessed whether patients had visited the outpatient clinic in each calendar year following linkage to care.
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Of the retained patients who entered care in 2007, 93% had no more than one calendar year in which they did not attend the outpatient clinic. This proportion increased over time. These data support our assumption of continued care in patients who are currently in care. The sensitivity analysis for the viral suppression measure, showed that less than 4% had 2 or more blips (>200 copies/ml) in the 3 years preceding the last HIV RNA measurement, also supporting our assumption of sustained viral suppression.

In addition to revealing gaps in continuity of care, the cascade of care can be used to illustrate the health inequities in HIV care. Certain subgroups of people with HIV show lower engagement in the various stages of HIV care (see also "key populations"). Assessing the cascade of HIV care for different subgroups can provide more insight into which groups are more at risk for attrition, and where in the cascade they are more likely to drop out. Outcomes of such assessments can be used to develop tailored interventions for the most vulnerable patient groups.

Patient reported outcome measures (PROMs)

The instruments

For the assessment of patient preferences and experiences (chapter 6), we used the QUOTE-HIV. This HIV-specific questionnaire was developed in 1999 using focus groups (patients), tested for its psychometric properties, and subsequently tested in a pilot study in the USA. Our aim was to keep adjustments of the instrument to a minimum, but we modified the original questionnaire by removing six statements that we considered no longer relevant (due to the availability of effective treatment) or difficult to interpret. We also added five statements based on literature review and suggestions of the Dutch Association for people living with HIV. Therefore, the version of the questionnaire we used was not a validated one. In addition, since the development of the original instrument, much has changed in the delivery of HIV care, and a lot of progress has been made in the science of measuring the important aspects of the patient care experience. Nevertheless, in the absence of a validated instrument applicable to the current era of HIV care, and in view of the fact that this HIV-specific instrument was developed systematically and jointly with patients, we believe our results have yielded useful information.

To explore the HRQOL in the study population, we used the SF-36. This instrument has been used extensively, translated to Dutch and validated. Moreover, it is a generic instrument (as opposed to the disease specific MOS-HIV for instance), which enabled us to compare our results with results in patients with other chronic diseases. However, the data show a ceiling effect, therefore limiting our ability to detect potential differences in HRQOL among the chronic diseases groups in the high score ranges. It is also important to note that we chose the threshold for poor physical or mental HRQOL on the basis of the HIV study sample, in the absence of a generally accepted threshold for defining a poor HRQOL.
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The study population

For chapters 4, 5 and 6, a sample of patients was selected, using data from the ATHENA cohort. Two issues regarding our sampling method should be noted. First, rather than selecting a sample from the total HIV-infected population, we took samples from each treatment centre. This method is called stratified sampling. We did this to ensure that patients from all treatment centres would have the opportunity to provide opinions on the quality of care at their HIV treatment centre. The treatment centre sizes in the Netherlands vary to the extent that, had we chosen to take one random sample from the total population, this most likely would have produced a sample in which small centres were not represented. Second, we accounted for the number of patients in care by taking larger samples in larger treatment centres. The rationale behind this method was to recruit a sample that was more representative of the HIV-infected population with regard to its national distribution. In hindsight, it is questionable whether our adjustment for treatment centre size added value to the study. We therefore argue to only use this sampling method in future studies when there are strong arguments to do so. Furthermore, despite the measures taken to encourage participation (e.g. offering online and paper versions of the questionnaire and several reminders to the recruiting personnel), the response rate in this study was relatively low (35%). Men (85%), patients from the Netherlands (77%) and men who have sex with men (MSM, 71%) were overrepresented when compared to the total population of HIV-infected patients in the Netherlands. However, on average, the proportions of these characteristics correspond with those of the total HIV population in care in the Netherlands, which consists mainly of men (80%), patients from the Netherlands (59%) and MSM (60%). We therefore believe our results are relevant for research and practice in the Dutch setting, and likely in other high-income countries with similar epidemics (i.e. predominantly males, and MSM) and a history of good access to care.
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7.3. Future directions
This section provides future directions based on our results and the current state of evidence. The recommendations concern the delivery of outpatient care but also extend beyond the activities that take place within the outpatient clinic.

Outpatient HIV care
The goals of outpatient HIV care include achieving viral suppression, minimal non-HIV morbidity, and optimal health-related quality of life. Here, we discuss how quality assurance measures, and the management of mental disorders and non-communicable diseases can contribute to achieving these goals.

Maintaining and improving quality of care
Wide variations in the quality of healthcare delivery exist, even in settings with well-developed healthcare systems. To address this, an extensive range of approaches to improve the quality of healthcare delivery has been developed, implemented and assessed. Amongst these, the practice of accreditation as gained ground in the field of health care. Accreditation is a process in which an external party evaluates whether a care facility meets certain standards. South Africa, Thailand, Uganda, Kenya and Zambia are examples of countries where accreditation for HIV treatment facilities has been implemented. In the Netherlands, such an accreditation system was set up during the course of the present study (see also chapter 1.3). Based on our findings, and those of previous studies, we propose that accreditation programs always include a volume requirement (i.e. number of patients in care) for HIV treatment centres. Although there is ample evidence supporting the hypothesis that treating more patients with a specific condition increases expertise in a health facility, the question of which volume would qualify as a minimum, remains.

In the Netherlands, the minimum volume is 160 patients. In our study we observed an increased likelihood of receiving cART in treatment centres with more than 300 patients in care. However, there is not enough convincing additional evidence to support increasing the threshold to 300. Moreover, the outcomes retention in care and viral suppression were not associated with treatment centre size in our setting. We therefore recommend maintaining the current minimum volume requirement for HIV treatment centres in the Netherlands.

One of the essential components of quality improvement strategies, including accreditation, is the measurement and assessment of performance. Within the field of HIV, more than 200 indicators of performance have been developed. For the sake of comparability, healthcare professionals and researchers need to be consistent when defining their performance measures. We suggest using evidence based sources to select indicators, such as the systematic review by Catumbela et al. Other valuable sources include the set of measures developed by the WHO and the HIV/AIDS Bureau. In their review article on applying and developing clinical indicators, Wollersheim et al. propose using around 12 indicators, in order to secure feasibility.
Based on the essential components of outpatient HIV care that we introduced in chapter 1, we recommend to include at least the following measures of performance:

- Viral suppression (outcome measure)
- Loss to follow up and/or missed visits (outcome measure)
- cART coverage (percentage on cART: all patients and pregnant women in particular, process measure)
- Process measures related to HIV-associated diseases (e.g. rates of Pneumocystis jiroveci prophylaxis, influenza and hepatitis B vaccination, screening of tuberculosis, hepatitis B, hepatitis C and cervical cancer)
- Process measures related to non-HIV comorbidities (e.g. measurements of blood pressure, cholesterol and glucose)
- Screening for common mental disorders (process measure)

In addition, patient preferences and satisfaction should play an important role in the evaluation of quality of care. For this reason, we provided the participating treatment centres (i.e. all centres in the Netherlands) with their patient reported outcome results. Each treatment centre received a document in which the preferences and experiences of the participants in care in their treatment centre, and the national data (i.e. all respondents) as a benchmark, were presented. These data were suitable for use in the application for accreditation of HIV-specialised centres. Our results (chapter 5) suggest that issues of particular interest for patients are the provision of information (does it meet patients’ needs?), the attitude of the care provider, and confidentiality of the patients’ HIV status. With regard to measuring instruments, Land et al. provided an overview of methods for measuring patient satisfaction in HIV care delivery in a systematic review.\(^7\) The authors concluded that there is no gold standard, and findings were used to develop a validated questionnaire.\(^57\) As we conclude in chapter 6, there remains a need for a novel validated instrument to measure patient satisfaction in outpatient HIV care in the current treatment era.

A well-established monitoring system, such as the one in the Netherlands, can serve as an excellent facilitator for the performance of audits and feedback. In this nationwide database, information of all HIV-infected patients in care in the officially acknowledged HIV treatment centres are collected and maintained by the Stichting HIV Monitoring (SHM). This not only allows for centres to critically assess their own performance, but also provides the opportunity to benchmark performance against the national data. We argue that it is expedient to primarily use the performance data within treatment centres (for improvement of care delivery) rather than publish it for the general public (i.e. transparency) because the interpretation of these data often requires clinical knowledge.\(^58\) Moreover, failure to adjust for case mix may lead to treatment centres with complicated patient populations being labelled as poor performers, or to the selection of lower-risk patients by care providers.\(^59\) In addition, publicly releasing performance measures may push care providers to meet targets, rather than incorporating their clinical judgment and patient preferences into their decision making, thus resulting in inappropriate screening, medication use, or other measured items.\(^60, 61\)
Management of mental disorders

Common mental disorders and substance abuse occur frequently in people living with HIV. Common mental disorders and psychological distress not only compromise overall well-being and quality of life in HIV-infected patients, but also impact their ability to engage effectively with HIV care, including their adherence to cART. Therefore, addressing mental health should be an integral part of outpatient HIV care. Herein, it is crucial that HIV treatment teams aim to 1) detect common mental disorders as soon as possible; and 2) ensure that there is access to appropriate mental health care. To reach the first goal, care teams should clearly state their screening instrument and frequency of screening. In the Netherlands, the Dutch Association of HIV-treating physicians recommends using the European AIDS clinical guidelines for screening. These guidelines suggest screening every one or two years, using two questions (regarding feeling depressed and loss of interest in activities). However, the question of whether more frequent and perhaps a validated instrument could lead to earlier and more diagnoses of common mental disorders, remains. Future research, and at the very least a critical assessment of the mental health management policy by members of HIV care teams is needed to address this matter.

The second goal, namely ensuring access to psychological/psychiatric treatment where needed, can be reached through external referral or by integrating mental health care within the HIV outpatient care. An advantage of integrating mental health services is that it may increase access to services. Moreover, it can help reduce stigma by normalizing common mental disorders as complications of the chronic condition. We therefore suggest that members of HIV treatment teams evaluate whether the integration of mental health care within the treatment centre is feasible. If this is not the case, activities must be undertaken in order to maintain the expertise of the collaborating mental health professionals, such as education and the presence of the mental health professionals at multidisciplinary meetings.

Managing age-related non-communicable diseases (NCDs)

People living with HIV are at increased risk of developing a range of chronic non-HIV comorbidities, including cardiovascular disease (CVD), kidney disease, osteoporosis and diabetes. Due to ageing of this population, these chronic conditions will increasingly affect HIV-infected patients. Despite the acknowledgement that the prevention and management of NCDs is an essential component of HIV care, evidence suggests that in practise, it is often suboptimal. For instance, a recent and large study across European outpatient HIV clinics showed that clinics in Eastern Europe lagged behind other clinics in regard to screening for cardiovascular disease, tobacco use and alcohol consumption. Another study among HIV-infected outpatients in the USA found that performance on primary care measures (complete blood count, creatinine, and alanine transaminase/aspartate transaminase assessment) were deficient. There is, therefore, an urgent need to prioritize the incorporation of routine screening of NCDs in outpatient HIV care. In addition, integrating programmes such as diet, exercise, and smoking cessation interventions should be implemented in order to reduce the risks of NCDs among people with HIV and improve HIV treatment outcomes.
Beyond the scope of outpatient care delivery.

High quality outpatient HIV care plays an essential role in improving the outlook for people with HIV and in curbing the spread of HIV. However, without effective prevention and earlier diagnosis and linkage to care, the HIV pandemic will never be defeated. This section addresses how the people involved with the delivery of outpatient care can contribute to improving engagement in the phases of the HIV care continuum that occur before patients enter care. Before we discuss specific activities in this context, it is important to highlight that stigma and discrimination have historically played a major role in fuelling the HIV pandemic. Undeniably, there is a need for a collective and continued effort to eliminate barriers to HIV prevention and treatment services based on stigma, discrimination and punitive laws. HIV care professionals, given their knowledge, experience and familiarity with HIV, and perhaps the credibility associated with medical professions, are in a unique position to advocate for health equity in people with HIV.

Prevention

When outpatient care leads to sustained viral suppression, and includes prevention of mother-to-child transmission services, it inherently contributes to the reduction of new infections. However, additional activities that HIV care professionals can undertake to further halt the spread of HIV. For instance, they can implement interventions specifically aimed at increasing disclosure to sexual partners. In addition, new infections can be prevented by raising fellow medical professionals’ awareness of indications for, and use of post-exposure prophylaxis. Furthermore, HIV care professionals can be involved in shaping policy relating to public health interventions that reduce the risk of HIV transmission, such as maternal screening, harm reduction programs, pre-exposure prophylaxis and voluntary medical male circumcision.

Earlier detection of positive HIV status

Many HIV-infected people are unaware of their status and do not present for HIV testing until late in infection. These ‘late presenters’ have poorer outcomes and are less likely to take steps to prevent onward transmission to others. In Europe, the percentage of late presenters in Europe has not declined in the past few years. In the Netherlands, 44% of newly diagnosed patients in 2015 presented late for care (CD4 count <350/mm$^3$ or AIDS), and a striking 29% presented with advanced HIV disease (CD4 count <200 cells/mm$^3$ or AIDS). Furthermore, estimates suggest that more than 12–34% of HIV-infected persons in the Netherlands are unaware of their HIV-positive status. HIV care providers can contribute earlier diagnosis of HIV by training non-HIV specialists to improve their recognition of indicator diseases/symptoms and high risk populations. Other strategies to encourage earlier HIV diagnosis include partner testing, opt-out testing to all individuals who present at health facilities and interventions aimed at increasing disclosure to sexual partners.
Chapter 7. General discussion

Linkage to care
Studies have shown that delayed entry into care after HIV diagnosis is common and is associated with worse long-term outcomes.\textsuperscript{74-76} Moreover, there is evidence suggesting that shortening the time between diagnosis and linkage to care improves long-term engagement in care. HIV care teams can improve linkage to care by collaborating closely with the testing agencies (in the Netherlands: general practitioners (GPs) and specialised sexually transmitted infection (STI) centres); and by ensuring short waiting times for the first visit to the HIV treatment centre. In addition, systematically collecting data of people who are diagnosed and linking it to hospital data could help identify attrition and delayed entry in care after diagnosis.

Conclusion
Our results show that high levels of retention in care and viral suppression are achievable in settings with good access to outpatient HIV care and cART. We recommend applying a minimum volume criterion for HIV treatment centres, regulating measures to ensure that care providers gain and maintain expertise, and regularly measuring performance using uniform, evidence based indicators. There is a need to reassess whether mental health screening and treatment policies are sufficient in HIV treatment centres in the Netherlands. In addition to improving HIV outpatient care, HIV care professionals can play an important part in improving the engagement in earlier phases of the HIV Care continuum.
7.4. References

5. Landovitz RJ, Desmond KA, Gildner JL, Leibowitz AA. Quality of Care for HIV/AIDS and for Primary Prevention by HIV Specialists and Nonspecialists. AIDS Patient Care STDS 2016,30:395-408.


