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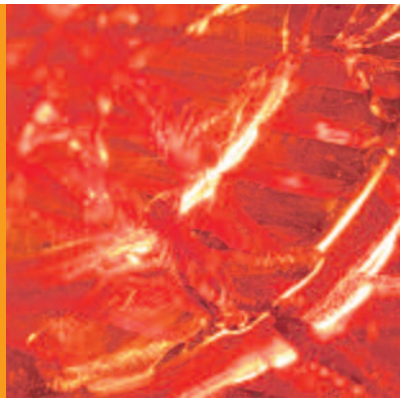

Prescription Behaviour Monitor for General Practitioners 2011

Instituut voor
Verantwoord Medicijngebruik

Colophon

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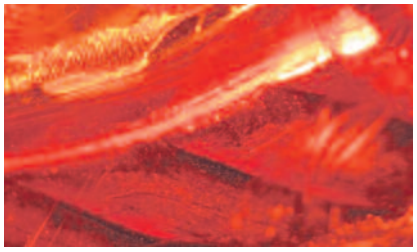


Summary

This report presents the results of the Prescribing Behaviour Monitor for General Practionars (GPs). The monitor reflects the extent to which GPs in the Netherlands in 2010 prescribe according to their own guidelines. The eighteen indicators in the monitor are calculated from reimbursement data of community pharmacists and dispensing doctors collected by Vektis, a national data center for health care insurers. We present the national averages for each indicator, the regional divergences and the differences between health care insurers. We also pay attention to variations between different GPs.

The quality and efficiency of prescribing by GPs could be better. In seven indicators we see a large variation between doctors, so considerable improvement is possible. The remaining eleven indicators certainly have some room for improvement also.

The differences in prescribing behaviour between GPs can be partly explained by age and gender. Female GPs and younger GPs prescribe more according to the guidelines than male ones and older ones.

Health care insurer Salland has the best overall scores on the indicators. That is a record it had established in previous years. Zorg and Zekerheid, Zilveren Kruis Achmea and Agis are at numbers 2, 3 and 4, respectively. These last three insurers reward physicians on the outcomes of the indicators. Azivo has the lowest overall scores.

There are large differences between regions in the quality and efficiency of prescribing. The four lowest scoring regions are all in Central and South Limburg. The scores are particularly low on indicators that measure the percentage of preferred medicines. The four highest scoring regions are located in the northern part of Flevoland and Overijssel.

To ensure further improvement in the quality and efficiency of prescribing, the IVM recommends:

For the Ministry of Health

- The reimbursement policy on statins should be maintained. A reimbursement policy for RAS inhibitors should be introduced.
- Do research on the causes of the observed regional differences to find points for regional policy.
- Do research on the causes of the differences found between younger and older physicians and between female and male GPs to find clues for a specific implementation of guidelines in the various target groups.

For insurers

- Improve the quality of the Pharmaceutical Therapeutic Audit Meetings (PTAM) and prescribing by GPs by means of professionalization. Identify GPs with low quality and efficiency of prescribing. Organize a visitation by an independent expert and make contractual agreements with the involved GPs.
- Identify regions with low quality and efficiency of prescribing. Invest in improved prescribing in low-scoring regions and particularly for those indicators in which these regions perform poorly.

1 Introduction

This report from the Dutch Institute for Rational Use of Medicine (IVM) presents the results of the Prescription Behaviour Monitor for GPs. The monitor reveals the quality and efficiency of the prescribing habits of GPs. The indicators that we developed for this purpose are based on the Dutch College of General Practitioners (NHG) guidelines and the 'Farmacotherapeutisch Kompas'[1]. We present the national averages per indicator, the regional distribution and the variations between health care insurers. Furthermore, we pay attention to the differences between male and female GPs and between younger and older GPs.

This report follows on from the Prescription Benchmark that IVM published every year from 2006 to 2010. This year is the first time that we are making use of reimbursement data from community pharmacies and dispensing GPs forwarded to health care insurers and collected by Vektis. The prescription figures refer only to the last two quarters of 2010. The reason for this is that the results from several health care insurers were not reliable for the first two quarters of 2010. As a consequence, the distribution between GPs in this report is somewhat larger than if the indicators had been calculated over the entire year.

The current Prescription Behaviour Monitor for GPs contains a set of indicators for commonly prescribed groups of medicines. The definitions of the indicators essentially cover the recommended medical treatment from the NHG guidelines.

In the past few years different health care insurers have applied the Prescription Benchmark indicators for various purposes, such as rewarding or contracting care providers. IVM advises these health care insurers on how best to employ the indicators. At the end of 2011, IVM and Vektis issued a new web application to which health care insurers and individual GPs also have direct access. With this web application they can compare their own scores on the indicators to the national means.

Section 2 of this report contains our conclusions and recommendations. Section 3 covers the scores for the indicators. The regional differences are given in section 4. In section 5 the results are classified according to the different health care insurers. Section 6 presents an analysis of the variations between GPs in relation to their age and gender. Section 7 lists the definitions and the cluster arrangement of the indicators. The method is described in section 8.

[1] Pharmacotherapeutic Compass.

2 Conclusions and recommendations

General conclusion

The quality and efficiency of prescribing by GPs can be improved. Seven indicators show a wide range between doctors, suggesting that there are benefits to be gained. The range is smaller for the remaining 11 indicators, but some improvement is possible. The GPs characteristics greatly influence the extent of their adherence to guidelines. Younger and female GPs prescribe more often according to the guidelines than older and male GPs. There are also large differences between regions and between health care insurers.

The prescription of RAS-inhibitors could be better and more efficient

There are large differences between GPs for the three indicators concerning preferred RAS-inhibitors. The adherence to guidelines is low for a large group of GPs. This is also true for several other indicators for preferred medicines and for the two indicators for the dosage of statins.

Younger and female GPs prescribe more often according to the guidelines

There are large differences in prescription behaviour between GPs. This is especially true for indicators measuring the percentage of preferred medicines. The differences can be partly attributed to the GP's age and gender. Female GPs and younger GPs prescribe more often according to the guidelines than male and older ones.

Policyholders of Salland, Zorg and Zekerheid, Agis and Zilveren Kruis Achmea are treated more often according to the guidelines

The analysis revealed that health care insurer Salland scored the best on the indicators in general. Zorg and Zekerheid, Agis and Zilveren Kruis Achmea are at numbers 2, 3 and 4, respectively. These last three health care insurers reward GPs according to the results of the indicators. Azivo scores the lowest.

Middle and South Limburg lag behind in terms of the quality and efficiency of prescription

There are large differences between regions in the quality and efficiency of prescription. The four lowest scoring regions are all located in Middle and South Limburg. In particular, low scores were noted on indicators measuring the percentage of preferred medicines within a group of medicines. The four highest scoring regions are found in Flevoland and the northern part of Overijssel.

Recommendations

On the basis of this report, IVM proposes the following recommendations to improve the quality and efficiency of prescription.

Recommendations for the Ministry of Public Health, Welfare and Sport

Reimbursement policy

- Maintain the current reimbursement policy for statins. Implement a reimbursement policy for RAS-inhibitors requiring a doctor's declaration for the less effective forms, just like for statins. This will promote the efficient prescription of statins and RAS-inhibitors.

Investigate the causes of differences between GPs

- Commission research into the causes of the regional differences found and differences within regions to find suggestions for a regional policy.
- Commission research into the causes of the differences found between younger and older GPs and between female and male GPs. This could uncover ideas for differentiating and improving the implementation of guidelines in the various target groups.

Recommendations for the health care insurers

Rewarding proper prescription behaviour and PTAM

- Invest in the quality of the PTAM and prescription by GPs. Effective measures are professionalising PTAM, followed by monitoring and rewarding good PTAM (level 4) and the quality and efficiency of prescription.

Identify and approach those lagging behind

- Identify on the basis of the Prescription Behaviour Monitor for GPs who is lagging behind in terms of the quality and efficiency of their prescription. Talk to them about their prescription behaviour and make contractual agreements about their prescription behaviour.
- Identify on the basis of the Prescription Behaviour Monitor for GPs which regions are lagging behind in terms of the quality and efficiency of prescription. Invest in better prescription behaviour in low-scoring regions and particularly for the indicators showing poor results.

3 Indicator scores

Table 3.1 lists the scores for the indicators from the Prescription Behaviour Monitor for GPs. The indicators are defined in section 7.

The table presents the national averages and the distribution. The distribution is the range between the 10-percentile score and the 90-percentile score. The 10-percentile score is the lower limit under which ten percent of the GPs is found (the lowest scoring GPs), and the 90-percentile score is the upper limit above which ten percent of the GPs is found (the highest scoring GPs).

The figures refer to the last two quarters of 2010. The reason for this is that the results for the first two quarters of 2010 from several health care insurers were not entirely reliable. As a consequence, the distribution between GPs in this report is somewhat larger than if the indicators had been calculated over the entire year. A 90-percentile score of 100% is found for several indicators. The chance that a GP treats all his/her patients according to the guidelines over half a year is greater than over an entire year. No indicator is expected to achieve 100%, but a 90-percentile score of 100% indicates that a high score of e.g. 95% is a realistic goal.

Seven indicators in table 3.1 had a score of 75% or higher in 2010 (average 85%). Despite this high score, it appears that an increase is still possible as the 90-percentile score is on average 97%. Thus, some improvement could be expected.

Six indicators have a score under 75%, but a 90-percentile score of 85% or higher. This concerns the indicators Preferred RAS-inhibitors, Preferred ACE-inhibitors, Preferred antidepressants, Dosage of rosuvastatin and atorvastatin, Dosage of simvastatin and pravastatin, and Therapy compliance for antidepressants. This group of indicators scores 64% on average, but the mean 90-percentile score is 99%. In this group of indicators, improvement may be expected.

For the indicators Treatment of diabetes patients with statins and Treatment of cardiovascular patients with statins, the optimal score is less than 85%: not all diabetes patients and cardiovascular patients require statin therapy. The mean score for these indicators lies about 10% lower than the 90-percentile score, however. For many GPs, improvements could be made.

The indicator Preferred AII-antagonists scores very low (27%) and has a 90-percentile score of 83%. The preferred medicine Losartan became available as a generic product in 2010. This indicator is therefore expected to rise in 2011.

For the two volume indicators (antibiotics and proton pump inhibitors), the general rule is: the lower the better, with an optimum level of course. On average, 19% of patients is given an antibiotic at least once per year. Given the range between GPs, a drop of about 6 percentage points is possible. On average, 2.6% of patients under 60 years old regularly take proton pump inhibitors. Given the range between GPs, this value could be halved.

In summary, we find a larger variation in the prescription behaviour between GPs concerning the preferred medicine than when other aspects of prescribing are involved. The preferred medicines are partly based on the NHG guidelines. The NHG guidelines incorporate efficiency considerations in the choice of the preferred medicine. The other indicators referring to preferred medicines concern the groups for which the NHG guideline does not recommend a preferred medicine because the various options have similar efficacy. An efficient choice could be based on the costs of the medicines. It appears that GPs differ in the extent to which they include efficiency considerations in their prescription policy. For indicators reflecting primarily the quality and safety of prescription, the differences between GPs are generally smaller.

Table 3.1 Indicator scores[1]

Improvement	Indicator	Cluster	Mean 2010	Range[2] 2010
Some improvement possible, score > 75%	Preferred PPI	Efficient choice for new users	95%	89-100%
	Preferred statins	Following guideline choice for new users	89%	71-100%
	Preferred NSAIDs	Following guideline choice for new users	87%	67-99%
	Treatment of NSAID users with gastric medication	Other	84%	71-96%
	Preferred bisphosphonates	Following guideline choice for new users	81%	33-100%
	Treatment of asthma patients with ICS	Other	79%	68-91%
	Overtreatment of triptans	Other	79%	69-90%
Considerable improvement possible, score <75 %	Preferred ACE-inhibitors	Efficient choice for new users	72%	17-100%
	Therapy compliance with antidepressants	Other	70%	46-100%
	Preferred RAS-inhibitors	Following guideline choice for new users	67%	17-100%
	Dosage of rosuvastatin and atorvastatin	CVRM	61%	13-100%
	Preferred antidepressants	Efficient choice for new users	58%	19-95%
	Dosage of simvastatin and pravastatin	CVRM	57%	11-100%
	Preferred AII-antagonists	Efficient choice for new users	27%	0-83%
Some improvement possible, score <75%	Treatment of cardiovascular patients with statins	CVRM	68%	60-76%
	Treatment of diabetes patients with statins	CVRM	70%	56-82%
Some improvement possible, volume indicators	Volume antibiotics	Volume[3]	19%	13-25%
	Volume proton pump inhibitors	Volume[3]	2,6%	1,3-4,0%

[1] Definitions of indicators in section 7

[2] The range is the 10-percentile score and the 90-percentile score

[3] For the two volume indicators, the general rule is: the lower the better, with an optimum level

Several indicators were analysed for both new users and all users. The results are reproduced in table 3.2. For almost all of these indicators, we can see that the guidelines are followed better by new users than by all users together. This does not hold for Dosage of rosuvastatin and atorvastatin, as new users were less likely to be prescribed sufficiently high doses. This may have to do with the fact that the patient leaflet recommends increasing the dosage gradually.

Table 3.2 Indicator scores for new and all users in 2010

Cluster	Indicator	New users	All users
Guideline choice	Preferred statins	89%	65%
Efficient choice	Preferred AII-antagonists	27%	14%
	Preferred PPI	95%	81%
CVRM	Dosage of rosuvastatin and atorvastatin	61%	72%
	Dosage of simvastatin and pravastatin	57%	53%

4 Regional differences

In this section the regional differences are described. The scores for the indicators are calculated for each postal code area. The lowest and the highest scores are given in table 4.1. In addition, cluster scores were calculated for every postal code area. They are reproduced in the maps in this section. The calculations are explained in section 8.

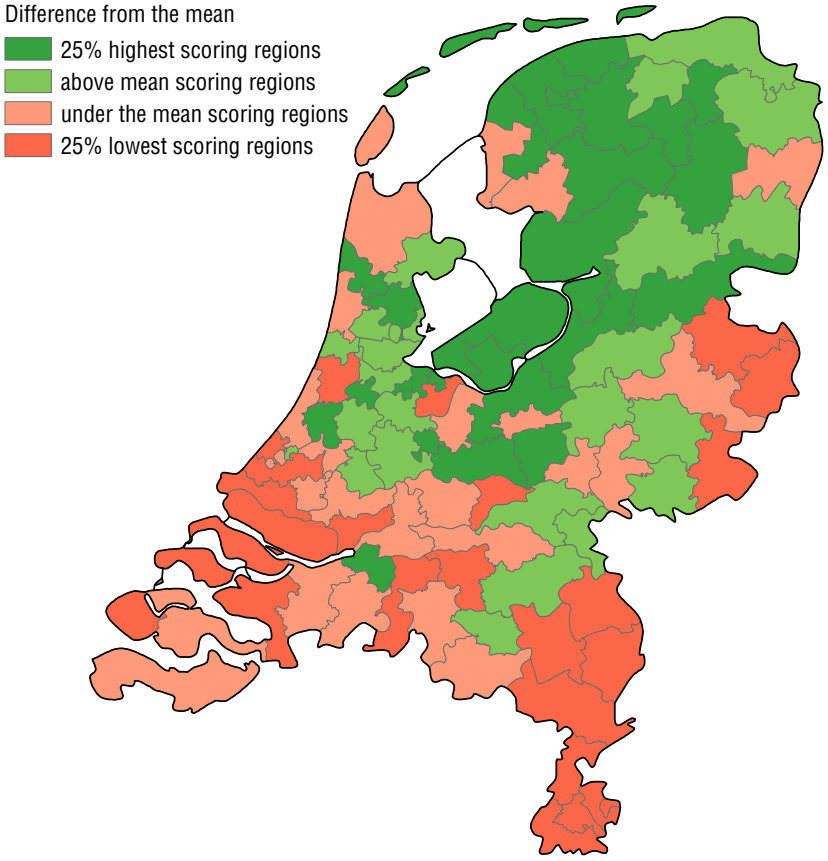
The greatest regional difference is found for the indicator Preferred ACE-inhibitors. GPs in the highest-scoring region score 92 percent. GPs in the lowest-scoring region do not score above 28 percent. Between these extremes lies a difference of 64 percentage points. Large regional differences exceeding 40 percentage points are noted for the two indicators for dosage of statins and indicators from the clusters Preferred medicines (based on the guideline and efficient choice). The remaining indicators show smaller regional differences.

Which regions score high or low varies from one cluster to another. The hierarchy in a cluster is presented in maps 4.1 - 4.4. In appendix 1 there is a list of the postal code areas, and appendix 2 displays the maps for all individual indicators. In appendix 3 the rank numbers of the different postal code areas for the total of all indicators and the different clusters are given. This reveals that the four postal code areas that scored the highest border each other: region 13 (Almere), 82 (Lelystad), 80 (Zwolle) and 77 (Coevorden, Dalfsen, Hardenberg, Ommen). The four lowest-scoring postal code areas also lie close together: region 60 (Weert, Roermond), 62 (Maastricht), 63 (Valkenburg) and 64 (Heerlen).

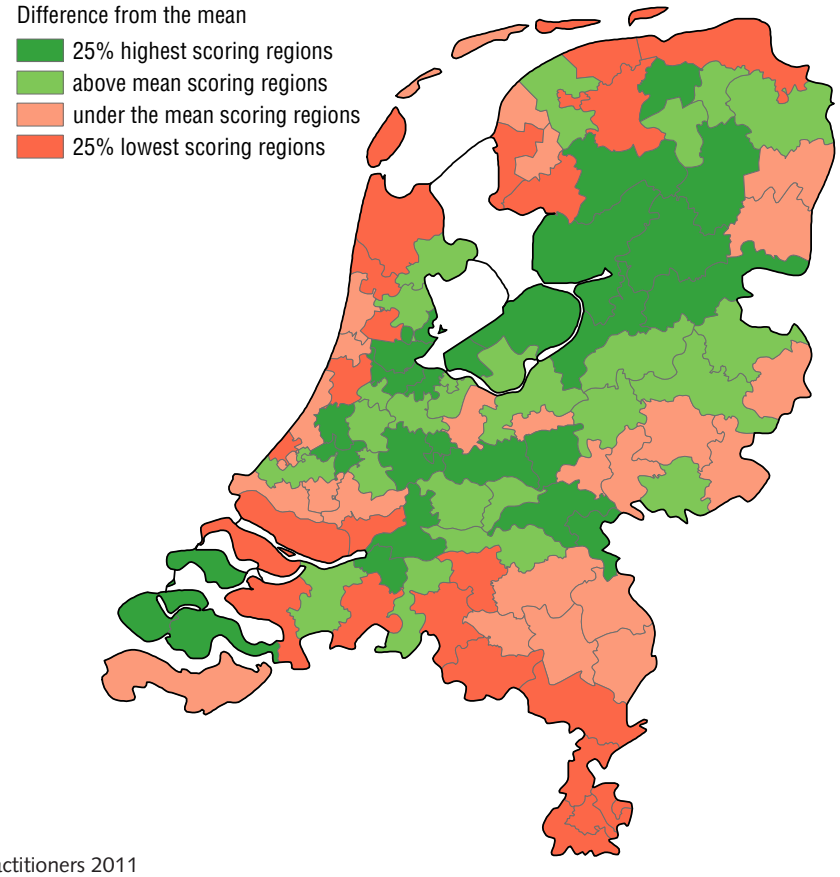
The large regional differences could have different causes. For example: demographic characteristics, GP characteristics, regional quality projects, policy of health care insurers, PTAM quality, transmural agreements and the marketing activities of the pharmaceutical industry. Research[2] has shown that all these different factors influence the GP's prescription behaviour. We cannot draw any conclusions about which factor is decisive in determining the regional differences. It also possible that for each indicator another factor or combination of factors can explain these differences. Insight into the causative factors will provide starting points for regional policy and targeted interventions. A problem analysis to find explanations for low-scoring regions would be useful.

[2] Haaijer-Ruskamp, F.M. Denig, P. Invloeden bij het kiezen van geneesmiddelen. Geneesmiddelenbull 2001, 35(4):37-42.

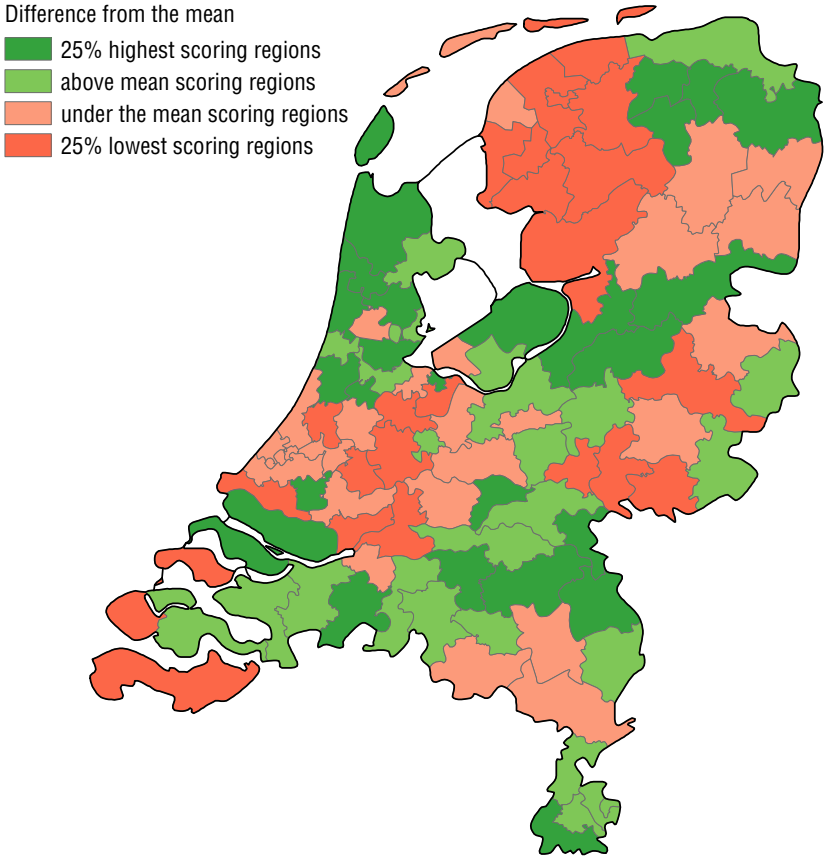
Map 4.1 Regional hierarchy of Following guideline choice for new users cluster



Map 4.2 Regional hierarchy of Efficient choice for new users cluster



Map 4.3 Regional hierarchy of CVRM cluster



Map 4.4 Regional hierarchy of Other cluster

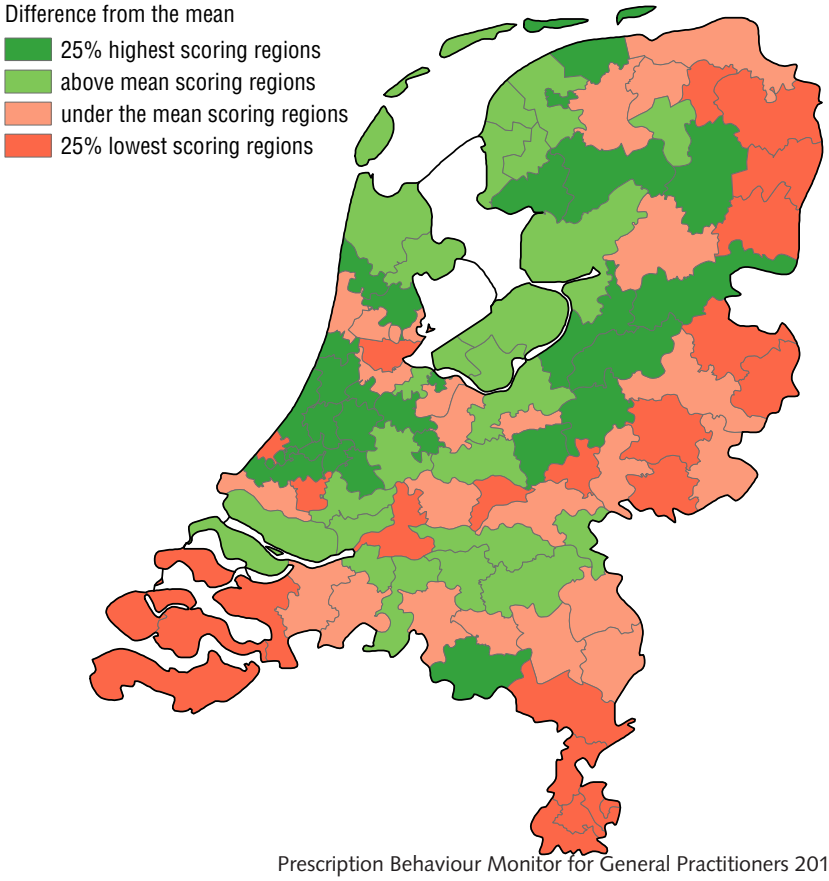


Table 4.1 Regional differences

Cluster	Indicator	Regional range	Difference	Mean
Efficient choice for new users	Preferred ACE-inhibitors	28-92%	64%	72%
CVRM	Dosage of simvastatin and pravastatin	29-81%	52%	57%
Following guideline choice for new users	Preferred RAS-inhibitors	38-88%	50%	67%
Efficient choice for new users	Preferred antidepressants	35-81%	46%	58%
CVRM	Dosage of rosuvastatin and atorvastatin	36-80%	44%	61%
Efficient choice for new users	Preferred AII-antagonists	9-53%	44%	27%
Following guideline choice for new users	Preferred bisphosphonates	59-100%	41%	81%
Other	Therapy compliance antidepressants	60-83%	23%	70%
CVRM	Treatment of diabetes patients with statins	56-77%	21%	70%
Following guideline choice for new users	Preferred statins	74-95%	21%	89%
Other	Treatment of NSAID users with gastric medication	73-92%	19%	84%
Efficient choice for new users	Preferred PPI	81-99%	18%	95%
CVRM	Treatment of cardiovascular patients with statins	57-75%	18%	68%
Following guideline choice for new users	Preferred NSAIDs	80-97%	17%	87%
Other	Treatment of asthma patients with ICS	72-86%	14%	79%
Other	Overtreatment of triptans	70-84%	14%	79%
Volume	Volume of antibiotics	14-24%	10%	81%
Volume	Volume of proton pump inhibitors	1,9-3,9%	2,0%	2,6%

5 Differences between health care insurers

In this section we describe the hierarchies of clusters of indicators per health care insurer.

Table 5.1 gives the hierarchy of health care insurers. It presents the hierarchy of four clusters of indicators and the overall hierarchy based on all indicators in the four clusters and the two volume indicators. For several years Salland has been at the top of the list: policyholders of Salland are treated by GPs most often according to the guidelines. This is followed by Zorg and Zekerheid, Agis (Achmea) and Zilveren Kruis (Achmea). In the past few years, these health care insurers use prescription indicators to reward GPs. At the bottom of the list is Azivo: policyholders of Azivo are least likely to be treated by GPs according to the guidelines.

Table 5.1 Hierarchy of health care insurers

Ranking total 2010	Health care insurer (group)	Following guideline choice 2010	Efficient choice 2010	CVRM 2010	Other 2010
1	Salland	1	1	14	4
2	Zorg en Zekerheid	6	2	5	1
3	Agis (Achmea)	4	3	4	16
4	Zilveren Kruis (Achmea)	5	4	3	9
5	Unive (UVIT)	3	12	1	5
6	other (UVIT)	8	5	8	2
7	other (Achmea)	7	6	10	6
8	de Friesland	2	16	18	7
9	Delta Lloyd/OHRA (CZ)	12	10	9	10
10	Stad Holland	14	7	13	2
11	VGZ (UVIT)	17	13	2	14
12	ASR	11	9	11	8
13	Menzis/Anderzorg (Menzis)	9	8	7	18
14	ONVZ	13	14	15	12
15	CZ (CZ)	16	17	6	15
16	Trias (UVIT)	10	15	17	11
17	DSW	18	11	12	13
18	Azivo (Menzis)	15	18	16	17

6 Differences between GPs

In this section we describe the differences between male and female GPs and the differences between age categories.

In table 6.1 the GPs are classified according to age and gender. Two-thirds of the GPs are male, and female GPs are on average younger than male GPs.

Table 6.1 Distribution of GPs by age and gender, N (%)

	Male		Female		Total	
<= 35 years	126	(1,4%)	244	(2,7%)	370	(4%)
36-45 years	956	(10%)	1253	(14%)	2209	(24%)
46-55 years	1933	(21%)	1065	(12%)	2998	(33%)
>= 56 years	2980	(33%)	550	(6%)	3530	(39%)
Total	5995	(66%)	3112	(34%)	9107	(100%)

Table 6.2 lists the average scores for the indicators for male and female GPs and subdivided according to age categories. On average, female GPs prescribe more often according to the guidelines than male GPs. The difference is an average of 3%. The differences are greatest in the Following guideline choice cluster and in the Efficient choice cluster. There the differences average 4-6%, but can reach 11% for the indicator Preferred AII-antagonists. For both male and female GPs we also see an age effect.

On average, younger GPs prescribe according to the guidelines more often than older GPs. The difference between the oldest and the youngest age group is an average of 2-3%. The differences are greatest in the Following guideline choice cluster and in the Efficient choice cluster, on average 3-5%. Among men we see greater differences between age groups than among women. The largest differences for almost all indicators are found between young female GPs and older male GPs. The difference between these two groups is an average of 5.5%, but rises to 8-11% in the Following guideline choice and Efficient choice cluster.

These differences could have different causes. For example: knowledge of and attitude towards the NHG guidelines, or susceptibility to marketing activities of the pharmaceutical industry. We cannot draw any conclusions about which factor is decisive in determining the differences. Insight into the explanatory factors could lead to starting points for an improved and differentiated approach to the implementation of guidelines in the different groups of GPs. An analysis of the explanations for the differences found would be useful.

Table 6.2 Indicator score by age and gender of GP

Cluster	Indicator	Male	Female	Male <= 35 years	Male 36-45 years	Male 46-55 years	Male >=56 years	Female <= 35 years	Female 36-45 years	Female 46-55 years	Female >=56 years
Following guideline choice for new users	Preferred bisphosphonates	**80%**	**84%**	84%	83%	79%	79%	88%	87%	83%	80%
	Preferred NSAIDs	**86%**	**90%**	88%	88%	87%	84%	91%	90%	89%	90%
	Preferred RAS-inhibitors	**65%**	**73%**	72%	67%	66%	63%	77%	73%	72%	74%
	Preferred statins	**88%**	**90%**	88%	89%	88%	88%	93%	90%	90%	91%
Efficient choice for new users	Preferred AII-antagonists	**25%**	**36%**	33%	28%	25%	24%	47%	37%	33%	35%
	Preferred ACE-inhibitors	**70%**	**78%**	79%	71%	69%	69%	78%	79%	78%	78%
	Preferred antidepressants	**57%**	**61%**	58%	57%	57%	57%	65%	63%	59%	61%
	Preferred PPI	**94%**	**96%**	95%	94%	94%	94%	96%	96%	95%	96%
CVRM	Treatment of diabetes patients with statins	**70%**	**70%**	69%	71%	70%	69%	70%	71%	70%	70%
	Treatment of cardiovascular patients with statins	**68%**	**68%**	69%	69%	68%	67%	68%	68%	68%	69%
	Dosage of rosuvastatin and atorvastatin	**61%**	**61%**	63%	63%	60%	61%	66%	61%	60%	63%
	Dosage of simvastatin and pravastatin	**57%**	**58%**	64%	60%	59%	54%	60%	58%	59%	55%
Other	Treatment of asthma patients with ICS	**79%**	**80%**	79%	80%	80%	79%	81%	80%	80%	79%
	Treatment of NSAID users with gastric medication	**84%**	**85%**	83%	84%	84%	84%	82%	86%	85%	84%
	Overtreatment of triptans	**79%**	**80%**	79%	79%	79%	79%	81%	80%	80%	80%
	Therapy compliance with antidepressants	**70%**	**72%**	74%	70%	70%	69%	75%	72%	72%	70%
Volume	Volume of antibiotics	**19%**	**18%**	19%	18%	19%	19%	18%	18%	18%	17%
	Volume of proton pump inhibitors	**2.6%**	**2.6%**	2,7%	2,7%	2,6%	2,6%	2,8%	2,7%	2,6%	2,5%
Mean		**72,9%**	**75,8%**	75,3%	74,0%	73,0%	72,1%	77,6%	76,1%	75,1%	75,3%

7 Cluster arrangement and definitions of the indicators

This section presents the definitions and the cluster arrangement of the 18 indicators in this report.

7.1 Cluster arrangement

The indicators are arranged in five clusters. Table 7.1 shows this clustering of the indicators. The Following guideline choice for new users cluster contains groups of medicines for which the NHG guideline recommends one or more preferred medicines. The Efficient choice for new users cluster contains groups of medicines for which the NHG guideline does not suggest a preferred medicine because all of the options have a comparable effect. An efficient choice can be made on the basis of the cost of the medicines. For volume indicators the trend is, the lower the better (with an optimum of course). For the first four clusters, the cluster scores were calculated by summing up the scores of the four indicators. This was not done for the cluster volume. The results and distribution of the two indicators differ to such an extent that a total score would not do justice to either indicator.

Table 7.1 Indicators and clusters

Cluster	Indicator
Following guideline choice for new users	Preferred bisphosphonates
	Preferred NSAIDs
	Preferred RAS-inhibitors
	Preferred statins
Efficient choice for new users	Preferred AII-antagonists
	Preferred ACE-inhibitors
	Preferred antidepressants
	Preferred PPI
CVRM	Treatment of diabetes patients with statins
	Treatment of cardiovascular patients with statins
	Dosage of rosuvastatin and atorvastatin
	Dosage of simvastatin and pravastatin
Other	Treatment of asthma patients with ICS
	Treatment of NSAID users with gastric medication
	Overtreatment of triptans
	Therapy compliance with antidepressants
Volume	Volume of antibiotics
	Volume of proton pump inhibitors

7.2 Definitions

The definitions of the different indicators are given below. The indicators are arranged in the same order as given in table 7.1.

Preferred bisphosphonates

The NHG guideline on Osteoporosis (2005) states that for patients considered eligible for preventative treatment, the preferred choice is the bisphosphonates alendronate or risedronate. The 'Farmacotherapeutisch Kompas' (2010) adds the following: Effectiveness with regard to the reduction in hip fractures in postmenopausal women with osteoporosis has only been demonstrated for alendronic acid and risedronic acid; such data are lacking for ibandronic acid.

Definition

$$\frac{\text{Number of new users of alendronate and risedronate}}{\text{Number of new users of bisphosphonates}}$$

Preferred NSAIDs

Given the relatively low chance of side effects, the Pharmacotherapeutic guideline on Pain control (2007) recommends ibuprofen, diclofenac and naproxen among the NSAIDs.

Definition

$$\frac{\text{Number of new users of ibuprofen, naproxen, diclofenac}}{\text{Number of new users of NSAIDs}}$$

Preferred RAS-inhibitors

When selecting a RAS-inhibitor, the NHG guideline on Heart failure (2010), the NHG guideline on Cardiovascular risk management (2006) and the 'Farmacotherapeutisch Kompas' (2010) recommend an ACE-inhibitor. If the ACE-inhibitors are not tolerated well, an angiotensin-II-receptor antagonist can be tried.

Definition

$$\frac{\text{Number of new users of RAS-inhibitors who are receiving an ACE-inhibitor}}{\text{Number of new users of RAS-inhibitors}}$$

Preferred statins

When selecting a statin, the NHG guideline on Cardiovascular risk management (2006) recommends simvastatin or pravastatin.

Definition

$$\frac{\text{Number of new users of simvastatin or pravastatin}}{\text{Number of new users of statins}}$$

Preferred AII-antagonists

The 'Farmacotherapeutisch Kompas' (2010) does not report any medicines as superior within the group of angiotensin II antagonists (AII-antagonists). For efficiency considerations, it is best to recommend losartan for any indication requiring an AII-antagonist, as it is the generic AII-antagonist. Losartan can be used for a broad range of indications.

Definition

$$\frac{\text{Number of new users of the generic losartan}}{\text{Number of new users of AII-antagonists (including combinations)}}$$

Preferred ACE-inhibitors

The 'Farmacotherapeutisch Kompas' (2010) does not report any medicines as superior within the group of ACE-inhibitors. For efficiency considerations, it is best to recommend a generic medicine for any indication requiring treatment with an ACE-inhibitor. Generic presentations are available for captopril, enalapril, fosinopril, lisinopril, perindopril (terbutylamine), quinapril and ramipril.

Definition

$$\frac{\text{Number of new users of generic enalapril, captopril, lisinopril, ramipril}}{\text{Number of new users of ACE-inhibitors (including combinations)}}$$

Preferred antidepressants

The multidisciplinary guideline on Depression (2009) suggests choosing a SSRI or a TCA in the primary care of ambulantly treated patients with a depressive disorder. Diabetes patients who use duloxetine are excluded because they use this substance for neuropathic pain. Tricyclic antidepressants are also often used for neuropathic pain and are therefore excluded from this indicator despite being the first choice for depression. Because of the stopping smoking indication for Zyban, this substance is also excluded from this indicator. The guideline does not suggest a preferred medicine. From an efficiency viewpoint, it is important to select a generic form.

Definition

$$\frac{\text{Number of new users of generic SSRIs*}}{\text{Number of new users of antidepressants*}}$$

*except new users of TCAs, Zyban and diabetes patients who use duloxetine

Preferred PPI

According to the 'Farmacotherapeutisch Kompas' (2010), price plays an important role in the choice of a proton pump inhibitor, given the small differences between varieties. Omeprazol and pantoprazol were the cheapest ones in 2010.

Definition

$$\frac{\text{Number of new users of generic omeprazol and pantoprazol}}{\text{Number of new users of proton pump inhibitors}}$$

Treatment of diabetes patients with statins

The NHG guideline on Cardiovascular risk management (2006) advises prescribing a statin for almost all patients with diabetes mellitus type 2. One exception is: 'patients with a LDL-cholesterol < 2.5 mmol/l'. We derived the indication diabetes mellitus type 2 from repeated use of oral diabetes medicines.

Definition

$$\frac{\text{Number of users (aged 40-79 years) of oral blood glucose-lowering substances combined with a statin}}{\text{Number of users (aged 40-79 years) of oral blood glucose-lowering substances}}$$

Treatment of cardiovascular patients with statins

According to the NHG guideline on Cardiovascular risk management (2006), all cardiovascular patients with LDL>2.5 mmol/l should receive a cholesterol synthesis inhibitor.

Definition

$$\frac{\text{Number of users (aged 40-79 years) of nitrates or platelet aggregation inhibitors in combination with a statin}}{\text{Number of users (aged 40-79 years) of nitrates or platelet aggregation inhibitors}}$$

Dosage of rosuvastatin and atorvastatin

The NHG guideline on Cardiovascular risk management (2006) advises prescribing atorvastatin or rosuvastatin for patients with cardiovascular disease or DM2 with a greatly raised risk of manifestations of cardiovascular disease, if the target value for LDL is not achieved. If a GP prescribes one of these substances for a proper indication, then he/she must use adequate dosages to have a stronger effect on LDL than 40 mg of simvastatin.

Definition

$$\frac{\text{Number of new users of minimal 20 mg of atorvastatin and minimal 10 mg of rosuvastatin}}{\text{Number of new users of atorvastatin and rosuvastatin}}$$

Dosage of simvastatin and pravastatin

The NHG guideline on Cardiovascular risk management (2006) advises prescribing simvastatin and pravastatin at a dosage of 40 mg.

Definition

$$\frac{\text{Number of new users of 40 mg of simvastatin and pravastatin}}{\text{Number of new users of simvastatin and pravastatin}}$$

Treatment of asthma patients with ICS

The NHG guideline on Asthma in adults (2007) and the NHG guideline on Asthma in children (2006) always advise the use of inhaled corticosteroids for persistent asthma. The indication of persistent asthma can be derived from repeated use of asthma medicines.

Definition

$$\frac{\text{Number of users (aged 6-39 years) of inhaled corticosteroids}}{\text{Number of patients (aged 6-39 years) with 3 or more prescriptions for asthma medicines}}$$

Treatment of NSAID users with gastric medication

According to the NHG Pharmacotherapeutic guideline for Pain control (2007), preventative measures are required for NSAID users aged 70 years or older to prevent gastric complications.

Definition

$$\frac{\text{Number of users (>70 years) of NSAIDs or salicylates* with gastric protection}}{\text{Number of users (>70 years) of NSAIDs or salicylates}}$$

* This only concerns high doses of salicylates (300 and 600 mg).

Overtreatment of triptans

The use of triptans is maximised for each episode. The initial dose is given and may be repeated as necessary once within 24 hours (or twice in the case of sumatriptan tablets). For two or more migraine episodes per month, the NHG guideline on Headache (2004) insists that a preventative treatment must be considered.

Definition

$$\frac{\text{Number of users with less than 72 tablets of sumatriptan or 48 tablets of other triptans and number of users of triptans in combination with preventative treatment with beta-blocker}}{\text{Number of users of triptans}}$$

Therapy compliance with antidepressants

According to the Multidisciplinary guideline on Depression (2009) and Anxiety disorders (2009), it is important in terms of effectiveness and efficiency to prevent new users stopping their antidepressant therapy prematurely. Given the repeated prescription of tricyclic antidepressants and duloxetine for neuropathic pain and other indications, new users of these medicines are excluded from this indicator. Because of the stopping smoking indication for Zyban, this substance is also excluded from this indicator.

Definition

$$\frac{\text{Number of new users of antidepressants who do not stop taking the medication after 1 or 2 prescriptions}}{\text{Number of new users of antidepressants*}}$$

*except new users of a TCA, Zyban and diabetes patients who use duloxetine

Volume of antibiotics

The NHG guidelines on Asthma in children (2006), Children with fever (2008), Acute otitis media in children (2006), Otitis media with effusion in children (2005), Otitis externa (2005), COPD (2007), Acute sore throat (2007), Acute coughing (2003) and Rhinosinusitis (2005) do not specify antibiotics as a possible therapy choice or recommend restraint. For volume indicators, in contrast to the other indicators, the reference value is lower than the national average. This means that the lower the score on these indicators, the better the prescription behaviour (with an optimum of course).

Definition

$$\frac{\text{Number of users of antibiotics}}{\text{Total number of patients in the population}}$$

Volume of proton pump inhibitors

According to the NHG guideline on Gastric symptoms (2003), the indication for chronic use of proton pump inhibitors for gastric symptoms is very limited. In practice, the chronic use of proton pump inhibitors is common. The indicator is restricted to the age group up to 60 years, because older people taking proton pump inhibitors are often given gastric protection, e.g. NSAIDs. For the volume indicators, the lower the score, the better the prescription behaviour (with an optimum of course).

Definition

$$\frac{\text{Number of chronic users (up to 60 years old) of proton pump inhibitors}}{\text{Total number of patients in the population (up to 60 years old)}}$$

8 Method

In this section we cover the development and validation of the indicators IVM is using in the Prescription Behaviour Monitor for GPs. Then it presents the data used in the analysis and describes how the analyse was done.

8.1 Development and validation

The Prescription Behaviour Monitor for GPs from IVM employs different indicators. These indicators refer to commonly prescribed groups of medicines and are defined to reflect the essence of the recommendations for medical treatment from the NHG guidelines and the 'Farmacotherapeutisch Kompas'. After an indicator is developed, it is validated. A validation of the content determines whether the indicator describes the essence of the guideline and whether the definition is a good translation of the recommendations in the guideline. This is followed by a construct validation. The validations determine whether the indicator actually measures what needs to be measured.

8.2 Data used

The scores in this report refer to 2010 and are based on Vektis data. Because the data for the first two quarters of 2010 were not entirely reliable for a number of health care insurers, we calculated the indicators based on the last two quarters. The database includes 9,264 different GPs. Figures from NIVEL[3] reveal that in 2010 there were 7,833 independently working GPs, 1,088 assistant GPs and an estimated 1,479 locum doctors.

8.3 Analysis

Scores for the indicators

To calculate the national average, the weighted average of the indicator scores of all GPs was used. Each indicator was weighted according to the magnitude of the denominator; GPs with relatively few patients counted for less. The distribution of the indicator is the difference between the weighted 90-percentile score and the 10-percentile score. A comparison with outcomes from earlier reports of the Prescription Benchmark for GPs is not possible for various reasons. The definitions of a large number of indicators have been made more precise and updated. Thus, the indicators are no longer exactly comparable. The SFK database differs in a number of ways from the Vektis database. For example, SFK contains supply data and Vektis reimbursement data. The Vektis database has a better national cover, as the SFK is lacking the dispensing GPs, for example. In the Vektis database a patient can be followed better over time, which is not possible with SFK if the patient switches pharmacies. Finally, the calculation in this report is based on outcomes per GP while in previous years it was based on outcomes per pharmacy.

[3] L. Hingstman and R.J. Kenens. Cijfers uit de registratie van huisartsen, Peiling 2010. NIVEL, 2010.

Regional differences

The regional arrangement (section 4) is based on the first two figures of the postal code of the GP. For a list of postal code areas, see appendix 1. The regional differences show the lowest and the highest score of the regions and reveal the differences in the Netherlands per indicator.

A total score per cluster is calculated for each region. For each cluster a map was prepared of the scores for the different postal code areas and how they compare to each other (figures 4.1 - 4.4). The lowest 25 percent (worst-scoring) regions are coloured red, the regions between the 25th and 50th percentile are orange, the regions between the 50th and 75th percentile are light green and regions belonging to the top 25 percent are dark green. The hierarchy for the overall score is determined by adding up the scores of the different indicators, with the volume indicators being converted, so that a low volume gives a high score.

Differences between health care insurers

In section 5 the differences between health care insurers are described. In the Netherlands there are 26 health care insurers. There are four groups (Achmea, Menzis, UVIT and CZ-group) covering a total of 19 health care insurers. Table 8.1 presents the health care insurers classification.

For each health care insurer a total score per cluster was calculated and then determined according to the hierarchy. The hierarchy for the overall score is determined by adding up the scores of the different indicators, with the volume indicators being converted, so that a low volume gives a high score. A score of 1 indicates that the health care insurer in question scores the best overall or within a specific cluster. A higher score means more scope for improvement. The higher the score, the more scope there is for improvement.

Differences between GPs

In section 6 the differences between GPs are examined further. The outcomes of the indicators are divided according to gender and age group of the GP. We employed the following age groups: ≤35 years, 36-45 years, 46-55 years, and 56 years and older.

Table 8.1 Classification of health care insurers

Group	Label	Classification in this report
Achmea	Zilverenkruis Achmea	Zilveren Kruis (Achmea)
	Agis	Agis (Achmea)
	Avéro Achmea	Other (Achmea)
	FBTO	Other (Achmea)
	Interpolis	Other (Achmea)
	OZF Achmea	Other (Achmea)
CZ Delta Lloyd Ohra	CZ Groep	CZ (CZ)
	Delta Lloyd	Delta Lloyd/OHRA (CZ)
	OHRA	Delta Lloyd/OHRA (CZ)
Menzis	Anderzorg	Menzis/Anderzorg (Menzis)
	Menzis	Menzis/Anderzorg (Menzis)
	AZIVO	AZIVO (Menzis)
UVIT	Unive	Unive (UVIT)
	VGZ	VGZ (UVIT)
	Trias	Trias (UVIT)
	IZA	Other (UVIT)
	IZZ	Other (UVIT)
	Gouda	Other (UVIT)
	UMC	Other (UVIT)
ASR	ASR	ASR
De Friesland	De Friesland	De Friesland
DSW	DSW	DSW
ONVZ	ONVZ	ONVZ
Salland	Salland	Salland
Stad Holland	Stad Holland	Stad Holland
Zorg en Zekerheid	Zorg en Zekerheid	Zorg en Zekerheid

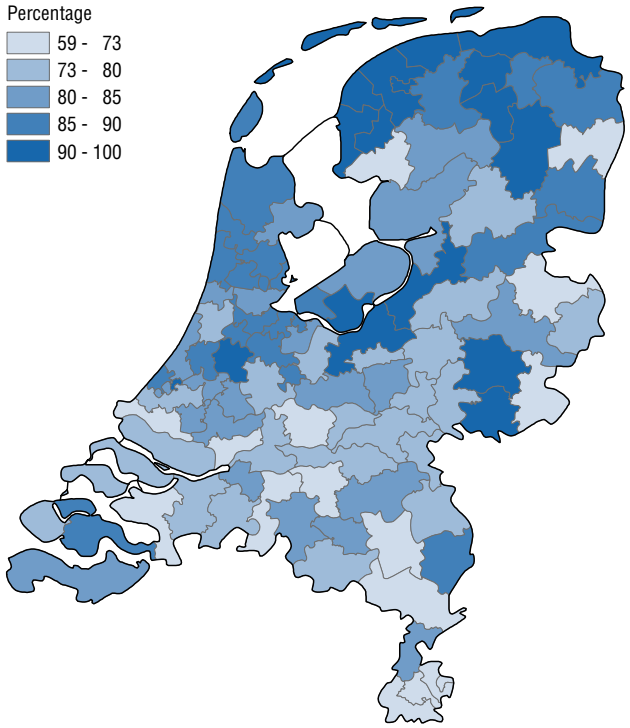
Appendix 1

Map with the regional arrangement based on the 2-figure postal code system

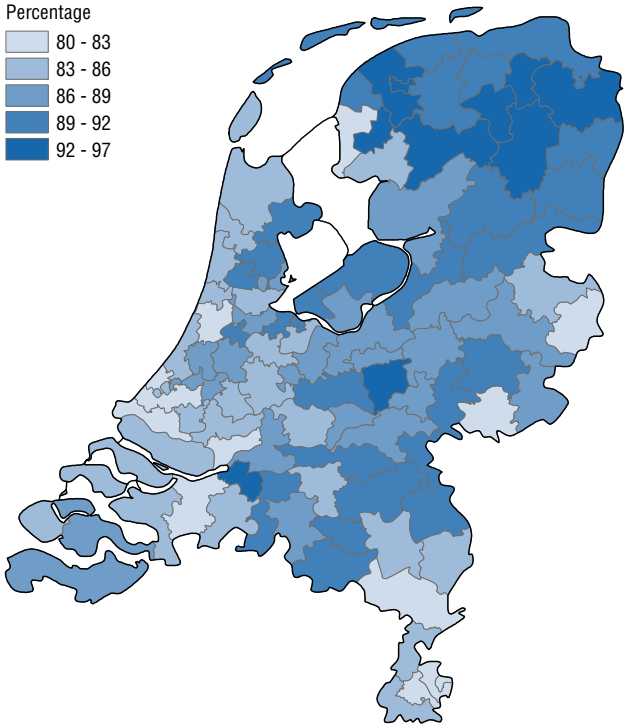
The regional arrangement in this report is based on the first two numbers of the postal code of the GP.

Appendix 2 Maps with scores for the separate indicators

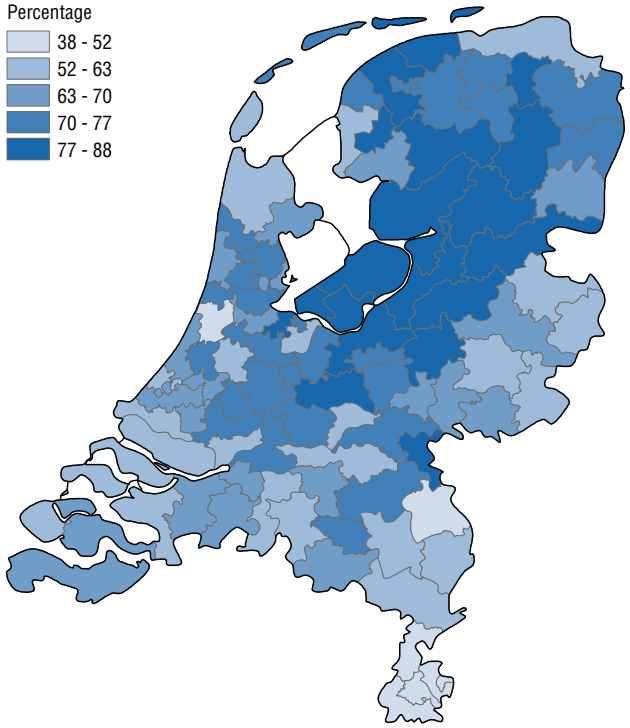
Preferred bisphosphonates



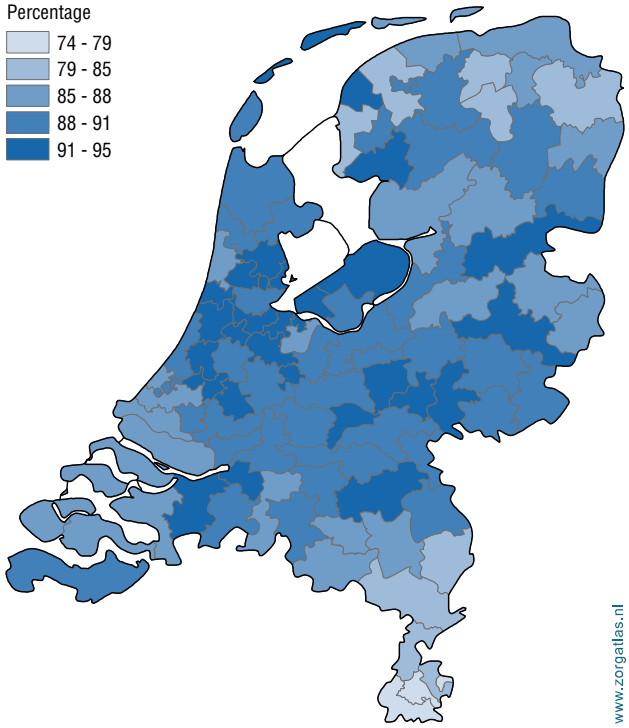
Preferred NSAIDs



Preferred RAS-inhibitors

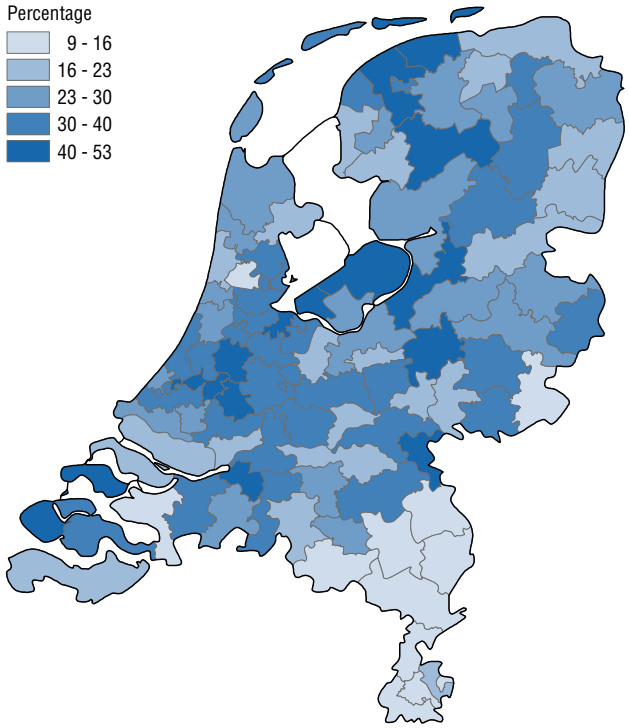


Preferred statins

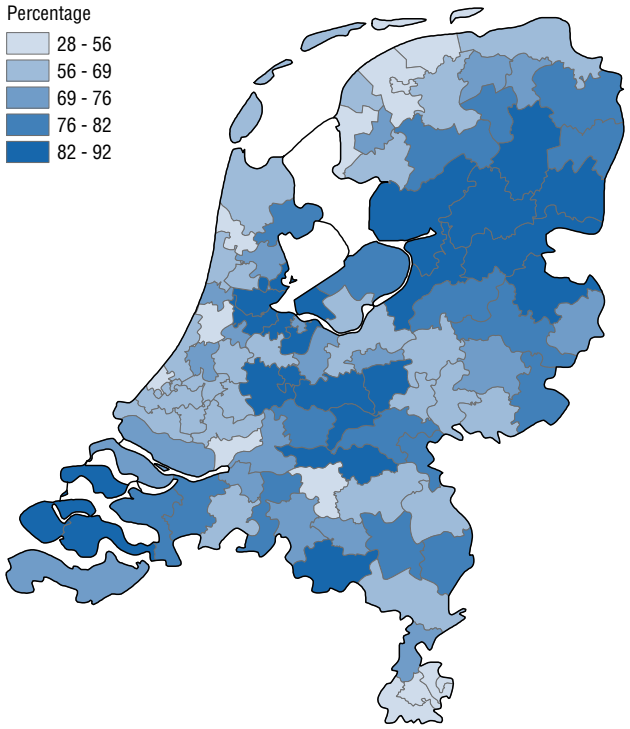


www.zorgatlas.nl

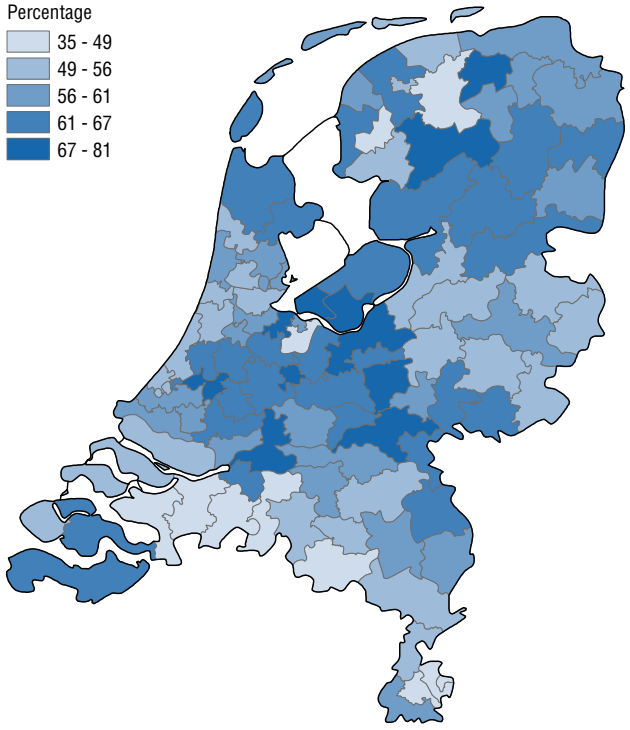
Preferred AII-antagonists



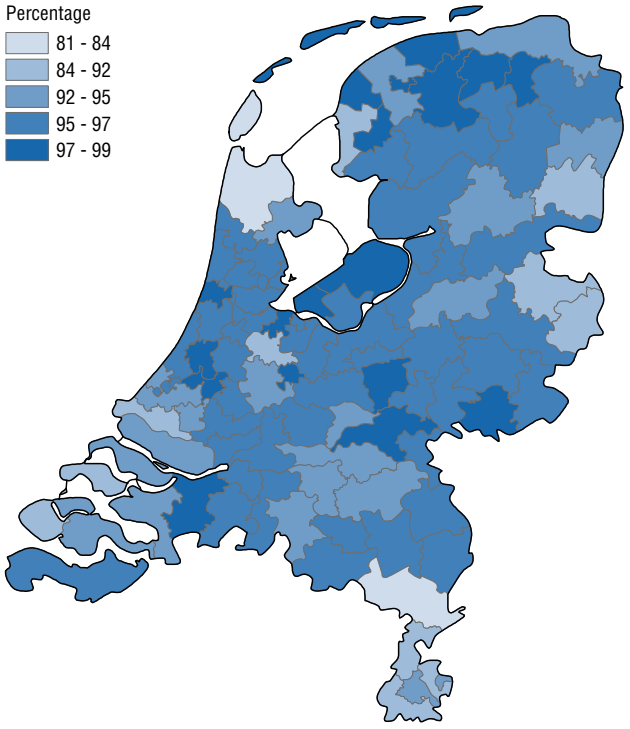
Preferred ACE-inhibitors



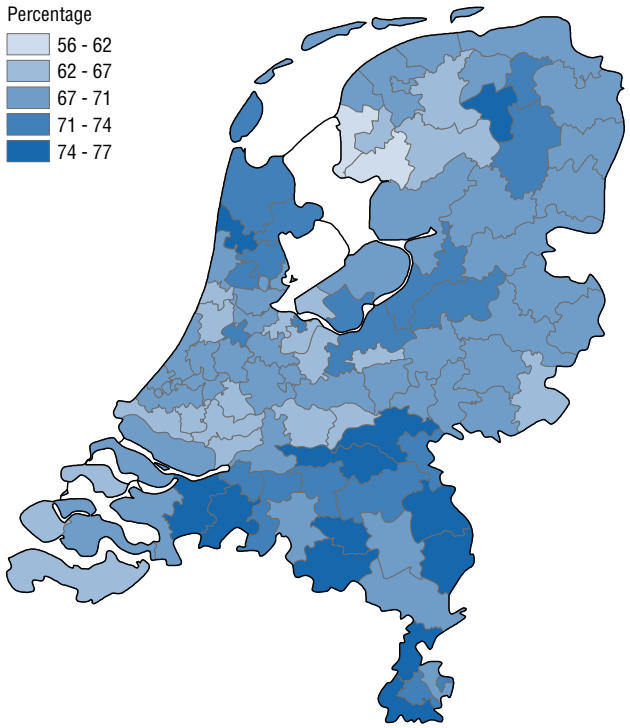
Preferred antidepressants



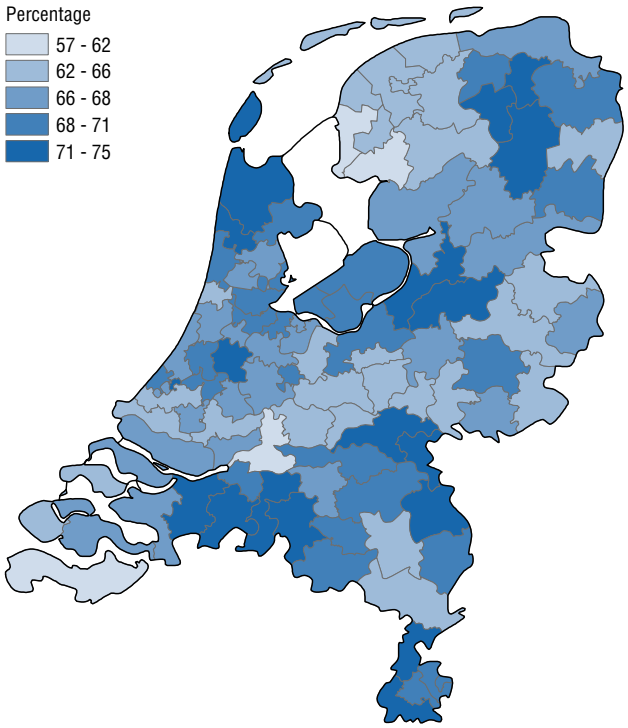
Preferred PPI



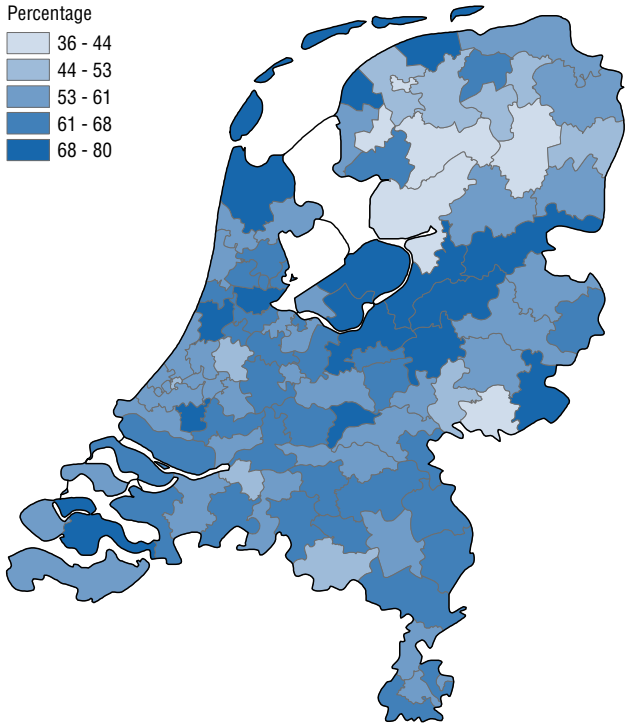
Treatment of diabetes patients with statins



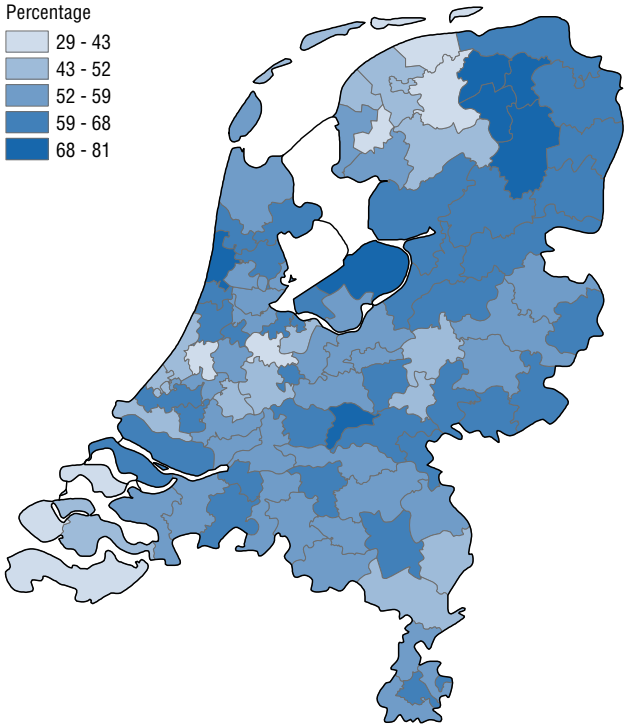
Treatment of cardiovascular patients with statins



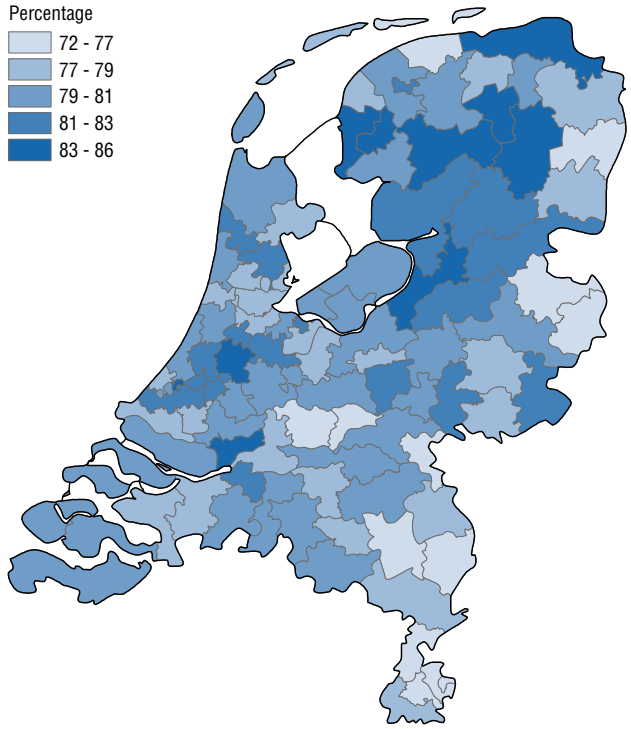
Dosage of rosuvastatin and atorvastatin



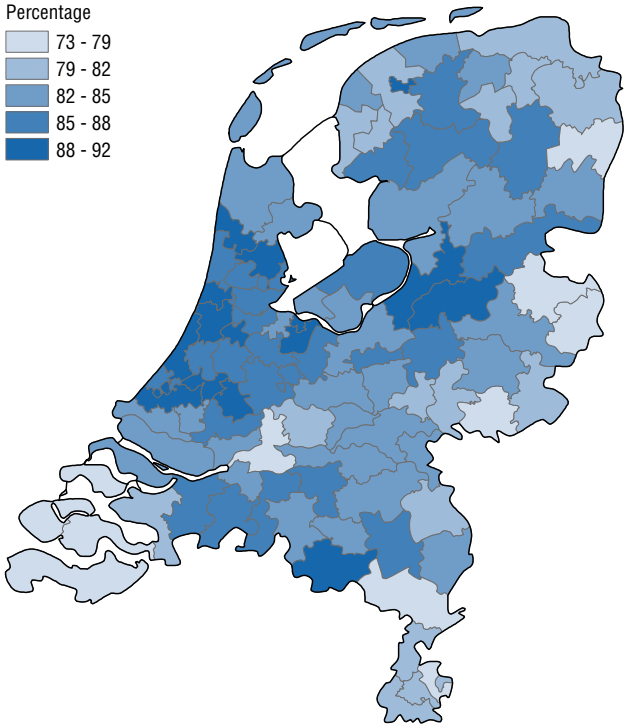
Dosage of simvastatin and pravastatin



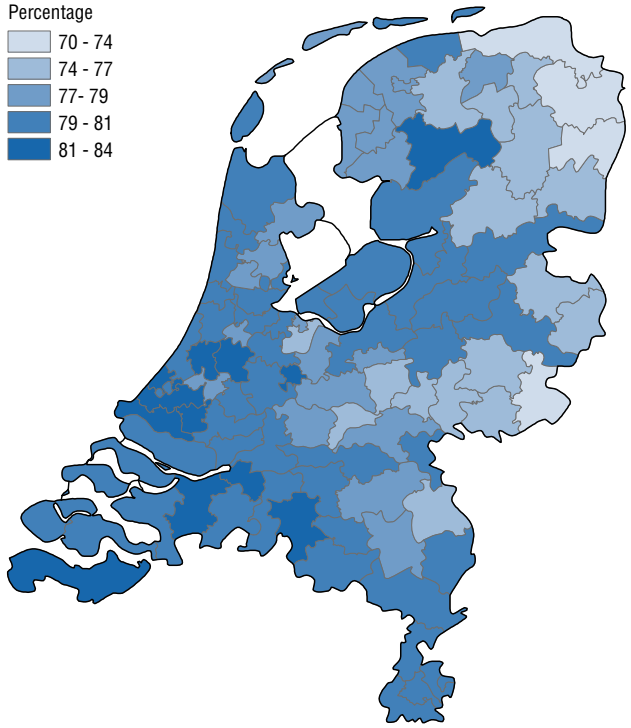
Treatment of asthma patients with ICS



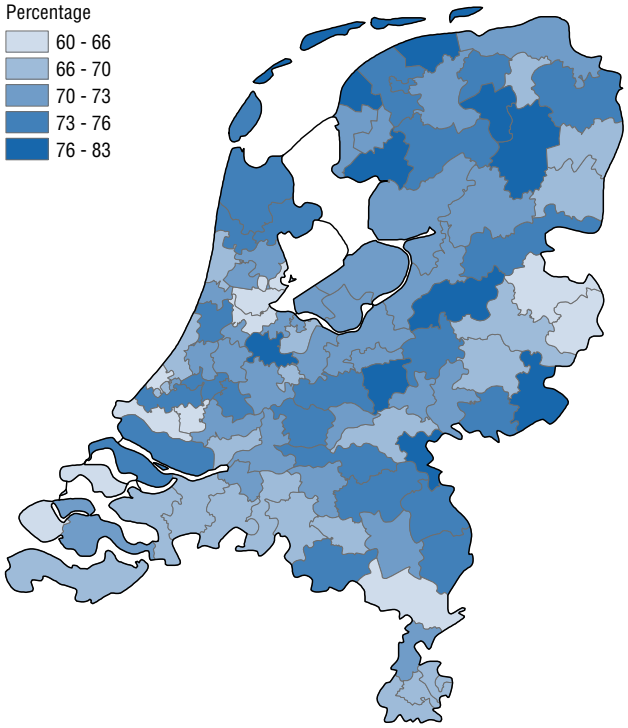
Treatment of NSAID users with gastric medication



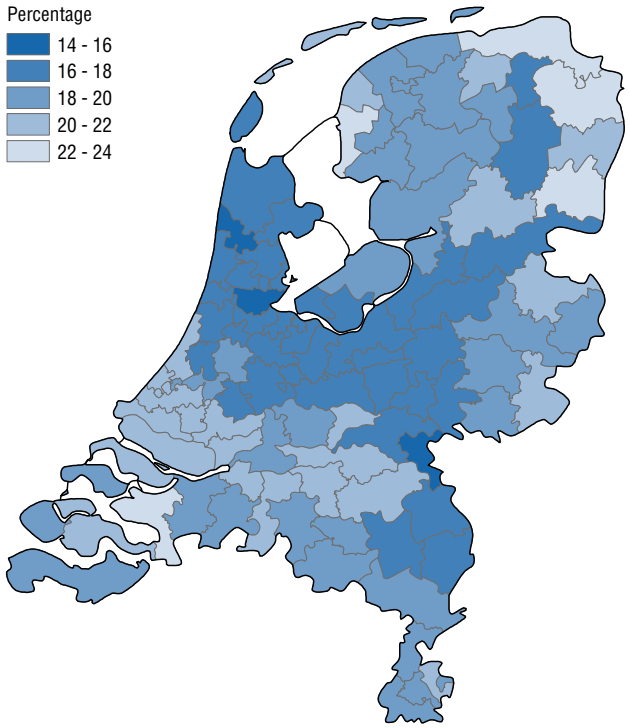
Overtreatment of triptans



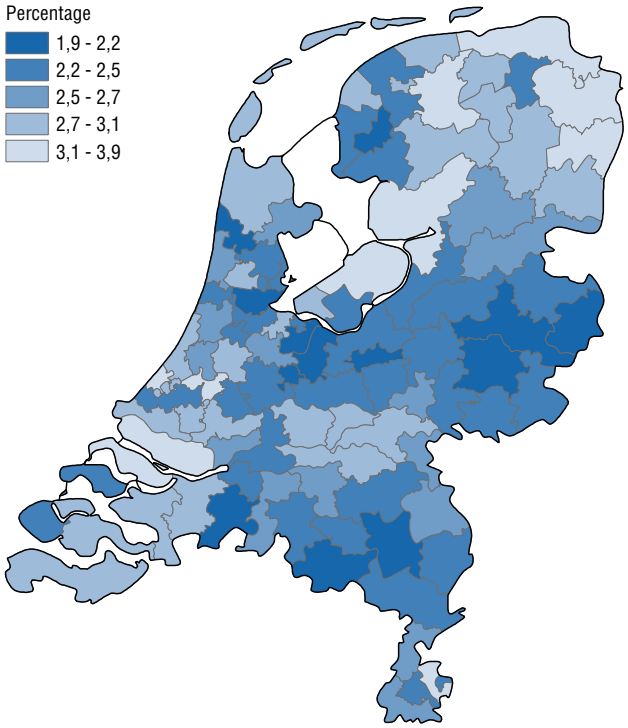
Therapy compliance with antidepressants



Volume of antibiotics



Volume of proton pump inhibitors



Appendix 3 Hierarchy of postal code areas in four clusters

Hierarchy of postal code areas in four clusters					
Ranking total	**Postal code**	**Ranking Following guideline choice for new users**	**Ranking Efficient choice for new users**	**Ranking CVRM**	**Ranking Other**
1	80	3	3	1	14
2	82	13	3	3	28
3	77	2	21	6	12
4	13	6	1	57	37
5	65	27	2	20	45
6	67	11	6	39	19
7	94	4	17	50	7
8	35	18	8	45	21
9	98	25	23	2	59
10	14	15	29	10	17
11	81	39	31	4	2
12	97	10	26	12	83
13	93	16	35	8	40
14	39	19	10	66	29
15	27	46	7	56	15
16	66	41	9	28	58
17	84	12	5	85	9
18	49	21	13	59	36
19	38	14	37	26	42
20	11	36	20	34	64
21	79	31	14	54	51
22	10	42	22	23	70
23	24	37	25	63	1
24	83	23	15	74	25
25	23	22	19	80	13
26	34	45	12	68	32
27	96	24	33	18	79
28	16	33	40	38	41
29	54	28	56	22	27
30	44	52	16	27	80
30	20	38	53	30	22
32	73	43	45	43	18
32	28	29	28	81	6
34	56	40	46	24	53
35	42	48	10	70	69
36	18	20	83	16	11
37	36	30	43	73	5
38	88	9	63	61	26
39	19	47	61	14	62

Ranking total	Postal code	Ranking Following guideline choice for new users	Ranking Efficient choice for new users	Ranking CVRM	Ranking Other
39	41	65	24	46	65
41	53	61	39	32	33
42	47	63	30	33	56
43	90	7	36	84	43
44	40	72	38	5	82
45	29	50	47	53	38
46	91	8	74	71	20
47	37	51	55	52	50
48	30	57	54	15	75
48	78	34	49	51	71
50	15	26	73	49	47
50	86	1	48	90	31
52	26	75	42	55	8
52	48	58	71	13	46
54	72	35	51	60	81
55	17	60	81	9	34
56	55	59	69	47	16
57	74	55	34	75	63
58	51	81	41	31	30
58	59	68	58	42	55
58	70	44	32	82	77
58	71	71	57	35	48
62	58	74	64	19	67
63	99	32	78	44	61
63	12	73	27	76	54
65	22	64	59	64	23
65	32	78	68	17	24
67	21	83	82	7	4
68	50	67	72	29	60
68	69	49	67	72	52
70	52	69	85	11	39
71	95	54	52	58	88
72	92	17	70	86	49
73	57	82	62	48	57
73	89	5	86	89	10
75	85	62	80	79	3
76	68	53	66	78	77
77	61	80	77	37	73
78	45	56	50	87	76

Ranking total	Postal code	Ranking Following guideline choice for new users	Ranking Efficient choice for new users	Ranking CVRM	Ranking Other
79	75	84	60	25	89
80	43	76	18	88	85
81	33	77	76	69	35
82	25	70	79	67	68
82	31	79	65	77	66
84	46	86	75	40	72
85	76	85	44	62	90
86	87	66	84	83	44
87	62	89	88	21	74
88	60	87	87	65	86
89	64	88	89	41	87
90	63	90	90	36	84

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