

# BMJ Open Identifying and de-implementing low-value care in primary care: the GP's perspective – a cross-sectional survey

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## ABSTRACT

**Objective** General practitioners have an important role in reducing low-value care as gatekeepers of the health system. The aim of this study was to assess the experiences of Dutch general practitioners regarding low-value care and to identify their needs to decrease low-value primary care.

**Design** We performed a cross-sectional study.

**Participants** We sent a survey to 500 general practitioners.

**Setting** Primary care in the Netherlands.

**Primary and secondary outcomes** The survey contained questions about the provision of low-value care and on clinical cases about lumbosacral spine X-rays in patients with low back pain and vitamin B<sub>12</sub> laboratory tests without an evidence-based indication. We also asked general practitioners what they needed to reduce low-value care.

**Results** A total of 182 general practitioners (37%) responded. 67% indicated that low-value care practices are regularly provided in general practice. 57% of the general practitioners have seen negative consequences of low-value care, in particular side effects of medication. The most provided low-value care practices are medication prescriptions such as antibiotics and laboratory tests such as vitamin B<sub>12</sub> tests. The most reported drivers are patient-related. General practitioners want to maintain a good relationship with their patients by offering their patients an intervention instead of watchful waiting. Lack of time also plays a major role. In order to reduce low-value care, general practitioners suggested that educating patients on the value of tests and treatments might help. Supporting general practitioners and other healthcare professionals with clear guidelines as well as having more time for consultation were also mentioned by general practitioners.

**Conclusion** General practitioners are aware of providing unnecessary care despite their role as gatekeepers and have reasons for this. They need support in order to change their practice. This support might consist of better education of healthcare professionals and providing more time for consultation. Local and national media, such as websites and television, could be used to educate patients while guidelines could support professionals in reducing low-value care.

## INTRODUCTION

Healthcare professionals and policy makers are struggling to identify and reduce low-value

## Strengths and limitations of this study

- Some studies have identified barriers for general practitioners (GPs) to reduce low-value care. This study focuses on how GPs can be facilitated to reduce low-value care in practice.
- We sent a survey to 500 GPs; a representative sample of 37% responded.
- Our results are based on a sample that was comparable with the national distribution of GPs in the Netherlands, so selection bias will probably be limited and the results may be generalisable for the Dutch GPs.
- A limitation of our study is the risk of potential non-responding and availability bias.

care practices.<sup>1</sup> Low-value care can be defined as care that provides minimal or no benefit, considering the harms, the costs, alternatives and the preferences of the patient.<sup>2</sup> Low-value care could create unnecessary burden and risk of harm and waste resources. The volume of low-value care differs between countries, healthcare providers and practices.<sup>3–5</sup>

There have been several initiatives to reduce low-value care such as the Choosing Wisely campaign, which have reached many countries worldwide.<sup>6</sup> This campaign provided lists with do-not-do recommendations that can be converted into action.<sup>7–11</sup> Participating countries are increasingly focusing on de-implementing the low-value practices addressed in the recommendations.<sup>12</sup> De-implementation of these practices is challenging because there are many factors that drive physicians to deliver low-value care.<sup>13</sup> Therefore, it is important to know the specific needs of physicians to reduce low-value care practices.

While limiting low-value care is a responsibility for all healthcare professionals, it may be particularly relevant for general practitioners (GPs). In several countries, GPs are gatekeepers of the health system. They have an important role in educating patients on

unnecessary tests, treatments, procedures or referral to a specialist. Because GPs are crucial in preventing low-value care across healthcare systems, it is important to know the factors that help GPs to prevent overuse.

Studies have focused until now on barriers for GPs to avoid low-value care. In two US surveys, GPs indicated that time constraints, patient preferences and fear for malpractice suits are major barriers for reducing overuse.<sup>14 15</sup> A study in Spain among GPs, nurses and paediatricians identified also lack of time as a crucial barrier, next to insufficient patient information.<sup>16</sup> A Swiss survey showed that GPs saw the specific request of patients as the most important barrier; time constraints and fear for malpractice suits were hardly mentioned.<sup>17</sup> A Dutch study identified the demand-satisfying attitude and the available diagnostic facilities as the most prominent barriers for GPs to avoid low-value care practices.<sup>18</sup> None of these studies specified the practical needs of GPs to reduce low-value care in practice. Identifying the specific support needed will enable selecting strategies for reducing low-value care in primary care. The aim of this study was to identify the experiences of Dutch GPs towards low-value care and their needs to decrease low-value primary care.

## METHODS

### Design and setting

We performed a cross-sectional study using a postal survey among GPs in the Netherlands. The Netherlands has a strong primary care system compared with other countries.<sup>19</sup> GPs are often the first healthcare provider that the patient visits. They provide continuous, person-centred care for a wide range of conditions and only refers a minority of patients for specialist care. Patients have to pay the first 385 euro of their healthcare expenses every year, also for tests and imaging ordered by the GP. Consultation of a GP is always free for patients.

### Questionnaire

We developed a questionnaire based on previously developed surveys that were used for questioning GPs on low-value care.<sup>14 15 17 18</sup> The position of the items was randomly assigned. The usability of the survey was tested by three GPs from our own network by filling in the questionnaire and giving verbal feedback. Based on this feedback, we adapted the wording on some occasions in order to make the questions easy to understand and not too offensive against GPs. In the invitation letter sent to the GPs, we defined low-value care as care that does not benefit the patient due to the lack of effect in relation to its harms, alternatives or costs. The survey contained open and closed questions in three parts. The first part contained general questions about the provision of low-value care. The second part contained two clinical cases and specific questions about how GPs could be facilitated to decrease low-value care. We selected two cases with robust evidence of being of low value and high prevalence in Dutch GP practice: lumbosacral spine X-rays in patients with low

back pain without alarming symptoms and vitamin B<sub>12</sub> laboratory tests without an evidence-based indication. Dutch GP guidelines clearly advise against both low-value care practices. The third part of the survey included demographic variables of the respondent. See online supplementary material for an English version of the survey.

### Procedure

A random sample of 500 GPs was drawn from a database of 11 834 GPs working in the Netherlands in 2016 administered by the Netherlands Institute for Health Services Research. In October 2018, we sent an invitational letter with a postal survey and a reply envelope. Two weeks later, we sent a reminder to the non-responding GPs.

### Analysis

Differences between the study population and all Dutch GPs regarding age, gender and practice setting were analysed using the  $\chi^2$  test. Descriptive statistics were used to describe the most common low-value care according to GPs and to describe the factors that affect low-value care. Because of missing values, not all denominators are the same. Relations between respondents' gender, age and practice setting, and their responses on the questions 1, 3, 4 and 6 of the first part of the questionnaire, and questions 1 and 3 of both cases were tested using the  $\chi^2$  test. If >20% of the cells had an expected count less than 5, Fisher's exact test was used. We analysed the relation between the respondents' gender, age and practice setting and whether they marked each of the 11 drivers of question 3 as an important reason for providing low-value care. We used Bonferroni correction for multiple testing. We also determined whether GPs that receive more requests from patients deliver more of these healthcare practices. Therefore, we analysed the relations between the number of patient requests for an X-ray or vitamin B<sub>12</sub> test and the number of these tests ordered by GPs using Spearman's correlation coefficients. In the analyses, missing values were less than 5% and were handled by listwise deletion. Data were analysed with SPSS V.25.

One author (EWV) read all texts of the open questions and categorised them. Another researcher (RBK) also read all texts and checked the categorisation. When he disagreed, the two authors discussed until consensus was reached.

### Patient and public involvement

No patient involved.

## RESULTS

### Respondent characteristics

Of the sample with 500 GPs, 489 GPs received the survey; 11 surveys were returned unfilled because they were sent to the wrong address. Of the 489 GPs, 182 (37%) answered the survey. The characteristics of responding GPs and of the reference group of all Dutch GPs<sup>20</sup> are presented in

**Table 1** Characteristics of the responding GPs and Dutch national average of GPs

Characteristics	Responding GPs (N=182)	All Dutch GPs (N=9898)
Age		
<35 years	16 (8.8%)	1075 (10.9%)
35–44 years	55 (30.2%)	3011 (30.4%)
45–54 years	52 (28.6%)	2816 (28.5%)
55–64 years	50 (27.5%)	2785 (28.1%)
>64 years	9 (4.9%)	211 (2.1%)
Gender		
Male	85 (46.7%)	4679 (47.3%)
Female	97 (53.3%)	5219 (52.7%)
Practice setting		
Solo practice	51 (28.0%)	1689* (17.0%)
Two GP practice	55 (30.2%)	3888* (39.1%)
Group practice	76 (41.7%)	4378* (44.0%)

\*N=9955.

GPs, general practitioners.

table 1.  $\chi^2$  tests show no difference in age ( $p=0.065$ ) and gender ( $p=0.879$ ) between the respondents and all Dutch GPs. There is a significant difference in practice setting ( $\chi^2$  test=16.51,  $p<0.001$ ) that shows that GPs from solo practices are over-represented in our study population.

### Experiences with low-value care

Almost all GPs (175/176=99.4%) responded that low-value care is provided in the general practice. Two-third responded that it occurs regularly or often (117/176=66.5%). We found no significant relation between this reported frequency of low-value care and the respondents' gender, age in categories and practice setting (Fisher's exact tests  $p=0.153$ ,  $p=0.208$  and  $p=0.067$ ). Half of the responders (99/175=56.6%) have experienced negative consequences of low-value care for their patients such as side effects of medications, complications after procedures and unnecessary anxiety among patients due to coincidental findings by diagnostic tests. Significant relations between experiencing negative consequences and gender, age and practice setting of the GPs were lacking as well ( $\chi^2$  tests  $p=0.532$ ,  $p=0.758$  and  $p=0.340$ ). Ninety-three per cent of the GPs discuss the issue of low-value care with colleagues.

When asked for the five most frequent low-value care practices, the responding GPs reported a total of 737 practices (see table 2). The prescription of unnecessary medication was most frequently mentioned (196/737=26.6%). Within the category medication, antibiotics were by far the most frequent (106/196=54.1%), but also benzodiazepines (9/196=4.6%), opioids (8/196=4.1%) and vitamin supplements (8/196=4.1%) were mentioned several times. Low-value laboratory tests were mentioned by a quarter of the responding GPs (183/737=24.8%) and were

**Table 2** Most provided low-value care in the general practice mentioned by GPs

Most provided low-value care	All reported low-value care practices (N=737)*, n (%)
Medication	196 (26.6)
Laboratory tests	183 (24.8)
Referral	141 (19.1)
Imaging	135 (18.3)
Administrational tasks	49 (6.6)
Extra consultation	9 (1.2)
Other	24 (3.2)

\*Multiple answers were possible.

GPs, general practitioners.

often not specified. If specified, vitamin (17/183=9.3%) and PSA (Prostate Specific Antigen) (12/183=6.6%) tests were the most frequently mentioned. One hundred and forty-one practices (19.1%) concerned a variety of 19 types of referrals that are often of low value, of which referrals to the physical therapist (14/141=9.9%) were the most frequent. Regarding imaging (135/737=18.3%), X-rays (88/135=65.2%) in case of low back pain or osteoarthritis were the most frequent. Several GPs (49/737=6.6%) reported administrative tasks, such as filling in forms or phone calls to arrange, for example, home care devices. Other care practices (24/737=3.2%) were other diagnostic tests such as echocardiography for chest pain and procedures such as minor cosmetic surgery.

### Drivers for providing low-value care

As shown in table 3, the largest drivers for providing low-value care were the wish to maintain a good relationship with their patient (138/182=75.8% of all GPs) and the need (or wish) to offer the patient an intervention (95/182=52.2%). Time constraints also play a large role in providing low-value care: 101/182=55.5% of the responders indicated that lack of time forces the GP to provide low-value care. A fifth (33/182=18.1%) of the respondents also reported other reasons for providing unnecessary care, such as reassuring the patient, finding a compromise with the patient, lack of energy to start a discussion and the request for another healthcare professional.  $\chi^2$  tests and Fisher's exact tests showed no significant relation between the respondents' gender, age and practice setting and any of the drivers, after Bonferroni correction for multiple testing.

### Cases

About 70% (127/181) of the respondents had received a request for an X-ray of the spine of at least one patient in the past 2 weeks. Most GPs (147/181=81.2%) indicated that they were regularly or often able to convince the patient that an X-ray is not necessary. Only 17.1% (31/181) were sometimes able to convince the patient and no GPs



**Table 3** Drivers for providing low-value care

Drivers for providing low-value care	GPs mentioning the specific driver (N=182)*, n (%)
Maintaining a good relationship with the patient	138 (75.8)
Time pressure	101 (55.5)
Wanting to offer the patient something	95 (52.2)
Clinical uncertainty	42 (23.1)
Other reasons	33 (18.1)
Availability diagnostic tools	21 (11.5)
Fear of claims	18 (9.9)
Request of the patient	17 (9.3)
Action is routine	13 (7.1)
Lack of knowledge	8 (4.4)
It takes a lot of time to get in touch with a specialist	5 (2.7)

\*Multiple answers were possible.  
GPs, general practitioners.

reported that they could never convince the patient. As you can see in [table 4](#), almost half (80/181=44.2%) of the GPs had requested one or more X-rays of the lumbosacral spine in the previous 2 weeks. The majority of this group had ordered one or two X-rays during this period, just two GPs had ordered six X-rays or more. The median number of X-rays is 0.0 (IQR=0–1). The number of requests for an X-ray by patients in the past 2 weeks was significantly related to the number of X-rays ordered by GPs in the past 2 weeks (Spearman  $r_s=0.432$ ,  $p<0.001$ ). We found no significant relation between the number of X-rays ordered and gender, age and practice setting (Fisher's exact tests  $p=0.318$ ,  $p=0.465$  and  $p=0.440$ ).

In the past 2 weeks, 74.5% (134/180) of the GPs had also received a question from one or more patients demanding a vitamin B<sub>12</sub> laboratory test; 12.8% (23/180) had even received the request regularly (6 times or more in 2 weeks), with outliers of 20–40 times in 2 weeks; 74.4% (134/180) of the respondents had unnecessarily ordered one or more vitamin B<sub>12</sub> laboratory tests in the past 2 weeks. The median number of vitamin B<sub>12</sub> tests is 2.0 (IQR=0–3). The number of requests for a vitamin B<sub>12</sub> test

by patients in the past 2 weeks was significantly related to the number of tests ordered by GPs in the past 2 weeks (Spearman  $r_s=0.610$ ,  $p<0.001$ ). We found no significant relation between the number of vitamin B<sub>12</sub> tests ordered and gender, age and practice setting ( $\chi^2$  test  $p=0.708$ , Fisher's exact test  $p=0.722$  and  $\chi^2$  test  $p=0.563$ ). Compared with the X-ray for low back pain, it was more difficult for GPs to convince patients that a laboratory test for vitamin B<sub>12</sub> is not necessary. Only 9.1% (16/176) of the participants indicated that they often succeeded in convincing the patients to refrain from a vitamin B<sub>12</sub> test. A large proportion of the GPs sometimes (86/176=48.9%) or never accomplished this (13/176=7.4%).

### GPs' actions already done to reduce overuse

One hundred and thirty-two GPs (132/178=74.2%) indicated that they had done something to reduce low-value care. We found no significant relation between providing low-value care and respondents' gender, age and practice setting ( $\chi^2$  test  $p=0.259$ , Fisher's exact test  $p=0.626$  and  $\chi^2$  test  $p=0.229$ ). When asked what their actions were, 76 GPs (76/178=42.7%) answered that they had taken more time during consultation to inform patients. Sixteen GPs (16/178=9.0%) had already started to pay more attention to not ordering low-value tests and diagnostics. Others had introduced testing C-reactive protein in their GP practice to exclude infections and to reassure patients, avoiding unnecessary use of antibiotics. Some GPs had followed education to avoid low-value care.

### Needs of GPs to reduce low-value care

When asked what was needed to reduce low-value care, 153 GPs indicated one or more needs to reduce lumbosacral spine X-rays, totalling 183 needs, and 144 GPs indicated one or more needs regarding vitamin B<sub>12</sub> tests, totalling 156 needs. All needs are categorised and presented in [table 5](#), and the most interesting results are described here. Regarding their organisational needs, GPs suggested that it is important to have more time available and that GPs should take this time for a good explanation to the patient. Some GPs think that the national guidelines could be better formulated or that it would help if all physicians would discourage low-value care. In addition, local organisational changes were suggested, such as reminders in the ordering system, removing vitamin B<sub>12</sub> tests from order sets and cancelling specific vitamin B<sub>12</sub> consultation hours. Regarding their knowledge needs, GPs thought that more education of GPs, specialists and physical therapists could also help. Some GPs indicated that it would help to receive feedback information on their use of low-value care and to improve their communication skills. Regarding the patients' demand for these care practices, GPs stated that they are supported by better patient education beyond the doctor consultation, using improved information materials, clearer information on websites such as the Dutch health information website 'Thuisarts.nl' (home doctor) or information campaigns for the public. With regard to vitamin B<sub>12</sub> laboratory tests,

**Table 4** Provision of not recommended lumbosacral spine X-ray and vitamin B<sub>12</sub> laboratory tests in the last 2 weeks

	Lumbosacral spine X-ray (N=181)	Vitamin B <sub>12</sub> tests (N=180)
0 times	101 (55.8%)	46 (25.6%)
1–2 times	72 (39.8%)	75 (41.7%)
3–5 times	6 (3.3%)	36 (20.0%)
≥6 times	2 (1.1%)	23 (12.8%)

**Table 5** Needs of GPs regarding the reduction of lumbosacral spine X-rays and vitamin B<sub>12</sub> tests

	Need to reduce lumbosacral spine X-rays (N)	Need to reduce vitamin B <sub>12</sub> tests (N)
More time for the consult	53	16
Better explanation from physician	22	29
More knowledge for the physician	15	16
Better information on internet and especially 'Thuisarts.nl'*	15	13
Information campaign for the public	13	10
I don't have any needs/I don't see the problem with these practices	12	10
More knowledge for the physical therapist	9	0
More physicians that discourage low-value care	7	7
Improved information materials	6	3
Culture change	6	2
Better medical and physical examinations	5	0
More consistency in seeing the same physician for a better relationship	4	0
No longer reimbursing care	3	3
Improved communication skills of physicians	3	0
Braver physicians	2	1
Feedback information on frequency of low-value care	2	1
Less biased information from the media and commercial clinics	1	21
More clear statements in guidelines	1	8
Changes in organisation	1	5
Attention in professional journals	1	0
Fixed income for physicians	1	0
Protection against complaints	1	0
This is a hype and it will fade	0	5
More research	0	5
Available alternative	0	1
Total number of needs	183	156

\*Thuisarts is a Dutch national health information website for the general public, developed by the Dutch College of GPs (see [www.thuisarts.nl](http://www.thuisarts.nl)).  
GPs, general practitioners.

some GPs indicated that it is a hype and that they expect it will fade. Many GPs noted that there is a lot of unreliable information about this subject on the internet. Removal of this information could help. Furthermore, several GPs suggested that if low-value care would not be covered by the patients' health insurance, fewer patients will demand unnecessary care. Finally, several GPs reported that they have no needs or feel that there is nothing wrong with a non-indicated X-ray or vitamin B<sub>12</sub> test now and then.

## DISCUSSION

Our survey showed that Dutch GPs indicate that they regularly provide low-value care. Half of the GPs have seen negative consequences of low-value care, in particular side effects of medication, and the majority have taken action to reduce low-value care. We found no significant relation between GPs' experiences, attitude and provision of low-value care and gender, age and practice setting. The most common low-value care practices in primary care are medication and laboratory tests. GPs specified the support needed, which should target patients, the organisation of care and GPs' knowledge and skills. Information campaigns for the public using local and national (social) media, information materials or websites such as the website for patients of the Dutch College of General Practitioners could be used to educate patients, while clear clinical practice guidelines could support professionals in reducing low-value care.

## Comparison with existing literature

From some previous studies, we know that GPs indicate that time constraints are an important barrier in educating patients about low-value care practices.<sup>16 18</sup> Buist *et al*<sup>14</sup> also identified the providers' fear of patients being dissatisfied as a key barrier in reducing low-value care for GPs. This is understandable for the US for-profit healthcare system. In the Dutch GP care, where there are hardly any commercial motives for GPs, the preference of the patient is apparently also a strong motivator in ordering low-value care practices.

Despite the fact that the Netherlands has a strict antibiotic policy and Dutch doctors prescribe less antibiotics than their colleagues in most other countries,<sup>21</sup> Dutch GPs stated that they are still too often prescribing antibiotics. In addition, GPs indicated that unnecessary X-rays of the lumbosacral spine and vitamin B<sub>12</sub> tests are performed regularly. Previous literature has shown that low back pain imaging is also a phenomenon hard to defeat in other countries.<sup>22</sup>

In our study, only 10% of the GPs mentioned fear of claims as a reason for low-value care. This is remarkably lower than other studies have mentioned. In the UK, for example, 98% of the responding GPs in a survey study indicated that they tried to avoid patient complaining by, for example, increased diagnostic testing, increased referrals and increased follow-up.<sup>23</sup> In a more recent US study, 31% of the primary care clinicians claimed that fear of

litigation was a barrier to reducing overuse.<sup>14</sup> In another US study on perception of the Choosing Wisely recommendations, 73% of the primary care physicians believed the current medical malpractice system to be a barrier to reduce overutilisation of services.<sup>15</sup>

### Strengths and limitations

Our results are based on a sample that was comparable with the national distribution of GPs in the Netherlands, so selection bias will probably be limited and the results may be generalisable for the Dutch GPs. We also avoided socially desirable answers by asking GPs for how much low-value care was provided in general and not specifically in their own practice, except for the two cases. Another strength of the study is that we kept the recall bias limited by asking GPs about low-value care practices only in the past 2 weeks.

A limitation of our study is the risk of non-responding bias. GPs who do not recognise themselves in the subject of low-value care practice are probably less likely to respond to the questionnaire. As a result, the amount of low-value care could be overestimated because only GPs who are worried about the subject might have responded. There is also a risk of availability bias because we mentioned some examples of low-value care in the survey, specifically, antibiotics for upper respiratory tract infections. This could have contributed to the high number of GPs that wrote down antibiotics as one of the five most provided low-value care practices.

### Implications for research and practice

GPs expect that improvement in patients' knowledge of high-value and low-value care helps them to refrain from unnecessary care. Although biased information on the internet cannot be restricted, patients can be educated by GPs in the local setting and by national professional and patient organisations. In the Netherlands, a public information website on health issues ([www.thuisarts.nl](http://www.thuisarts.nl)), developed by the Dutch College of GPs, is one of the best-visited websites in the country with approximately 250 000 visits per day. The website has also impact on patients' behaviour: a study showed a decline of 12% in primary care consultations, especially those by telephone, 2 years after the launch of the website, compared with no change in a reference group.<sup>24</sup> This website might pay more attention to low-value care practices and emphasise the recommendations to be reluctant with some healthcare practices. For example, the website recently added a decision aid on PSA screening to its content, helping older men to decide whether they want a PSA test or not. Providing information brochures on specific low-value care practices that the GP can give to the patient during a consultation can help the patient to make a well-informed decision. Also, information campaigns for the general public have proven to be effective in reducing low-value care, in particular the public view on low back pain.<sup>25 26</sup> In the Netherlands, there have been no information campaigns regarding overuse except for antibiotics

in 2016. It might be interesting to research whether a campaign could influence the requests GPs receive of patients to order, for example, vitamin tests.

Although only a few GPs reported that lack of knowledge drives them to provide low-value care, several GPs suggested more education of healthcare professionals to help GPs to provide less low-value care. A recent Dutch interview study on barriers and facilitators for reducing orders for vitamin B<sub>12</sub> tests showed that the most important facilitator for vitamin test reduction was updating GPs' knowledge about test indications and their awareness of their own testing behaviour.<sup>27</sup> However, de-implementation research has shown that educating might not be enough for reducing low-value care and achieving a sustained reduction.<sup>13</sup> It is also important that strategies for reducing low-value care should target different stakeholders and contain different interventions not only targeting knowledge but also attitude and behaviour. Educating healthcare professionals alone might not be the strongest change strategy, especially in relation to more system-focused strategies such as forcing functions and automation.<sup>28</sup>

More time per consultation to explain and convince a patient that a test or treatment is not necessary might also be an effective strategy. There are several pilot studies in the Netherlands with extra consultation time for GPs with convincing results.<sup>29</sup> The time per consultation in primary care, which varies considerably per country, is also a quality indicator for the WHO and the International Network for the Rational Use of Drugs.<sup>30</sup>

In general, it is remarkable that GPs mention several 'external' drivers for reducing low-value care such as time pressure and the demands of patients, and hardly any 'internal' factors such as lack of knowledge of GPs. Only a few GPs mentioned training of their own communication skills as a need for reducing overuse. Communication skills are a crucial tool in dealing with 'the demanding patient'.<sup>31</sup> In addition, healthcare professionals assume that patients have all kinds of requests, but in reality, it is frequently not the case.<sup>32</sup> Therefore, it might be worthwhile investigating the needs of GPs in skills to handle low-value care requests. A self-reflective debate within the GP profession might help to specify the need for training of skills. Such an internal debate within the profession might also clarify the meaning of low-value care. Some of the GPs mentioned practices that are not low-value care according to the given definition, such as administrative tasks. Apparently, the concept of low-value care was not clear for all GPs. This warrants a clear explanation and the use of examples when this concept is used in communication.

Some GPs mentioned stopping coverage by health insurance as an effective intervention to reduce low-value care. In practice, this might be complex and ineffective because in most cases the care is not of low value for the whole patient group but only for a part of them. Moreover, patients already pay a part of the healthcare themselves in the Netherlands.



Finally, in order to facilitate GPs in reducing low-value care practice, it might be helpful to provide feedback information by assessing the volume and variation of low-value care among practices, preferably with data from electronic patient records. Feedback on performance data and practice variation could help to create awareness of GPs to prioritise their actions to reduce low-value care. This could be included in audit and accreditation programmes.

## CONCLUSION

GPs are aware that they provide low-value care despite their role as gatekeepers. They experience several drivers, mainly their relationship with the patient and lack of time. GPs have taken action to reduce low-value care, but need more support in order to change their practice. This support might consist of better patient education, training of healthcare professionals and providing more time for consultation. Education and clear clinical practice guidelines could support professionals in reducing low-value care as well as educating patients by information campaigns for the public using local and national media, such as websites and television.

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**Contributors** RBK, EWW, LJAW and SAVD designed the study; RBK, EWW and LJAW analysed the data; TW, JSB and SAVD provided input to the analysis and the interpretation of the results; RBK and LJAW wrote the first draft of the manuscript; EWW, TW, GPW, JSB and SAVD critically revised the manuscript; all authors approved the final version.

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