

Analysis of the Dutch Preferentiebeleid

Drug Innovation writing assignment

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Abstract

This policy analysis provides an overview of the *preferentiebeleid* utilized in the Netherlands with the aim to become part of the World Health Organization's policy observatory database. The *preferentiebeleid* in the Netherlands implies that health insurance companies may determine which generic from a cluster of similar medicines will be reimbursed, which is referred to as the *preferent* generic and usually concerns the cheapest generic from a cluster. Additionally, pharmacists are to dispense the *preferent* generic whenever possible. This on literature and informal phone contact based analysis elucidates how the *preferentiebeleid* was created over time, presents intended as well as unintended effects of the policy 15 years after initial implementation, and compares the policy to generic pricing and reimbursement policies of other European countries. In conclusion, this analysis demonstrates that, where the *preferentiebeleid* succeeds in fulfilling its aim to lower generic prices in the Dutch market, it also causes unwanted drug switches for patients as well as increased drug shortages. Suggestions to alter the policy and circumvent these negative consequences, as suggested by stakeholders, are presented, including generalization of the *preferentiebeleid* and appointment of several *preferent* generics instead of just one.

Layman's summary

Generally speaking, medicines can be classified into those that are patented, meaning that they are protected and can only be sold under a specific name by a certain company, and those that are off-patent, meaning that various companies may produce medication with the same ingredients and therapeutic effect. Medicines from the latter category are referred to as generics. More often than not, generics are cheaper than patented medicines. For this reason it is in a country's best interest to try and increase the use of generics in their health care system. Additionally, countries always aim to lower prices of drugs and keep them low, which also goes for generics. For these reasons, various policies exist to regulate pricing and reimbursement of medicines, including generics. This analysis is focused on the Dutch policy in place for pricing and reimbursement of generics, which, in Dutch, is known as the *preferentiebeleid*.

In a nutshell, insurance companies in the Netherlands can use the *preferentiebeleid* to determine which specific generics from a group of similar medicines are reimbursed. To do so, insurance companies appoint the cheapest generics as *preferent*, and community pharmacists are to dispense these *preferent* generics to patients. Important to note is that each insurance company creates their own list of *preferent* generics, meaning that they all implement the *preferentiebeleid* in a different way.

This policy analysis describes how, after about 15 years of implementation of this policy, the *preferentiebeleid* was able to lower prices and increase the use of generics in the Netherlands. Unfortunately, it was also found that this policy had unintended, negative effects: increased drug shortages and frequent drug switches for patients. A stakeholder analysis showed that these unintended effects negatively affect stakeholders like pharmacists, as their workload is increased, and patients, as drug switches confuses, or even angers them.

In addition, this analysis compared the *preferentiebeleid* to other policies for pricing and reimbursement that are in place in European countries to see whether the Dutch policy would be implementable in other countries or if the Dutch can learn from the successes of other policies. Literature demonstrated that systems similar to the Dutch policy are also able to lower prices of generics and increase their use, but that these other countries suffer less from negative effects like increased drug shortages or medicine switches. Suggested adjustments for the *preferentiebeleid* based on successes from other countries include making several generics *preferent* instead of just one per group of similar medicines, and generalizing the *preferentiebeleid* for all patients regardless of their insurance company. Informal contact with a community pharmacist confirmed that these suggestions are in line with the wishes of pharmacists.

Overall, this policy analysis shows that the Dutch *preferentiebeleid* is successfully fulfilling its aim to lower generic prices and increase their use, but that it requires adjustments in order to be sustainable in the Netherlands as pharmacists and patients currently experience negative consequences of this policy.

List of abbreviations

API	Active pharmaceutical ingredient
BGMA	British Generic Manufacturers Association
EGA	European Generic Medicines Association
EU	European Union
CEE	Central and Eastern European
CPB	Centraal Planbureau
DDD	Defined daily dose
DMA	Danish Medicines Agency
GDP	Gross domestic product
GIP	Geneesmiddelen en hulpmiddelen Informatie Project
GVS	Geneesmiddelenvergoedingssysteem
KNMP	Koninklijke Nederlandse Maatschappij ter bevordering der Pharmacie
MEB	Medicines Evaluation Board
NA	Not applicable
NR	Not reported
RPS	Reference pricing system
SFK	Stichting Farmaceutische Kengetallen
UK	United Kingdom
WE	West European
WGP	Wet Geneesmiddelenprijzen
WHO	World Health Organization

Glossary

Branded medicine	Pharmaceutical product with a brand name provided and exclusively used by the manufacturer (1);
Claw back	A discount on the maximum medicine selling price set by pharmacists, used as means to provide price advantages for insurance companies and insured patients (2);
Defined daily dose	Theoretical quantity of a medicine needed for its main therapeutic aim to apply in an adult (3);
Generic	A medicine that is identical to an off-patent branded medicine in terms of active substance(s), strength and dosage form, but that may differ in inactive ingredients, name, appearance, and/or packaging (4);
List price	Maximum market price import and manufacturing companies may use for their products, as determined by the <i>Wet Geneesmiddelenprijzen</i> (2)
Medical necessity	Reason that physicians can use to prescribe medicines other than the <i>preferent</i> generic (5);
Patented medicine	Medicines with a title granted by public authorities that confers a temporary monopoly for the exploitation of an invention upon the person who reveals it, furnishes a sufficiently clear and full description of it, and claims this monopoly (1);
Preferentiebeleid	Policy allowing insurance companies to declare one -usually the cheapest- generic from a cluster of generic medicines <i>preferent</i> , meaning that only that generic will be reimbursed and therefore ought to be dispensed by pharmacists (6);
Reference price system	Maximum prices for medicines are based on reference medicine prices from other countries (7);
Stimulansregeling	Intervention introduced by the Dutch government allowing pharmacists to keep one third of the price difference between an expensive <i>spécialité</i> and a cheaper generic version of the same medicine when they provided patients with the cheaper generic as means to encourage dispensing of generics (8);
Tendering	Any formal and competitive procurement procedure through which offers are requested, received and evaluated for the procurement of goods, works or services, and as a consequence of which an award is made to the tenderer whose offer is the most advantageous (9);
Verstrekkingenbeleid	Dutch policy concerning division of responsibilities for provision of medicines (10);
Zorgverzekeringswet	The Dutch health insurance act (11).

1. Introduction

This report analyses the Dutch policy known as the *preferentiebeleid*, which was introduced in 2005 and allows health care insurers to determine which generic medicines will be covered for their clients. In practice, the policy results in reimbursement of the cheapest generics by insurance companies making use of this policy (12)(13). A generic in this refers to a medicine that is identical to an off-patent branded medicine (in Dutch: *spécialité*) in terms of active substance(s), strength and dosage form, but that may differ in inactive ingredients, name, appearance, and/or packaging (4). A company can only develop a generic medicine once the patent of the branded medicine with the same active substance and therapeutic aim has expired (14). As the *preferentiebeleid* only concerns generic medicines, this analysis does not consider patented medicines.

1.1 Setting

Prior to deep-diving into the *preferentiebeleid*, it is key to have somewhat of an understanding of the country where the policy is in place (i.e. the Netherlands), and of the market for generic medicines in that country.

The Netherlands is a country part of the European Union (EU) with 17.6 million inhabitants and a population density of 508 inhabitants per square kilometre (15). The life expectancy is 82 years at birth, the median age is estimated at 43.3 years old, and 92.5% of the population lives in urban areas (16)(17). In terms of health care, the expenditure reached a value of €6600,- per capita in 2020, resulting in a total health expenditure as share of gross domestic product (GDP) of 14.5% (18). The total health care costs in the Netherlands were approximately €48 billion in 2021, of which almost €5 billion went to pharmaceutical care, meaning that pharmaceutical expenditures covered roughly 10% of the total health expenditure (19). Basic health insurance coverage is mandatory in the Netherlands, but citizens are obliged to pay a deductible (in Dutch: *verplicht eigen risico*) -of €385,- in 2021- before medical costs are reimbursed, as was introduced in 2008 through the Health Insurance Act (in Dutch known as the *Zorgverzekeringswet*) (11). In 2022, there are 10 cooperations responsible for a total of 44 different health insurance labels in the Netherlands (an overview can be found in Appendix 1), of which the largest four cover 85% of the health insurance market (i.e. Achmea, CZ, Menzis and VGZ) (20). When it comes to pharmaceutical care, data from 2021 shows that there are 2005 public pharmacies in the Netherlands of which 599 are part of a chain (3). On average, the population number per public pharmacy in the Netherlands is 8100 (3). In terms of use of medicines, the number of defined daily doses (DDDs) per capita in 2020 was 546, in which one DDD refers to the theoretical quantity of a medicine needed for its main therapeutic aim to apply in an adult (3).

When it comes to the market for generics and patented medicines in the Netherlands, the Dutch database GIP (in Dutch short for: *Geneesmiddelen en hulpmiddelen Informatie Project*) presents data from 2017 of which an extract is shown in Table 1 (21)(22).

Table 1. Overview of the generics and specialties in the Dutch medicines market in 2017, adopted from the most recent, complete dataset available from GIP (21)(22). Abbreviations: NA, not applicable; NR, not reported.

	Market share (%)	Total market volume (DDD)	Volume per capita (DDD)	Total costs for reimbursement (€)	Average reimbursement per DDD (€)
Generics	68	5808 million	342	460 million	0,08
Spécialités	32	2639 million	155	2434 million	0,92

1.2 Relevance and methodology

Reasoning for conduct of this policy analysis comes from the aim of the World Health Organization (WHO) to create a policy observatory providing insights into various drug policies from all over the world as a means to share knowledge and experiences, and to serve as a tool for the creation of novel or adjusted policies. To do so, this report first presents the history and content of the *preferentiebeleid*,

whereafter its current status, intended and unintended effects, as well as the perception of various stakeholders is discussed. Hereafter, a comparison of the *preferentiebeleid* with similar policies from other European nations is made to determine whether the *preferentiebeleid* could be transferable to other countries. Finally, lessons learnt and future perspectives for the policy are presented. For the analysis, white, grey and academic literature was used. Furthermore, informal telephone contact took place with a community pharmacist and various customer service employees from different Dutch health insurance companies in order to enrich literature-based findings.

2. History and content of the *preferentiebeleid*

In this chapter, the situation prior to the introduction of the *preferentiebeleid* and an overview of the historic events leading up to the implementation of the -initially combined and later also individual- *preferentiebeleid* are presented. Furthermore, involved stakeholders and the direct consequences of the implementation of the *preferentiebeleid* on each of them is discussed.

2.1 Situation prior to the *preferentiebeleid*

Cash flows in the market of generic medicines in the Netherlands form a complex process involving several stakeholders: insured patients, insurance companies, pharmacies, wholesalers, import and manufacturing companies, and the government (2). Figure 1 shows cash flows occurring between the involved parties when dealing with prescribed medicines. As indicated by the arrows in the figure, insured patients pay a monthly premium to their insurance company in order to make use of the reimbursement scheme, and the insurance company will in return cover the costs of prescribed generic medicines picked up by patients at pharmacies. The Dutch government determines per medicine the maximum amount that is reimbursed by insurance companies in the basic health insurance scheme. This means that, when costs of medicines transcend this maximum, insured patients are sometimes obliged to a small financial contribution at pharmacies to cover the costs of their prescription (23). To be able to cover for the majority of prescription costs, insurance companies receive funding through government institutions. Pharmacies purchase generic medicines at wholesalers, who buy the medication from import or manufacturing companies (2).

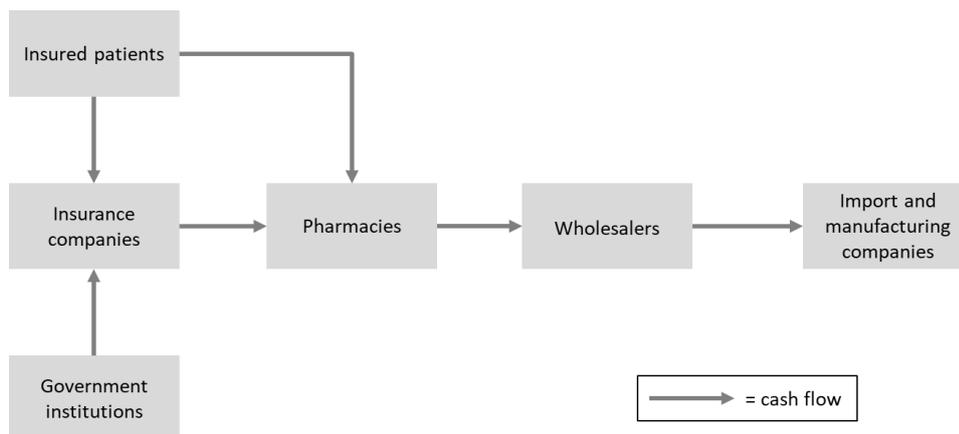


Figure 1. Cash flows between involved parties determining generics' pricing in the Netherlands. Figure adopted from Centraal Planbureau (CPB) report from 2008 (2).

Already prior to the *preferentiebeleid*, prices of generic medicines in the Netherlands were shaped by the *Geneesmiddelenvergoedingssysteem* (GVS) as established in 1991, which determines price limits for medicines that can be clustered based on their therapeutic effect (24). This system implies that once a generic medicine falls under a set price limit, it will be reimbursed (8). The GVS also establishes limits for the amount that will be reimbursed per cluster of medicines. Additionally, the *Wet Geneesmiddelenprijzen* (WGP) limits the prices import and manufacturing companies are allowed to set for generic medicines using a reference price system (RPS): maximum prices are based on reference medicine prices from four other European countries (i.e. Belgium, France, the United Kingdom (UK), and Norway (NB: Norway became one of the reference countries after October 1st 2019, prior to this it was Germany instead of Norway) (7))(25). Import and manufacturing companies are free to determine the purchase price pharmacists have to pay for their products, as long as the amount falls below the maximum as established by the WGP. This set market price is known as the 'list price' (in Dutch: *lijstprijis*) (2). In the late 90s, as soon as generic medicines fell under the price limit as

determined by the GVS, insured patients no longer had to worry about their prescription being reimbursed, creating incentive for pharmacies to be selective when deciding which generics to purchase from which import or manufacturing company (8). This position of choice for pharmacies caused import and manufacturing companies to present bonuses and discounts to pharmacies as means to try and enlarge their market shares (2). For this reason, the actual generics purchase prices for pharmacists fell below the officially established list price, as illustrated in Figure 2, and margin competition determined prices for generic medicines.



Figure 2. The actual price pharmacies in the Netherlands paid for generic medicines prior to the *preferentiebeleid* fell below the official list price, because of bonuses and discounts presented by import and manufacturing companies attempting to enlarge their market shares.

Several groups have researched and calculated the size of the bonuses and discounts, which is relatively difficult as experienced discounts differ per pharmacist (2). Nevertheless, in 2001 the bonuses and discounts were reported to result in an average purchase margin of 17% for pharmacists as they were estimated to comprise a total of €520 million for the whole country (26). In the years that followed this amount increased to €850 million in 2003 with an average purchase margin of 24%, and the prognosis at the time was for it to increase even more (up to €940 million in 2005 in case of no governmental interventions) (26). A study by ConQuaestor dating back to 2008 compared bonuses and discounts experienced by public pharmacies over time from 2004 to 2007, and concluded that purchase benefits in that time frame increased with 37% (27). Reasons for the increase of these bonuses and discounts include the margin competition between import and manufacturing companies as well as an increase in the total amount of medicines, for example through the patent expiration of high profit medicines resulting in large sales of their generic counterparts (26).

Apart from enjoying high purchase margins, pharmacists also received *receptregelvergoeding*, which is a compensation provided by the government to cover costs of services provided by pharmacies per delivered prescribed medicine (28). Taken all together, the bonuses and discounts caused by margin competition and a lack of price competition, as well as the *receptregelvergoeding* meant that in the early 2000s pharmacies were making high profits without this resulting in benefits for patients or insurance companies, and generic drug prices only increased (8).

2.2 Moving towards *preferentiebeleid*

In order to try and circumvent the issues associated with the margin competition effecting the Dutch generic medicine market in the early 2000s, several measures were taken, which -amongst others- led to the introduction of the *preferentiebeleid* by insurance companies. Figure 3 shows a timeline of some measures taken that led up to the introduction of the *preferentiebeleid*.

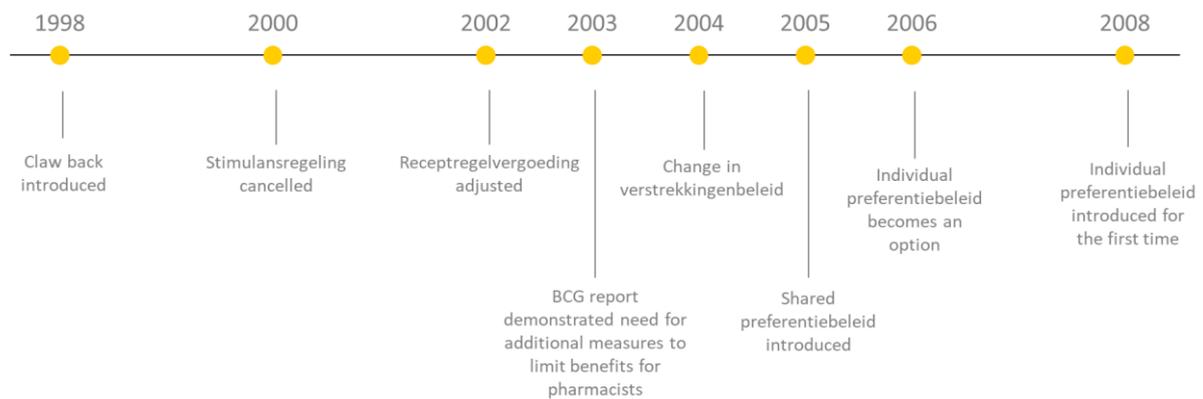


Figure 3. Timeline of interventions taken by the Dutch government that eventually lead up to the introduction of preferentiebeleid.

In 1988 the Dutch government introduced a so-called *stimulansregeling* with the aim to promote the delivery of cheaper generics by pharmacists instead of more expensive branded medicines. To do so, the *stimulansregeling* meant that pharmacists got to keep one third of the price difference between an expensive *spécialité* and a cheaper generic version of the same medicine when they provided patients with the cheaper generic (8). At first this seemed to have a positive effect on drug prices, but the in section 2.1 described margin competition meant that generic prices went up as this was the only way import and manufacturing companies could make ends meet whilst providing pharmacists with bonuses and discounts in the battle for market shares. For this reason the *stimulansregeling* was withdrawn in 2000 (8). As a means to force pharmacists to pass on some of their obtained benefits from bonuses and discounts, a ‘claw back’ was put in place providing price advantages for insurance companies and insured patients. The claw back represents a discount on the maximum selling price that pharmacists may ask for their medicines, which since 2000 is set at 6.82% of the *lijstprijis* (or a maximum of €6,80 (2)). On top of that, the *receptregelvergoeding* received by pharmacists to cover for their services was adjusted in 2002: from that moment on pharmacists had to use some of their obtained purchase benefits to cover for these costs instead of solely relying on government funding (8).

A report from the Boston Consulting Group from 2003 demonstrated that the above mentioned measures were not sufficient in trying to reduce benefits for pharmacists and to lower costs of generics in the Dutch market (26). This resulted in a profound desire of the government to provide insurance companies with a bigger role in controlling the generics market, which caused a change in *verstrekkingsbeleid*, a policy concerning division of responsibilities for provision of medicines (10). The adjusted *verstrekkingsbeleid* gave insurance companies the option to determine which specific registered generics could be provided to their insured patients (29). In 2005, five Dutch insurance companies (i.e., Agis, CZ, Menzis, Univé and VGZ) introduced a shared *preferentiebeleid* for three generic extramural medicines, meaning that their clients could only obtain reimbursement when provided with the preferred -and cheapest- generic version as appointed by the companies (30). Two other companies (i.e., OHRA and Delta Lloyd) joined this shared *preferentiebeleid* in early 2006 (2). With this new policy, insurance companies would determine their preferred generic version of a drug every six months, and they would base the decision on the list price of the generics, which could not be more than 5% of the lowest price within a cluster of generics (i.e., medicines with the same active substance). Once a generic drug was deemed *preferent*, its price was not allowed to rise until six months had passed and companies would re-evaluate the preferent generic (NB: in the time period that prices were not allowed to rise, they were allowed to decrease) (2).

In 2006 a new law called the *zorgverzekeringswet* was installed in the Netherlands, which enabled insurance companies to create an ‘individual’ *preferentiebeleid* (31). Insurance companies were now able to decide for themselves which medicines they would label as preferent within a group of generics with the same active substance. Important to distinguish that RPS -as introduced in section

2.1- is still used in the Netherlands to determine limits for prices of all generics, where the *preferentiebeleid* applies to groups of generics: insurance companies declare one -usually the cheapest- generic from a cluster *preferent*, meaning that only that generic will be reimbursed and therefore ought to be dispensed by pharmacists (6).

Only in 2008 did companies start to make use of the opportunity to implement individual *preferentiebeleid*. Several potential reasons for why implementation of the individual *preferentiebeleid* took a while have been drafted in literature: it took some time before insurance companies realized that through the *preferentiebeleid* they would be able to pressure import and manufacturing companies to lower prices of generics, the shared *preferentiebeleid* -as initiated in 2005- did not have a large effect on generics prices yet as some prices already fell within the margin that was required for a generic to be *preferent*, and insurance companies had doubts about the willingness of patients to switch medication in order to reduce costs (2)(32).

2.3 Direct consequences for stakeholders

The initiation of the individual *preferentiebeleid* in 2008 resulted in some direct consequences for the different stakeholders that were introduced in Figure 1. Table 2 shows an overview of a few of the main consequences as presented in literature (2)(8). Important to note that the cash flows between these stakeholders remained the same with the initiation of the *preferentiebeleid*, see section 2.1.

Table 2. Some of the direct consequences for the initiation of the *preferentiebeleid* per stakeholder group as presented in literature.

Stakeholder group	Prior to <i>preferentiebeleid</i>	During <i>preferentiebeleid</i>
Import or manufacturing companies	Forced to provide pharmacists with bonuses and discounts ↓ Product prices high to compensate for bonuses and discounts	Sales only realized if 'lijstprijis' makes products 'preferent' ↓ Product prices lowered; no longer have to offer bonuses and discounts
Pharmacists	Freedom to decide which generics to provide to patients ↓ Able to choose generics based on highest bonuses and discounts	Required to provide 'preferent' generics to patients ↓ Lost freedom to choose which generic to provide; loose profit from bonuses and discounts
Insurance companies	Must reimburse medicines with prices under GVS limit ↓ No influence on which generics pharmacists provide to patients	Freedom to choose which generic to make 'preferent' ↓ Determine which generics pharmacists provide to patients
Insured patients	Receive reimbursement for generics with prices under GVS limit ↓ No interest in involvement in which generic to receive	Will only receive 'preferent' generic medicines ↓ Prescription succumb to change each 6 months as different generic may become 'preferent'

As can be seen in Table 2, the main swift that occurred with implementation of the *preferentiebeleid* by insurance companies in the Netherlands was a change in control over which generic is provided to patients. Prior to the *preferentiebeleid* this choice was up to pharmacists, but after implementation of the policy the power to determine which generic is to be provided to patients now lies with insurance companies (2). This caused pharmacists to loose profits from bonuses and discounts offered by manufacturers, and meant that manufacturing companies had to lower their list prices in order for their products to be able to be *preferent*. Direct financial consequences for patients are minimal as their medicines will still be reimbursed regardless of the *preferentiebeleid* being in place or not.

3. Current status and perceptions of the *preferentiebeleid*

In this chapter the current utilization status of the *preferentiebeleid* is described, after which intended as well as unintended effects of the introduction of this policy will be discussed individually.

3.1 Current status of the *preferentiebeleid*

Of the ten cooperations responsible for all different health insurance labels present in the Netherlands, only three have not implemented some form of *preferentiebeleid* in their policies for 2022, meaning that the majority of insurance companies do currently utilize the *preferentiebeleid* (33). Table 3 shows the amount of generic medicines for which the seven cooperations that utilize the *preferentiebeleid* have determined *preferent* generics. NB: all health insurance labels that fall under a certain cooperation are bound to use the *preferentiebeleid* as implemented by that cooperation.

Table 3. Number of generic medicines for which the different Dutch health insurance cooperations have implemented the *preferentiebeleid* in 2022, based on data available on the website of each of these cooperations.

Insurance cooperation	Number of medicines for which <i>preferentiebeleid</i> is implemented ^a
Achmea	667
a.s.r.	640 ^b
CZ	590
ENO	639
Menzis	302
VGZ	639
Zorg en Zekerheid	639

^a Different packages or dosage forms of the same generic medicine are included in these numbers.

^b No 2022 data was yet available, therefore this number is an approximation based on the amount of medicines for which there was *preferentiebeleid* in 2021.

Apart from implementing *preferentiebeleid* for different amounts of generics, the number of times that each health insurance company switches *preferent* generics per year also differs: some only do so once a year whereas others might do it more often at various times throughout the year (20). This means that the practical execution of the policy in pharmacies differs per patient based on their health insurance company, as confirmed by a pharmacist during informal contact. In the past few years, insurance companies have more widely implemented the *preferentiebeleid* for a larger variety of medicines (e.g. with the addition of *preferentiebeleid* for asthma medication and biosimilar insulins (34)(35)). Moreover, the level of compliance with *preferentiebeleid* that insurance companies request from their contracted pharmacies is rising as, for example, a pharmacist shared how the cooperation called 'CZ' requested 80% compliance with their *preferentiebeleid* from their contracted pharmacies in 2021, and this percentage is expected to be higher for 2022. The Dutch institution *Stichting Farmaceutische Kengetallen* (SFK) presented data reflecting this statement as on average public pharmacies were found to reach 88% compliance with the *preferentiebeleid* in 2021 compared to 84% in 2019 (36). This means that patients are faced with the *preferentiebeleid* more often: pharmacists present them with *preferent* generics that might frequently change. An exception to this is when medical necessity (in Dutch: *Medische Noodzaak*) is used by physicians as reason to prescribe medicines other than the *preferent* generic. From the introduction of the *preferentiebeleid* physicians are able to use medical necessity to diverse from the *preferentiebeleid*, and in those instances pharmacists can provide patients with the drug indicated by the physician rather than with the *preferent* generic. Reimbursement in the case of diversion of a *preferent* generic depends on the terms and conditions enforced by the patient's insurance company (5). Unfortunately, after more than a decade of the *preferentiebeleid*, there is unclarity about the extent in which medical necessity has been used by physicians and for what reasons (37). Furthermore, the role of pharmacists in this arrangement has not been studied, whereas a pharmacist shared during informal contact that the responsibility of

judging and deciding whether medical necessity applies often lies with pharmacists, as is -for example- confirmed on the website of health insurance cooperation CZ (38).

When the *preferentiebeleid* was introduced by insurance companies in the mid-2000s, the main aim was -as described in section 2.2- to circumvent margin competition and lower prices of generic medicines. According to the Dutch minister of Medical Care (in Dutch: *Minister voor Medische Zorg*) in 2018, the *preferentiebeleid*, amongst others, was an effective measure for this purpose as prices of generics have decreased since the introduction of this policy (39). Where this was a positive outcome for the indented effect, there are also unintended effects caused by the introduction of the *preferentiebeleid*, affecting various stakeholders. These unintended effects include increased medicine shortages and more frequent medicine switches for patients. In the following sections each of these effects will be discussed in more detail.

3.2 Prices of generic medicines

According to data provided by SFK, the *preferentiebeleid* -in combination with other measures such as introduction of a claw back, changes in the law for medicine prices- is responsible for a reduction of extramural prescription medicine prices of over 60% since 1996 (3). A report from Berenschot presented in 2018 stated that the *preferentiebeleid* causes prices of generics to go down until 18 to 24 months after their market introduction, as visible in Figure 4, whereafter the price stabilizes, which -in combination with an increased use of generics, as shown in Figure 5- decreased the Dutch pharmaceutical health expenditure with roughly 2.9% each year in the period 2009 until 2019 (40).

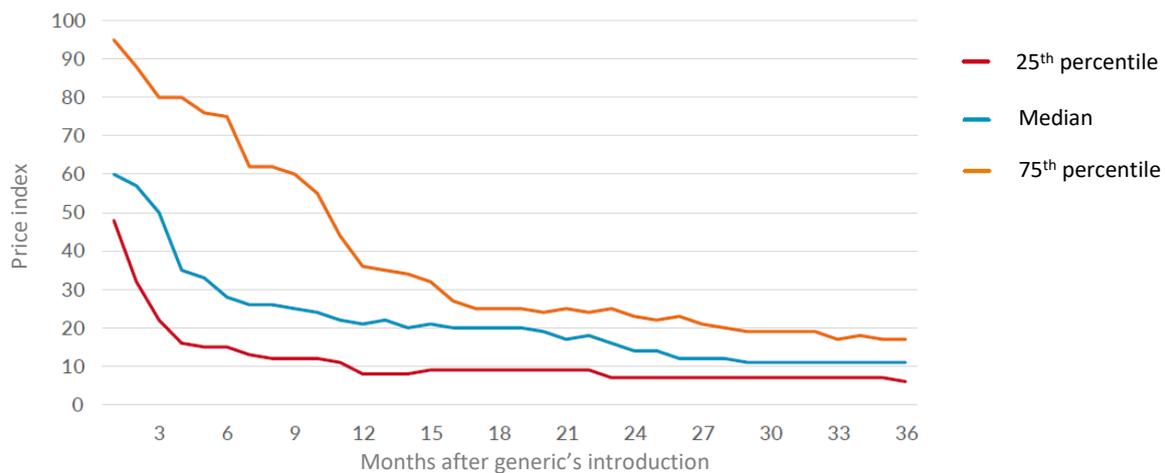


Figure 4. Generic prices go down until 18 to 24 months after their market introduction, whereafter they stabilize. Adopted from KNMP (41).

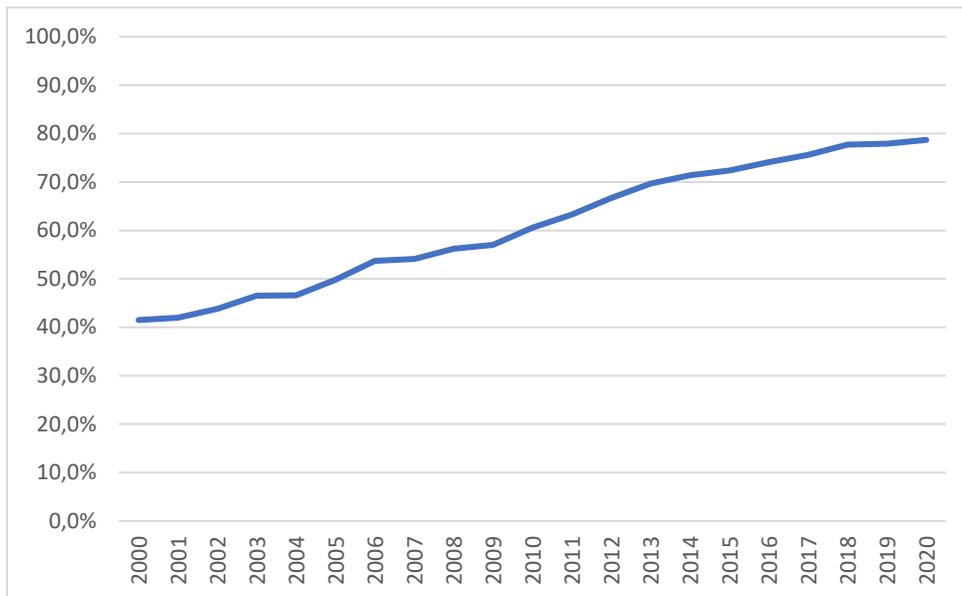


Figure 5. Overview of percentage of total amount of prescription drugs provided by pharmacists that is generic over time. Based on information provided in annual reports from 2000 until 2020 by SFK.

Moreover, data from the Dutch GIP (*Geneesmiddelen en hulpmiddelen Informatie Project*) database demonstrates how costs for reimbursement of *preferent* medicines compared to *not-preferent* medicines have decreased and remained low since the introduction of the *preferentiebeleid*, as can be seen in Figure 6 (21). Specifically, the reimbursement prices for *preferent* generics per DDD went down from €0,30 in 2008 to €0,07 in 2017.

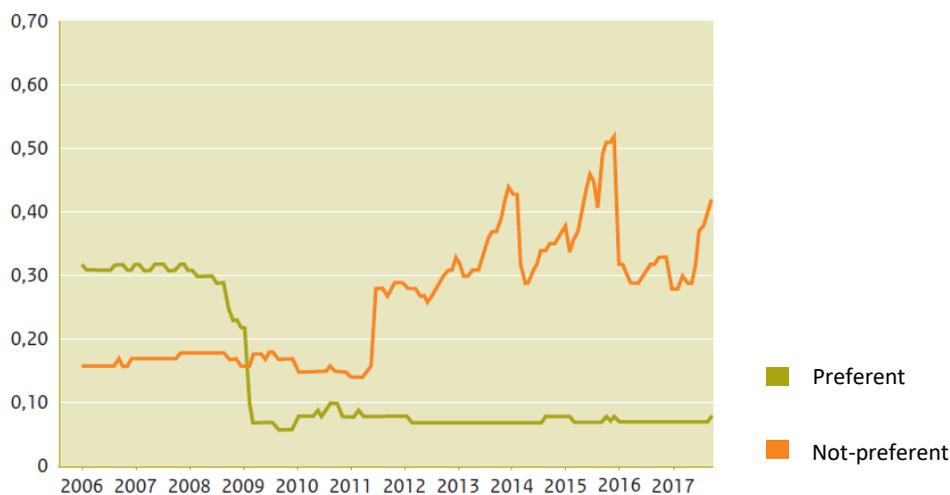


Figure 6. Reimbursement costs (1 = 1 EURO) per DDD for generic medicines and *spécialités* over time, adopted from a report from GIPeilingen (21).

Interestingly, data from SFK regarding the share of generics' costs in the total pharmaceutical expenditure of the Netherlands over time shows that the costs for generics remained roughly around the same level, as can be seen in Figure 7. This aligns with the situation where generic prices went down, whilst the use of generics went up, but also shows how costs of branded medicines have remained high, and might have even increased as branded medicines were swapped for generics whilst the share of costs that goes to branded medicines remained high (3). One could argue that, although generic prices decreased, this might not be able to compensate for the continuously increasing prices of branded medicines.

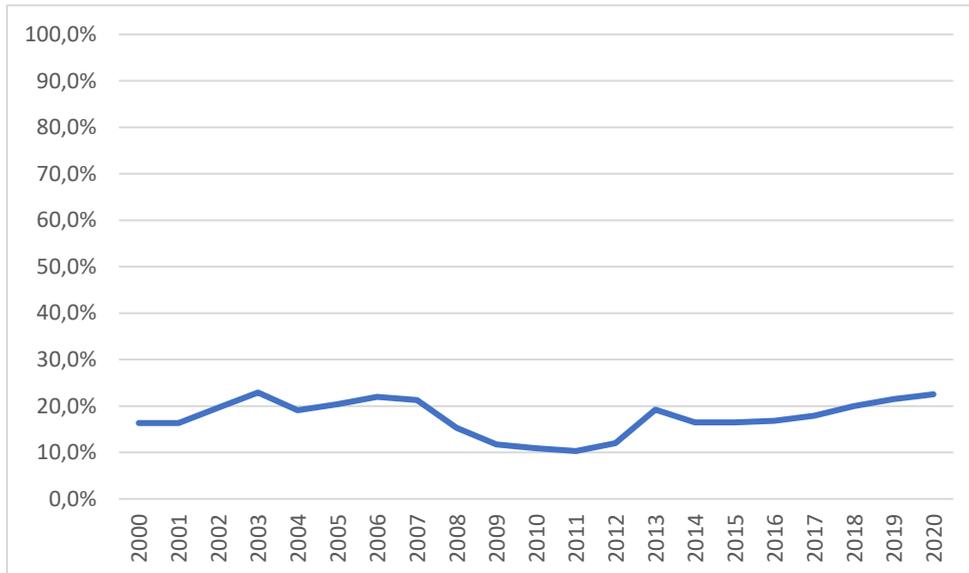


Figure 7. Overview of percentage of total amount of costs for medicines in the Dutch market that is caused by generic medicines. Based on information provided in annual reports from 2000 until 2020 by SFK.

The aim of the *preferentiebeleid* was to lower costs by lowering generic prices and promoting use of cheaper generics over expensive branded medicines, and above presented data demonstrates that the policy succeeded in obtaining this intended effect on the medicine market in the Netherlands. Where political figures such as the minister of health as well as insurance companies are proud of this positive outcome of the policy, pharmacists as well as patient advocacy groups see a problem with pushing the provision of the cheapest generics as they state that this -unintendedly- could negatively affect quality of medicines used by patients (42). More details on this unintended effect of the *preferentiebeleid* are shared the section 3.4.1. Furthermore, one could argue that, although generic prices decreased, this is not enough to compensate for the continuously increasing prices of branded medicines, stressing the need for additional measures to lower branded medicine prices in order to decrease pharmaceutical health expenditure in the Netherlands.

3.3 Availability of generic medicines

3.3.1 *Preferentiebeleid's* relation to medicine shortages

Research by the Royal Dutch Pharmacists Association (in Dutch: *Koninklijke Nederlandse Maatschappij ter bevordering der Pharmacie (KNMP)*) shows that the Netherlands has been facing a problem with shortages of medicines for a while already, as is visible in Figure 8 (43).

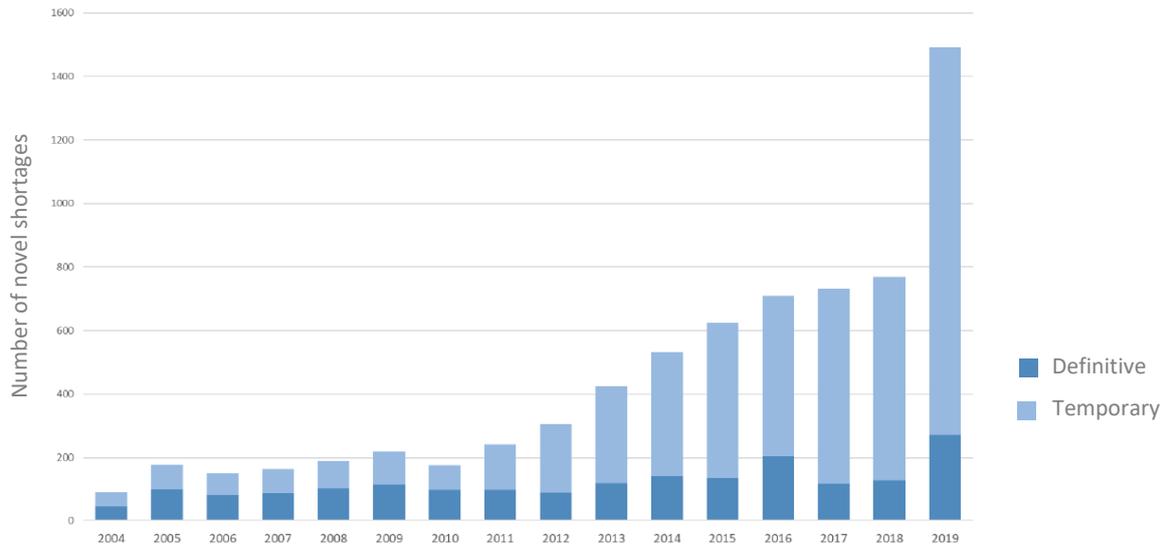


Figure 8. Dutch medicine shortages over time, adopted from KNMP (43).

Specifically, KNMP reported how in 2012 shortage of medicines rose significantly, and appointed the *preferentiebeleid* as driving force behind the increased shortages (43). A different study, conducted by advisory group Berenschot in 2018, presented the same conclusion of the *preferentiebeleid* causing shortages of medicines, and demonstrated how shortages occur particularly for those medicines that are part of the *preferentiebeleid* (40). A reason for this unintended effect of the *preferentiebeleid* was already drafted by SFK in 2012 as they described how low prices of medicines in the Netherlands take away financial incentive for manufacturers to be part of the Dutch market, resulting in disruptions, shortages or -when volumes are low- even discontinuations in the supply of medicines (44). In this, it is important to be aware that individual stakeholders utilize different definitions of medicine shortages, as shown in Table 4.

Table 4. Definitions for medicine shortages as utilized by different stakeholders, adopted from Berenschot (2018) (40).

Stakeholder	Medicine shortage definition
Insurance company	When preferent and other medicines from the same cluster of generics are not available (in the entire country)
Pharmacist	When a specific dosage form of a registered product is no longer available in a pharmacy ^a
Manufacturer	When no single packaging or dosage form of a specific, registered product can be delivered to pharmacies

^a NB: implies that if specific packaging is unavailable, but other packages of the same product are available, this is still considered a shortage

Applying the pharmacist's definition of a drug shortage, the IMS Institute for Healthcare Informatics presented that in 2014 about 4% of *preferent* products was not available in pharmacies when they were supposed to be dispensed, causing around €60 million in additional labour costs to deal with these shortages (45). These costs reflect additional work for pharmacists who attempt to provide patients with alternative medicines, and for physicians, as pauses in medicinal care or drug switches often result in patients requiring additional care (43). According to a Dutch newspaper referring to KNMP data, this percentage has been rising significantly over the past years and is expected to increase more in the upcoming years (46).

Moreover, when shortages arise for *preferent* drugs with a large market share, chances are that alternatives with a smaller market share are unable to fill the gap, thus creating a domino-effect enlarging the drug shortage problem when alternatives start to run out (43). This effect is enhanced by the urge of pharmacists to minimize their stocked medicines in combination with the fact that refills

might take several months, as sudden volume increases are not accounted for. This urge to limit stock is augmented by the frequent switches of *preferent* medicines as this can cause pharmacies to be stuck with excessive stock of a generic that used to be *preferent*, inevitably leading to waste and loss of money for the pharmacist (40). Paradoxically, this means that where *preferentiebeleid* can be appointed as cause for drug shortages in the Netherlands, it can, at the same time, be causing additional spillages in pharmacies (47).

Interestingly, where pharmacists, wholesalers and manufacturing companies acknowledge that the *preferentiebeleid* is likely one of the key causes of increased medicine shortages in the Netherlands, insurance companies state that medicines shortages are a broader problem also experienced in other countries where there is no *preferentiebeleid*. Instead they emphasize how the *preferentiebeleid* led to savings and improvement of sustainability within the Dutch health care market (48). In contrast, however, manufacturing companies have explicitly stated that *preferentiebeleid* has been a reason for them to restock the Netherlands generic drug supply lastly as prices are so low making it financially unattractive to them, suggesting the opposite of what insurance companies state (49).

3.3.1 Dealing with shortages of preferent medicines

Various attempts to deal with medicine shortages have been conducted by different stakeholders, for instance in the end of 2013 when a working group was created by the government to research medicine shortages in the Netherlands as they were increasing. This working group -in Dutch referred to as the *Werkgroep Geneesmiddelen tekorten*- presented a set of roughly 20 measures to prevent medicine shortages and to deal with shortages in case they do emerge (40). Two of the measures directly concerned the *preferentiebeleid*, i.e. insurance companies should arrange delivery assurances with manufacturing companies particularly when it comes to *preferent* generics, and insurance companies' should make earlier announcements of which generics will be listed as *preferent* in the next year (50). In 2018, the Dutch National Institute for Public Health (known as the RIVM) evaluated the outcomes of these measures, but concluded that effects were difficult to determine as various insurance companies implement the *preferentiebeleid*-related measures in different ways (48). Given that shortages are still increasing -as was already shown in Figure 8- positive effect of the measures presented by the working group is indeed questionable.

Additionally, in 2016 the KNMP in collaboration with SFK suggested alterations of the *preferentiebeleid* as means to assure *preferent* medicine supply, thereby preventing shortages. Specifically, they proposed to have insurance companies appoint four or five *preferent* generics per cluster instead of one (41). Unfortunately, no literature reflecting on implementation of this proposed adjustment has been found, suggesting that the *preferentiebeleid* has remained unchanged. This hypothesis was confirmed by a pharmacist during informal contact.

Lastly, based on their websites and informal telephone contact, each health insurance cooperation has their own way of dealing with medicine provision when shortages of *preferent* generics arise in the Dutch market. When asked about this during informal telephone contact, all companies stated how pharmacists may provide patients with alternative generics in case of shortages. Consequences of this for both insured patients as well as for pharmacists were unclear, except for cooperations *a.s.r.* and *Zorg en Zekerheid*, who explicitly stated that deviation from the by them defined *preferent* generics results in insured patients having to pay a deductible. In contrast, customer service employees shared that when the *preferent* generic is available, patients might not have to pay a deductible, depending on the specific terms and conditions of their insurance plan. Whether forced deviation from defined *generics* as result of shortages has financial ramifications for pharmacists remained vague. Interestingly, during informal contact, a community pharmacist confirmed how medicine shortages cause -because of this vagueness- distortions in declarations and reimbursements of insurance companies, affecting both patients and pharmacists. A complete overview of information provided during informal contact with all seven Dutch health insurance cooperations using the *preferentiebeleid* can be found in Appendix 2.

3.4 Generic switching

In December 2020, the at that time Dutch Minister of Medical Care, Tamara van Ark, wrote a letter to parliament stating how on an annual basis over 9 million drug switches occur in the Dutch health care system, and appointed the *preferentiebeleid* as one of the main causes for this frequent switching (51). This aligns with a report from the Dutch Pharmacovigilance Centre Lareb stating that -based on reporting by patients- most drug switches in the Netherlands are caused by the *preferentiebeleid* (52), and builds on SFK data from 2016, which already demonstrated how at that time over 1.5 million patients were forced to switch at least one *preferent* generic that year (41). This unintended effect of the *preferentiebeleid* has a negative impact on patients and results in a higher workload for pharmacists as will be discussed in the following sub-sections.

3.4.1 Effect of generic switching on patients

In 2017 a collaborating group of patient advocacy groups wrote a letter to the Dutch parliament urging to put a stop to drug switches for non-medical reasons like adjustments in the *preferentiebeleid*. Various negative effects of generic switching for patients were listed, including potential need for additional medical care for patients as dosage forms might differ, requiring additional check-ups by physicians, and loss of pluriformity of medicinal options, which may become particularly problematic when patients, for example, are allergic to specific excipients (42). Similar arguments against frequent drug switches were presented in literature and by the Diabetes Federation in 2021 based on their negative experiences with biosimilar insulins becoming part of the *preferentiebeleid* in 2016 (53)(54). Furthermore, Gupta Strategists presented in a report from 2019 how the negative perception that patients have of 'cheaper' generic medicines may cause a so-called 'nocebo' which can result in loss of the aimed therapeutical effect of the drug, whilst increasing the chance of side-effects to occur (55). This finding aligns with a Nivel report from 2015 which already stressed how patient's confusion created by frequent drug switches results in wrong use of medication and increased experiences of side effects (56). Finally, the Dutch Medicines Evaluation Board (MEB) describes how patient's misunderstanding caused by frequent drug changes can lead to decreased adherence to medication schemes and wrong intake of medicines, which can lead to sick leave or -in the worst case- to hospitalization (57). This is compatible with literature suggesting links between drug switches and adverse drug reactions as well as increased health care utilization (58). It is important to realise that these negative effects on patients can arise from any type of drug switch, be it from a branded medicine to a generic medicine or from one type of generic medicine to another. Therefore the above mentioned stakeholders stress the general need to limit any type of non-medical drug switching (42)(59).

3.4.2 Effect of generic switching on pharmacists

Creation of additional workload for pharmacists was found to be another unintended effect of implementation of the *preferentiebeleid*. According to Dutch pharmacist Peter de Haan, frequent changes in list of *preferent* medicines results in added complex administrative work for pharmacists as each health insurance cooperation appoints different generics as *preferent* and changes implementation of the *preferentiebeleid* at other time intervals. In addition, this frequent switching can also lead to pharmacists having to deal with more drug spillages, as was already touched on in section 3.3.1 (47). Furthermore, as prices of generics are low and manufacturers tend to leave the Dutch market, pharmacists are forced to import generics from other European countries in order to provide to their patients and comply with the *preferentiebeleid* of different health insurance companies. The above described activities are examples of tasks forcing pharmacists to deviate from providing pharmaceutical service to patients, whereas this should be their principle task as stated by Jeroen van de Pol in a pharmaceutical magazine (60). This aligns with a study from 2019 in which pharmacists were questioned about prioritization of their tasks, as the majority of included

pharmacists indicated provision of pharmaceutical services for patients as most important, whilst giving the less priority to administrative, logistical or management related pharmacy tasks (61).

On top of that, community pharmacist Peter de Haan stated in his opinion piece from 2019 how pharmacists have to spend more time explaining to patients how the *preferentiebeleid* of their health insurance company results in generic switches (47). Such drug switches are responsible for confusion amongst patients, which frequently causes pharmacists having to deal with agitated or angry patients in their pharmacies. As these encounters can result in -sometimes physical- abusive situations, Dutch pharmacists expressed their dissatisfaction with the system during a protest in 2019, and requested acknowledgement of the fact that patients blame pharmacists for frequent drug switches, whereas the implemented *preferentiebeleid* of insurance companies is to blame, in which pharmacists do not have a say (62). During informal contact with a Dutch community pharmacist, these negative consequences of generic switches caused by the *preferentiebeleid* were confirmed. Moreover, this community pharmacist emphasized how the *preferentiebeleid* puts pharmacists in an awkward position in between patients and their insurance company, as is illustrated in Figure 9. This position gets particularly uncomfortable for pharmacists in case of shortages of *preferent* generics as patients might get fed up and express feelings of anger towards pharmacists, or as this could lead to financial consequences for pharmacists as they fail to comply with the *preferentiebeleid* of insurance companies (62). According to the community pharmacist, this is not a maintainable situation as it decreases job satisfaction for pharmacists. This was confirmed by Peter de Haan, who wrote how community pharmacists switch jobs to, for instance, become hospital pharmacists, because they were tired of dealing with angry patients in community pharmacies as consequence of the *preferentiebeleid* (47).

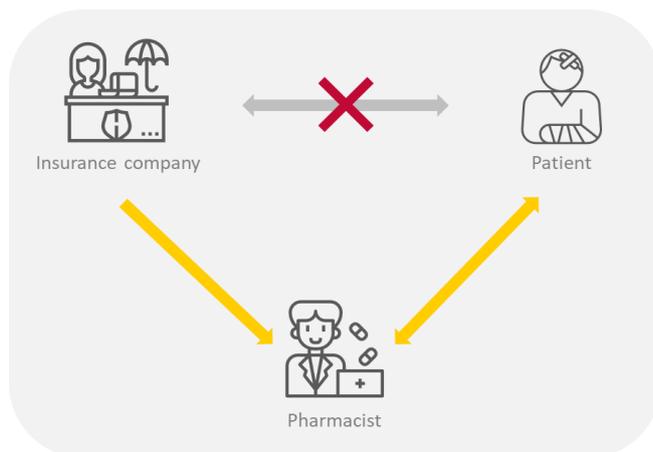


Figure 9. Pharmacists are put in an awkward position in between insurance companies and patients: pharmacists communicate the by insurance companies imposed *preferentiebeleid* to patients, who in turn ask questions or express disagreement about the system to pharmacists, where no direct contact about this occurs between insurance companies and pharmacists. Illustration based on informal contact with a community pharmacist.

4. Comparison and transferability to other European countries

According to an IQVIA report from 2022, the global medicine market is expected to grow in the upcoming years, and competition between patented, branded medicines and generics (and biosimilars) will continue to be the main factor influencing medicine spending in developed countries (63). For this reason, it is valuable to investigate successes and failures of policies aimed to lower pharmaceutical expenditure in order to have countries learn from each other and move towards more sustainable healthcare system solutions (64). Therefore, this chapter compares the *preferentiebeleid* with similar as well as completely different policies from other European nations, and comments on potential transferability of the *preferentiebeleid* to other countries.

4.1 Comparing the *preferentiebeleid* to other European generic pricing policies

Three different ways of off-patent medicine regulation in Europe have been observed by IQVIA, i.e. regulation of reimbursed price for off-patent medicines relative to price of the original brand prior to patent expiration, market prices used to define maximum reimbursement amount for off-patent medicines, and off-patent medicine prices based on a tendering-like system (45). In the latter, tendering is defined as follows, according to the WHO: “any formal and competitive procurement procedure through which offers are requested, received and evaluated for the procurement of goods, works or services, and as a consequence of which an award is made to the tenderer whose offer is the most advantageous” (9). The Dutch *preferentiebeleid* is an example of a tendering-like system for generic price regulation, and four other European countries have been identified also using tendering-like policies, i.e. Denmark, Germany, Hungary and Sweden (45). Countries relating reimbursement price for off-patent medicine to price of the original brand include France and Norway, and an example of a country where the reimbursement amount is set based on market prices is the UK. An overview of pharmaceutical market information and a summarized comparison of characteristics of the generic pricing and reimbursement system of these countries can be found in Table 5. Each of their policies is briefly elaborated and compared to the *preferentiebeleid* in the follow sub-sections. NB: due to time constraints, the information provided for each of the countries involved in the comparison below is limited, particularly when compared to the information provided about the *preferentiebeleid* in prior chapters of this analysis.

Table 5. Comparison of pharmaceutical market in EU countries and their generic pricing and reimbursement systems. Abbreviation: NA, not applicable.

Country	Netherlands	Denmark	France	Germany	Hungary	Norway	Sweden	United Kingdom
Health expenditure in % of GDP (in 2020) ^a	14.5%	10.6%	11.2% ^c	12.5%	6.4% ^d	11.3%	11.4%	12.8%
Pharmaceutical market value (in 2018) ^b	€5,358 mln	€2,807 mln	€28,897 mln	€38,531 mln	€2,437 mln	€2,416 mln	€4,137 mln	€21,151 mln
Tendering-like system?	✓	✓	✗	✓	✓	✗	✓	✗
Obligatory generic substitution?	✓	✓	✗	✓	✗	✗	✓	✗
Can patients deny generic substitute?	✗	✗	NA	✓	✓	✓	✓	NA
How frequently is cheapest generic determined?	Several times per year	Every two weeks	NA	NA	NA	NA	Every month	NA

^a Data obtained from Statista webpages.

^b Data obtained from 2020 EFPIA report (65).

^c This percentage is from 2018 as 2020 data from France was not yet available on Statista.

^d This percentage is from 2019 as 2020 data from Hungary was not yet available on Statista.

4.1.1 Denmark

From 1993, a RPS has been in place in Denmark, similarly to the system known in the Netherlands. However, in Denmark, through international price referencing one pharmacy price is determined every fortnight for each group of equivalent medicines, as defined by the Danish Medicines Agency (DMA). An in literature reported disadvantage of this system is the administrative burden caused by the switch

in price fixes every two weeks, and it also enlarges the chance of frequent drug switches for patients (66).

Apart from the fixed prices, generic substitution is obligatory for pharmacists, forcing them to dispense the cheapest available generic from each group of medicines (67). At the same time, free price formation is in place for manufacturing and importing companies, meaning that the prices set by manufacturing and importing companies impact the fixed pharmacy prices and that the DMA has no influence on these prices (68). Because of this, free competition in a competitive generic market is enforced, which -in combination with the obligatory generic substitution resulting in high generic consumption- means that Denmark is amongst the countries with the lowest generic prices in the EU (69). This system is similar to the situation in the Netherlands prior to implementation of the *preferentiebeleid*. However, where high discounts and bonuses offered to pharmacists became an issue in the Netherlands, Denmark has a policy in place preventing this. Specifically, wholesalers are allowed to offer discounts to pharmacists, but only cost-related discounts, and pharmacists have to pass on 50% of the obtained discounts on to their customers. Profits of companies are not regulated, but because of the price competition in place due to the RPS, their profits are indirectly influenced (67).

When comparing the Danish RPS to the Dutch *preferentiebeleid*, both systems appear to succeed in keeping prices of generics low and result in high generic use. Moreover, the same risk of medicine shortages emerges in both systems. In contrast, however, where shortages and unavailability of medicines is an acknowledged problem in the Netherlands, this does not (yet) apply to Denmark as -according to the DMA- unavailability of medicines is a rare occasion, regardless of some existing supply chain issues (70).

4.1.2 France

Research by IMS Health presented how it is most common in European markets to base generic pricing and reimbursement on prices of the original brand before patent expiration, which accounts -amongst others- for France (45). Specifically, in the French system prices of generics are to be set at least 60% below the price of the branded medicine of which the patent expired in order for them to be reimbursed, and these prices are cut more 18 months after patent expiration (71). This percentage below the original branded medicine as means to regulate generic pricing is contrasting with the *preferentiebeleid*, where external price referencing is used instead (72). Interestingly, research from 2017 stated that in terms of generic drug prices, France has one of the highest prices when compared to six other European countries (i.e., Belgium, Denmark, Germany, Italy, Spain and Sweden)(73). Literature suggests that, whilst referencing to the price of the off-patent original drug can lower generic prices to a certain extent, this does not create price competition between manufacturers, meaning that prices will not continue to decrease (74). In contrast, tendering-like systems such as in the Netherlands do force manufacturers to compete, resulting in lower prices compared to in the French system (75).

Another issue the French system dealt with was a reluctant attitude of physicians towards prescription of generics. Reasons for this behaviour include, amongst others, doubts about generic quality and lobbying of companies producing branded medicines (71). In order to encourage use of generics, physicians are stimulated to offer generic medicines as medicines will be reimbursed at the prices of their cheapest generic version. Up until 2020, whenever generic substitution was not favoured by patients, this could be indicated by physicians through specification of 'non substitutable' (in French: *non substituable*) on prescriptions, resulting in patients receiving their desired alternative without demonstrating medical need for this decision and without financial consequences for patients. From January 2020 on, however, this regulation changed, and currently branded medicines will be reimbursed at the price of their cheapest generic version when patients deny generic substitution, meaning that patients have to cover costs of the difference between the branded and cheapest generic medicine. An exception to this is when a physician states medical need for denial of generic

substitution, which is similar to the medical necessity regulation that is part of the *preferentiebeleid* (76).

4.1.3 Germany

In 1989, Germany was the first European country to introduce a RPS (77). Just like Denmark, Germany uses free pricing at market entry in combination with maximum reimbursement prices for groups of equivalent pharmaceuticals. Furthermore, through tendering for generics, German policy aims to ensure efficient use of resources and accessibility of medicines throughout the country (78). On top of this, legislation requires manufacturers to grant a rebate to health insurance companies equalling any price increase compared to August 1st 2009 (78). Already in 2013, it was stated in literature that Germany has a matured generics market as generics have been on the market since 1974 and their market share is exceeding 40% since 2008 (79). Furthermore, there is generic substitution regulation in place -in German known as the *Aut-Idem Regelung*-, meaning that pharmacists must dispense the cheapest generic to patients unless physicians request a specific generic or branded medicine on a prescription (80).

Currently, a growing problem that the pharmaceutical market in Germany is dealing with concerns supply shortages. Where Germany holds a high number of generic manufacturers -the Federal Statistical Office reported 580 pharmaceutical companies in 2019 (81)-, production of active pharmaceutical ingredients (APIs) used in these manufacturing companies is transferred to cheaper markets such as in Asia. Main reason for this reliance on low-cost production markets as means to remain profitable is the downward price pressure created by the German price regulations (82). This dependence on, for instance, Asian markets for supply of APIs makes pharmaceutical manufacturers vulnerable by presenting the risk of unintended medicine shortages, similarly to one of the unintended effects of the *preferentiebeleid* in the Netherlands (83).

In contrast to the *preferentiebeleid*, where pharmacists are forced to dispense *preferent* medicines only, resulting in -often undesired- drug switches, the German system allows pharmacists to refuse generic substitution through application of 'pharmaceuticals concern' as means to prevent compromised medication adherence and safety issues associated with patients facing frequent drug switching (84).

4.1.4 Hungary

Hungary is a Central and Eastern European (CEE) country with a tendering-like generic price and reimbursement system in place. Compared to West European (WE) countries -like the other countries included in this analysis-, CEE countries' health care expenditure on pharmaceuticals tends to be higher than WE countries as health services are cheaper in CEE countries, but prices for innovative drugs remain as high as in WE countries (85). Specifically, prices of medicines in Hungary are amongst the highest compared to other CEE countries (86).

Just like in the Netherlands, price referencing is used for generics, meaning that generics with the same active compound or the same therapeutic effect are considered equal in terms of reimbursement. The cheapest generic in such a group is considered as reference and the size of the price differences are between the reference drug and other generics determines the percentage that is reimbursed. Whenever the price difference is less than 15%, the same amount will be reimbursed, which caused generic prices to decline. Additionally, in 2011 a blind bidding procedure was introduced in which manufacturing companies may submit a price reduction every six months without learning what the competition is submitting. Whereas this made the reimbursement system more complex, this measure successfully contributed to Hungary's efforts to lower prices of generics (85).

A disadvantages of the Hungarian system, however, is that physicians are not required to prescribe generics. In combination with particularities within the reimbursement system creating incentive for physicians to cooperate with pharmaceutical companies, this means that generics are infrequently prescribed (87). Furthermore, literature reports how lack of knowledge about generics and pharmacists suspicion towards generics are also factors complicating the establishment of a

market for generics in Hungary (87). This demonstrates that, compared to the Netherlands and its *preferentiebeleid*, one could state that Hungary is behind in terms of creating a healthy, sustainable health care system.

4.1.5 Norway

Like France, Norway is an example of a country where reimbursement prices for generics are related to the price of the branded medicine prior to patent expiration. Since 2005, Norway utilizes a stepped price model (in Norwegian known as *trinnpris*) in which generic prices are reduced by specific percentages upon various time intervals after patent expiration (88). Concretely, prices are dropped three times by Norwegian authorities, which 18 months after patent expiration results in a maximum price that is 69% to 90% lower than the price at time of patent expiration, as illustrated in Figure 10.

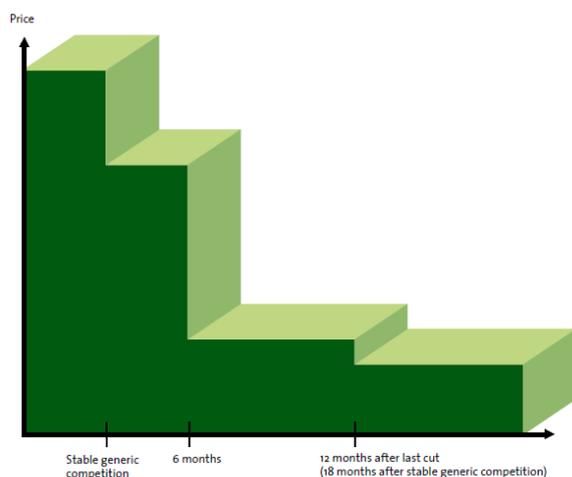


Figure 10. Illustration of the Norwegian 'trinnpris' stepped price model reducing generic prices after patent expiration. Figure adopted from Apotekfereningen report from 2008 (89).

The exact percentage of generic price reduction is dependent on sales of the medicine, i.e. products with a higher turnover will receive a larger price reduction percentage (45). Additionally, pharmacists are to present patients with at least one generic alternative at a lower price from the same group of pharmaceuticals upon dispensing (89). As a result of this policy, the volume share of generics in Norway has risen up to roughly 70% in 2017, which is similar to the generic market share in the Netherlands that same year (68%) (88)(21).

Since 2001, pharmacists are allowed -but not obliged- to conduct generic substitution, thereby offering the cheapest generics to patients. As pharmacy mark-ups are not regulated within the Norwegian step-price system, financial incentive is created for pharmacists causing them to frequently dispense cheap generics (90). This leads to competition in the market, which might explain why -in contrast to France, where a similar system is in place- Norway's system does not suffer from a lack of competition preventing generic prices to decrease beyond a certain extent.

Finally, if a patient denies a suggested generic substitution by a pharmacist, they are required to pay the price difference between the two alternatives, unless their physician indicates that substitution should not take place, which is comparable to the 'medical necessity' regulation in the Netherlands (91).

4.1.6 Sweden

Sweden, like the Netherlands, has a system in which prices of medicines -generics in particular- are controlled through the reimbursement system, albeit indirectly. Free pricing for all pharmaceuticals is in place, but if manufacturing companies wish to include their product in the reimbursement system, they have to comply with requirements posed by the Pharmaceutical Benefits Board (in Swedish known as the *Läkemedelsförmånsnämnden*) (67). In 2002, the RPS that was in place in Sweden was

replaced with obligatory generic substitution for pharmacists as means to reduce prices (67). Specifically, this system is referred to as the 'product of the month' regulation, in which each month with the lowest price is appointed product of the month, meaning that pharmacists have to switch to that product in a group of similar medicines, which is very similar to the *preferentiebeleid* (92). Consequence of this Swedish system was that prices of generics went down because of price competition of pharmaceutical companies, resulting in Sweden being ranked country with one of the lowest generic prices in comparison to other EU countries in 2020 (92).

A 2018 study by Olsson et al. reports how patients' low trust in generic substitution needs to be discussed, as this negative effect of the Swedish system -like the unintended effect of frequent drug switches in the *preferentiebeleid*- can lead to, amongst others, impaired adherence to drug schemes (93). There are, however regulations in place to deny generic substitution. Like the 'medical necessity' exception in the Netherlands, in Sweden physicians can deny substitution by addressing this on prescription papers. Additionally, patients are also allowed to deny substitution in a pharmacy, but doing so requires them to pay the difference between the reimbursed costs and the retail price out-of-pocket (67).

Some literature suggests that, where Swedish policy successfully keeps generic prices low and volumes of high, various stakeholders -including patients- describe the system as overly complex and lacking transparency (94). This unintended effect is a disadvantage of this system, and compares to the described high administrative burden experienced in the Danish pricing and reimbursement system, see section 4.1.1.

4.1.7 the United Kingdom

The UK is an example of a country where price and reimbursement of generics is based on market prices. Specifically, generic drug pricing is free in the UK, with the notion that prices cannot exceed a maximum list price as determined by the National Health Service for the off-patent original medicine, similarly to the internal price referencing and *preferentiebeleid* in the Netherlands (45)(92). However, in contrast to the *preferentiebeleid*, where pharmacists are required to dispense the *preferent* -and usually cheapest- generic, the UK system does not obligate generic prescription. Currently, pharmacists can only provide patients with generic substitutes when this is requested on a prescription by a physician (95). Nonetheless, according to the British Generic Manufacturers Association (BGMA) in 2020, 4 out of 5 prescribed medicines in the UK is a generic, demonstrating that, even without a requirement, physicians commonly prescribe generics to their patients (96). Literature suggests that this incentive for pharmacists to provide cheap generics is caused by the reimbursement system in the UK, which in turn encourages generic manufacturers to offer competitive prices to pharmacies, thereby lowering costs of generics in the UK market. Specifically, whilst respecting variations between specific products, prices of generics -after a time frame of several years- remain approximately 80% lower than the price of the branded medicine prior to patent expiration (74). Similar price reductions can be observed in countries utilizing a tender-like system, as is discussed in the sub-sections above.

A difference between the UK system and countries with a tendering-like system -including the Netherlands with its *preferentiebeleid*- emerges in times of drug shortages as tendering-like systems tend to be less responsive in such situations (74). Reason for this lowered responsiveness is the lack of incentive created for suppliers to stock product as reference generics are frequently revised in tendering-like systems. The UK system appears to be able to lower costs of generics, whilst ensuring readiness for times of shortages as manufacturers respond defectively to price signals and competition created in this system (74). Nonetheless, the COVID-19 crisis showed that dependency on foreign countries within the generic supply chain is a point of concern. Over 75% of generics prescribed in the UK are imported, and of the 25% that is manufactured within the UK the majority of required APIs comes from low-cost markets outside of the UK, making the supply chain a vulnerability (97). The description of this issue by the BGMA demonstrates that -even without a tendering-like system in place - supply chain issues are common throughout various European countries, regardless of the policy that is in place for generic pricing and reimbursement.

4.2 Transferability of the *preferentiebeleid*

Overall when looking at the comparison of *preferentiebeleid* with systems from other European countries as based on literature, it can be concluded that price savings are achieved particularly when competition is encouraged (64). Specifically, tendering-like systems have showed to be successful in reducing generic price levels and increasing generic volumes in the pharmaceutical market. A side note to this is that trust in generic's effectiveness by patients as well as physicians is vital (75). An observed downside of utilization of a tender-like system is the potential of medicines shortages as financial incentive to remain in a market with intense price competition is low (40). As an additional negative consequence of this in the long term, competition in the market may deplete, which might cause prices to rise again (98). Interestingly, the Dutch *preferentiebeleid* appears to suffer more from this disadvantage compared to the other countries with tender-like systems as described in section 4.1 (e.g., Denmark, Germany and Sweden). The fact that the Netherlands is a country with a limited sales market (e.g. compared to Germany when looking at pharmaceutical market value, see table 5) might partake as causing factor here (40). This might suggest that transferring policy like the *preferentiebeleid* may not be favourable for countries with small sales markets and economies. Nonetheless, this analysis elucidates the potential benefits policies like the *preferentiebeleid* can generate in terms of lowering generic prices through competition, thereby stimulating their use in extramural care.

5. Discussion and conclusion

In this chapter, lessons learned based on the comparison of the *preferentiebeleid* with policies from other countries in combination with insights from the analysis of the current status of the policy and the opinions of various stakeholders are presented. The (potential) future of the *preferentiebeleid* is also discussed. Finally, overall conclusions of this policy analysis are drawn.

5.1 Lessons learnt

From the comparison with countries who successfully utilize a tendering-like system to lower generic drug prices -such as Denmark, Germany and Sweden-, several lessons can be derived that could inspire policymakers in the Netherlands for improvement strategies for the *preferentiebeleid*. The fact that the Netherlands suffers more from disadvantages of a tendering-like system compared to these other countries, as described in section 4.1, emphasizes the potential value of these lessons.

Firstly, as patient advocacy groups stress the added burden and health risk for patients caused by drug switches, the Netherlands could consider enabling several generics to be *preferent* instead of just one. This will result in less drug switches for patients and might also prevent drug shortages (41).

Alternatively, the option for patients to deny generic substitution could be considered in the Netherlands as means to cater to patients. At the moment, pharmacists are required to dispense *preferent* generic to patients even if they do not wish to receive the *preferent* generic. Only in case of unavailability of the *preferent* generic, pharmacists may dispense alternatives, which may result in patients having to pay a small additional fee as was shared by customer service employees of insurance companies. By allowing patients to deny a generic substitute -with the notion that this will result in an additional co-payment-, this might give them more sense of control over their prescription, preventing impaired adherence.

Furthermore, the list of *preferent* generic medicines could be generalized in the Netherlands for all patients regardless of a patients' insurance cooperation, which is, for example, already the case in Sweden. Currently each insurance cooperation presents their own list of *preferent* generics, which is altered at various times. This creates high administrative burden for pharmacists and results in confusion amongst patients (55).

Finally, as described in literature, it is desirable for any policy to frequently evaluate the effectiveness in terms of cost reduction as well as access to medicines (75). Since 2008, the number of insurance companies utilizing the *preferentiebeleid* has increased (33), adhering to this advice will most likely be favourable for the Netherlands.

5.2 Future perspectives of the *preferentiebeleid*

As presented in chapter 2, the main aim of the *preferentiebeleid* was to lower prices of generic medicines in the Dutch market. Upon initial implementation, however, there were also a few concerns as to what the future of this policy would hold. For instance, it was uncertain whether the policy would be successful in fulfilling the hope of lowering generic prices and -as described by CPB in 2008- it was unsure whether prices would remain low for a longer period of time (2). In 2007, a pharmaceutical news article also described the chance that, as an unintended consequence of the *preferentiebeleid*, physicians might only subscribe branded medicines instead of generics (8). Additionally, there was a fear that pharmacists might not accept the requirement to only dispense *preferent* generics as imposed by insurance companies through the *preferentiebeleid* (2).

After almost 15 years of implementation of the *preferentiebeleid*, it can be concluded that the goal to lower generic prices has successfully been achieved. Interestingly, where the fear that pharmacists would not be willing to comply with the *preferentiebeleid* did not stop its expansion to additional insurance companies, dissatisfaction of pharmacists with the implementation of this policy currently poses an issue, which was – amongst others- shared by a community pharmacist. Additionally, as was presented in chapter 3, the *preferentiebeleid* brought about several unintended effects. The consequences for different stakeholders of the unintended effects of increased medicine

shortages and drug switches, taken together with the impact of the intended effect on each of these stakeholders, is presented in Table 6. NB: a three-degree scale is used to illustrate the effect of each outcome of the *preferentiebeleid* on the different stakeholders (i.e., green tick, yellow tilde, red cross), which is based on information provided in chapter 3 of this analysis.

Table 6. Overview of intended and unintended effects caused by the implementation of the *preferentiebeleid* and their effects on various stakeholders. Based on information provided in chapter 3 of this analysis.

Effect		Consequences for stakeholders			
Description	Type	Pharmacists	Patients	Insurance companies	Manufacturing companies
Generic prices lowered	Intended	~	~	✓	✗
Increased medicine shortages	Unintended	✗	✗	~	~
Increased drug switching	Unintended	✗	✗	~	~

When looking at Table 6, it becomes apparent how the current execution of the *preferentiebeleid* in the Netherlands is not sustainable as for three out of four listed stakeholders (i.e. pharmacists, patients and manufacturing companies) there are no significant advantages of the *preferentiebeleid* compared to the negative consequences experienced by the unintended effect of increased medicine shortages and drug switching. Therefore, in order for the *preferentiebeleid* to be successful in the future, several changes have to be made. These changes can be based on lessons learned from the comparison with other countries -listed in section 5.1-, as similar suggestions by stakeholders for alteration of the policy have been identified in literature. For instance, in 2016, KNMP and SFK stressed how introduction of four to five *preferent* medicines after 2 years of *preferentiebeleid* for a cluster of medicines, limits chances for increased drug shortages and leads to less switches, whilst preserving the price lowering effects of the *preferentiebeleid* (41). Furthermore, the community pharmacists with whom informal contact took place, emphasized how generalization of the *preferentiebeleid* for all pharmacies and patients -i.e., having one list of *preferent* medicines that is used by everybody instead of different lists per insurance company- will decomplicate, and thereby improve, the system. Apart from the above presented suggestion to alter the *preferentiebeleid*, the community pharmacist shared a wish for more transparency of insurance companies towards pharmacists and patients in terms of what happens with money saved because of this policy. One could argue that, given the role insurance companies play in society, it should be expected that, above all, savings through cost reduction will be used to benefit patients instead of solely increasing the capital of insurance companies. In an ideal situation, the main goal of both insurance companies as well as pharmacists is to improve the health system in the Netherlands for patients in need. By implementing some of the suggested alterations to take away the negative effects of the *preferentiebeleid* as currently experienced by stakeholders, a step in the direction towards affordable, sustainable pharmaceutical care will be taken, potentially making the *preferentiebeleid* a generic price and reimbursement policy other countries can learn from.

5.3 Strengths and limitations

Several strengths and limitations of this policy analysis have been identified. The objective of this analysis -in line with the goal of the WHO- was to provide a meticulous overview of the *preferentiebeleid* including to present recommendations for the future. Through the addition of informal telephone contact with a community pharmacist and with various help desk employees of insurance companies, information obtained from grey, white and academic literature was deepened

to benefit the creation of a holistic overview of the policy. Unfortunately, due to time constraints, only one community pharmacist was spoken to in an informal setting, potentially affecting representativeness of the statements made. Furthermore, the search for insights for the comparison with other European countries was complex as some of the obtained literature dated back several years in time, and because limited information was found in the restricted time available for this analysis. For this reason, information provided in chapter 4 is less detailed and profound compared to the other chapters. Additionally, this analysis was conducted by a single researcher, hence the chance of unintended bias of the author during writing is present.

Because of the above presented constraints of this analysis, future research into this policy could aim to obtain additional, thorough insights from stakeholders, for instance through the conduct of an in-depth interview series. Nonetheless, this analysis provides a comprehensive overview of the Dutch *preferentiebeleid*, complementing the wishes of the WHO for the envisioned policy centre database.

5.4 Conclusion

Overall, this analysis of the *preferentiebeleid* shows how this policy -since its initial utilization in 2005- has become a widely implemented tool for insurance companies in the Netherlands to decrease prices of generic medicines in the Dutch market. The policy allows insurance companies to determine which generic medicines are dispensed to patients by listing them as *preferent*. In practice only the cheapest generics receive this status, hence pressing prices. According to some stakeholders, where the *preferentiebeleid* replaced a malfunctioning system in which pharmacists excessively benefitted from discounts and bonuses due to margin competition, this novel policy also brought about negative, unintended effects. Specifically, various reports were found to blame the *preferentiebeleid* for increased drug shortages and medicines switches, negatively impacting stakeholders such as patients and pharmacists. Countries without a tendering-like system in place for determination of pricing and reimbursement of generics might benefit from implementing similar, tendering-like policy in which competition lowers drug prices. However, when comparing the *preferentiebeleid* to other tendering-like systems in European countries, the negative effects of systems as such were found to be more profound in the Netherlands compared to, for instance, Germany or Sweden. This, together with the urge for change by pharmacists and patient advocacy groups, emphasizes the need for adjustments in the current execution of the *preferentiebeleid*. Suggested alterations include appointing several medicines as *preferent* instead of one, and generalizing the *preferentiebeleid* for all patients regardless of their insurance company. In conclusion, by taking away unintended, negative effects of this policy, contributions to the improvement and creation of a healthy, sustainable health system in the Netherlands can be made, potentially providing valuable lessons to other countries.

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7. Appendices

Appendix 1. *List of all health insurance cooperations operational in the Netherlands and their different labels, adapted from Consumentenbond (20).*

Firm	Label
Achmea	De Friesland
	FBTO
	Interpolis
	Pro Life
	ZieZo
	Zilveren Kruis
ASR	a.s.r.
	Ditzo
DSW	DSW
	InTwente
	Stad Holland
CZ	CZ
	CZdirect
	IZZ
	Just
	Nationale-Nederlanden
	OHRA
ONVZ	Jaaah
	ONVZ
	PNOzorg
	VvAa
EUcare	Aevitae
Menzis	Anderzorg
	Hema
	Menzis
	VinkVink
	PMA
Zorg en Zekerheid	AZVZ
	Zorg en Zekerheid
Eno	HollandZorg
	Salland
	ZorgDirect
VGZ	Bewuzt
	IZA
	IZZ

UMC
Univé
VGZ
Zekur
United Consumers
Besured
National Academic
Promovendum

Appendix 2. Information provided by health insurance cooperations making use of the *preferentiebeleid* during informal phone contact with their customer services on February 8, 2022.

Health insurance cooperation	Way of dealing with national shortages of <i>preferent</i> generics
Achmea ^a	Whenever a <i>preferent</i> generic is unavailable, an alternative generic will be reimbursed for insured clients. Unclear whether this results in financial consequences for pharmacists.
a.s.r.	Whenever a <i>preferent</i> generic is unavailable, an alternative generic may be presented to the insured client. This does, however, result in the client having to pay a deductible. In case no alternative generic is available and something completely different is provided to a patient, the pharmacy has to refer to 'logistical necessity' when requesting reimbursement. A.s.r. will validate that the <i>preferent</i> generic (nor a generic alternative) was indeed unavailable (using farmanco.knmp.nl), whereafter they will reimburse costs, except for a deductible required by the patient. Unclear whether this results in financial consequences for pharmacists.
CZ ^b	Unreachable In case a <i>preferent</i> generic is unavailable, the pharmacist (in consultation with a patient's physician) will provide alternative medication to the patient. The pharmacist declares the costs, and the insurance company determines whether the full amount will be reimbursed or if the patient has to pay a deductible.
ENO	In case a <i>preferent</i> generic is unavailable, the pharmacist (in consultation with a patient's physician) is responsible for providing the patient with an alternative. Unclear what the financial consequences of this decision are for the patient and for the pharmacist.
Menzis	Whenever a <i>preferent</i> generic is unavailable, pharmacists may provide patients with an alternative. However, when this alternative is

	<p>more expensive than the <i>preferent</i> generic, pharmacists have to cover for the additional costs, where patients will be fully reimbursed.</p>
VGZ	<p>Whenever a <i>preferent</i> generic is unavailable, pharmacists may provide patients with an alternative, and patients may request reimbursement for this.</p> <p>Pharmacists have to refer to 'logistical necessity' when this happens, unclear whether this results in financial consequences for pharmacists.</p>
Zorg en Zekerheid	<p>Whenever a <i>preferent</i> generic is unavailable, an alternative generic may be presented to the insured client, and they will be reimbursed for this.</p> <p>The pharmacy has to refer to 'logistical necessity' when requesting reimbursement. Unclear whether this results in financial consequences for pharmacists.</p>

^a Cooperation Achmea was unreachable, therefore contact was made with the largest insurance label that is part of cooperation Achmea, i.e. Zilveren Kruis.

^b Cooperation CZ was unreachable, therefore contact was made with insurance label OHRA that is part of cooperation CZ.