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## An Overview of 5 Years of Patient Self-Referral for Physical Therapy in the Netherlands

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### ABSTRACT

**Background.** Self-referral to physical therapy was introduced in 2006 in the Netherlands.

Internationally, debate on self-referral is still ongoing.

**Objective.** To evaluate the effects of self-referral to physical therapy in the Netherlands, focusing on volume of general practice and physical therapy care (incidence rates and utilization of services).

**Design.** The study is based on monitoring data from existing data sources.

**Methods.** Longitudinal electronic medical record data from general practitioners (GPs) and physical therapists participating in the NIVEL Primary Care Database were used, as well as public data from Statistics Netherlands. Descriptive statistics and Poisson multilevel regression analyses were used for analyzing the data.

**Results.** Incidence rates of (low) back, shoulder, and neck pain in general practice declined slightly from 2004 to 2009. No linear trends were found for number of contacts in GP care for (low) back and neck pain. The number of patients visiting physical therapists and the proportion of selfreferrers is growing. Self-referrers receive less often treatment after initial intake than referred patients and the mean number of visits is lower.

**Limitations.** This study was based on data of various patient populations from existing data sources.

Conclusions. The current study indicates that self-referral in the Netherlands has fulfilled most expectations held prior to its introduction, although no changes to the workload of GP care have been found. Use of physical therapy grew, but due to population aging and increasing prevalence of chronic diseases, it remains unclear whether self-referral affects health care utilization. Therefore, cost-benefit analyses are recommended.

Since the introduction of a new health care insurance system in 2006, patients' choice now plays a more important role in the Netherlands. It is government policy that patients – seen as “customers” – should have more opportunities to choose the qualitatively best available care provider for their health problems and they are explicitly encouraged to do so <sup>1</sup>. In this context, patient self-referral to physical therapy was introduced in 2006. Box 1 provides more detailed information on the Dutch healthcare organization and payment system.

Patient self-referral, or direct access, means that patients can be examined, evaluated and/ or treated by physical therapists without the requirement of a physician referral <sup>2</sup>. Dutch health care insurers reimburse self-referral to physical therapy in the additional health insurance packages. Sometimes this is restricted to preferred providers which are contracted by the health insurer. For some chronic conditions referral is still needed for reimbursement. Under national regulations self-referred patients first undergo a 10-minute screening procedure in which the physical therapist determines whether the health problem can be alleviated by physical therapy and whether there are contraindications. When physical therapy is indicated, more extensive examination will take place in the next visit, after which treatment will start <sup>3</sup>.

The Dutch Ministry of Health introduced self-referral with the expectation of a number of positive outcomes, which were also put forward as arguments in favor of self-referral in international studies <sup>4-6</sup>. Firstly, the ministry believed that self-referral fits within its own views on task rearrangement in health care and better access to primary care, aimed at reducing the workload of general practitioners (GPs) somewhat. Secondly, self-referral was expected to result in greater acknowledgement of the profession and increased professional responsibility, as physical therapists now make independent decisions about further patient management. Furthermore, the ministry aimed to increase patients' freedom of choice, enabling patients themselves to decide which care provider they prefer <sup>7</sup>.

However, opponents of self-referral feared some (negative) side-effects. They were concerned about missed pathology as they believed that physical therapists have inadequate knowledge to make a diagnose. They also were concerned that communication between GPs and physical therapists would decline <sup>6, 8, 9</sup>. A further concern, particularly among health care insurers was that a larger number of patients would receive physical therapy, resulting in higher health care costs.

Before the introduction of self-referral, legislation was amended in order to make it legal to visit a physical therapist without physician referral, and physical therapists completed mandatory postgraduate education. The most important element of this education was training in the ability to detect relative and absolute contraindications for physical therapy - the so-called “yellow flags” and “red flags”. Another important element was the formalization of the communication and cooperation between physical therapists and GPs <sup>10</sup>. GPs act as gatekeepers of the Dutch health care

system, and have a complete overview of all their patients' health problems. For that reason, physical therapists were familiar with reporting to GPs about patient's progress. However, in the new situation, GPs may be unaware of their patients' contacts with physical therapists, therefore, new agreements needed to be made about feedback from physical therapists to GPs. One of the agreements is that the physical therapist reports the outcome of the screening to the GP, if the self-referred patient agrees to this; and if the patient is treated, the physical therapist sends a final report<sup>11</sup>.

With the introduction of self-referral to physical therapy, the Netherlands followed countries like Australia, New Zealand, the United States (most states), Canada, and the United Kingdom<sup>12-14</sup>. Although there is clearly an international shift towards a broader introduction of self-referral<sup>15</sup>, in many countries, debate on self-referral is still ongoing<sup>16,17</sup>. Experiences from countries with self-referral can contribute in this debate. So far, most evaluations were based on studies from one or two years<sup>10,13,18,19</sup>. Long-term evaluations are still lacking. The main objective of the current study is to evaluate self-referral in the Netherlands, during a five-year period since its introduction. The study is based on Dutch monitoring data from existing data sources. It focuses on the volume of GP and physical therapy care and access to physical therapy care.

## METHOD

### Data Sources

The current study was performed with data from the following existing data sources: 1. NIVEL Primary Care Database (NPCD)<sup>20</sup> The NIVEL Primary Care Database (NPCD) is a longitudinal database on Dutch primary care. The NPCD uses data that is routinely recorded in the health care provider's electronic health record system to monitor health and the utilization of health services in a representative sample of the Dutch population. The database is used for health services research, epidemiological studies, and quality of care research. Participating health care providers are general practitioners, physical therapists, exercise therapists, dietitians, primary care psychologists, and GP out-of-hours services<sup>20</sup>. From this database, data on general practitioner care and physical therapy care were used.

1a. NPCD – general practitioner care, formerly known as LINH, the Netherlands Information Network of General Practice The database holds longitudinal data on morbidity, prescriptions and referrals in GP care. Data are extracted twice a year from the electronic medical records used in the practices to file patient information. The pool of voluntary practices fluctuates from year to year (around 100). Its' composition provides a representative sample of about 2% of the Dutch population regarding age and gender in comparison with Dutch National Statistics<sup>21,22</sup>. Furthermore, the practices are representative for all Dutch general practices with respect to geographical distribution and degree of urbanization<sup>23,24</sup>. GPs participating in NPCD received financial remuneration and annually updated benchmark data.

1b. NPCD – physical therapy care, formerly known as LiPZ, the National Information Service for Allied Health Care The database holds longitudinal data on patients, referrals, diagnoses, treatment, and evaluation in physical therapy care since 2001. Data are collected in a representative network of about 100 physical therapists. The physical therapists participate in NPCD on a voluntary basis and work in about

40 private outpatient practices. Participating physical therapists received financial remuneration, benchmark data and accreditation points needed for registration in the professional registry. Yearly, data on over 10,000 patients are collected. Data are extracted monthly from the electronic medical records used in the physical therapy practices for reimbursement. Besides reimbursement data, additional data specific for research purposes were included. More detailed information about the physical therapy database has been published by Swinkels et al. and Leemrijse et al.<sup>10, 25, 26</sup>. For the current study, data were extracted from patients aged 18 years or older and had contacted the physical therapy practices between January 1<sup>st</sup> 2004 and December 31<sup>st</sup> 2010.

NPCD does not fall within the scope of the Medical Research Involving Human Subjects Act and therefore does not require ethical approval. Nevertheless, the Dutch Data Protection Authority was notified of the database. In addition, pursuant to the Personal Data Protection Act, data were collected anonymously, patients were informed about the research by posters and leaflets in practice waiting rooms, and patients had the opportunity to refuse participation.

The research was carried out in accordance with the Helsinki Declaration. 2. The Permanent Research on Social Circumstances database (POLS) of Statistics Netherlands Statistics Netherlands is responsible for collecting and processing data in order to publish statistics<sup>22</sup>. Yearly until 2010, Statistics Netherlands collected information concerning the use of physical therapy in its POLS database. POLS was aimed at continuous data collection on individuals' social circumstances. Yearly, a random sample of about 10,000 individuals (12 years and older) was approached for Computer Assisted Personal Interviewing. The mean response rate for POLS was 60-65%. Data are publicly available on their website for defined age groups (12-20 years, 20-45 years, 46-65 years, and > 65 years).

### **Effects on Volume of Care**

The following indicators were used to measure volume of care: 1) incidence rates in General Practice for the five diagnoses with the highest incidence in physical therapy practice in the period 2004-2009 and number of contacts in General Practice in the period 2006-2009 2) the percentage of the total Dutch population visiting a physical therapist (at least once) in the period 2004-2009 3) the number of visits per patient in physical therapy care in the period 2006-2010 4) patient characteristics of the physical therapists' population in the period 2004-2010 5) proportion of patients in physical therapy care receiving treatment after initial intake Incidence rates in General Practice represent all new cases of a specific health problem presenting to a GP in a year. Since patients can visit a physical therapist directly, GPs might see fewer new cases, which could influence these incidence rates. For estimating incidence rates GP-data from NPCD were used and individual GP-patient contacts (concerning one health problem) are grouped into episodes of care, as registered directly by the GPs (when available) or by constructing episodes with the validated application, EPICON<sup>27</sup>. Incidence rates were analyzed for the five diagnoses with the highest incidence rate in physical therapy care, i.e. low back pain, neck complaints, shoulder complaints, back complaints, and knee complaints. NPCD-data provide information on incidence rates for the period 2004-2009. The number of contacts per 1000 patients for the five diagnoses with the highest incidence in physical therapy care was also studied in the NPCDdatabase.

This was only possible for the period 2006-2009, as prior to 2006, no reliable data were available.

Physical therapy data from NPCD provide information on the changes in numbers of visits per patient per year, proportion of patients that receive treatment after initial intake and changes in patient characteristics of the physical therapy population. Patient characteristics that were investigated are gender, age, education level, diagnoses, duration of complaint, recurrent complaints, and previous physical therapy. We used data from Statistics Netherlands to obtain information on changes in the percentages of people who used physical therapy at least once a year in the Netherlands.

### **Access to Physical Therapy Care**

In order to investigate the access to physical therapy care, two aspects were investigated: 1) proportion of users of self-referral, in subgroups according to gender, age, and diagnoses, in the period 2004-2010; 2) proportion of patients with acute complaints in physical therapy practice in the period 2004- 2010; as this indicates the timeframe between the onset of complaints and the first contact with the physical therapist. For both aspects physical therapy data from NPCD were used.

### **Data Analyses**

Poisson multilevel repeated measurement regression analyses with three-level hierarchical structured data (general practice, patient, and year of recording) were performed to test trends in incidence rates and contact rates in general practice for different diagnoses over time, using MLwiN software (Version 2.15, 2009, Centre for Multilevel Modelling, University of Bristol). The models were adjusted for patients' gender and age, and for repeated measurements within individuals<sup>23</sup>.

Poisson multilevel regression analyses with three-level hierarchical structured data (physical therapy practice, patient, and year of treatment) were performed to test changes in the use of selfreferral and in volume of physical therapy care. Moreover, these models were adjusted for patients' gender, age, diagnosis and repeated measurements within individuals.

Other questions, where applicable, were analyzed with Stata 11.1 for Windows (StataCorp LP, 4905 Lakeway Drive, College Station, TX 77845). Chi-squared tests were used to test changes in patient characteristics in physical therapy practices between 2004 and 2010.

## **RESULTS**

### **Volume of GP Care**

Data from 1,009,083 patient years in GP care were used. Figure 1 shows trends in the incidence of low back pain, neck complaints, shoulder complaints, unspecified back complaints and neck complaints in general practice during 2004-2009. The incidence of low back pain, unspecified back complaints and neck complaints has decreased since 2004. The incidence of knee complaints has increased. The incidence of musculoskeletal complaints in general declined from 300 cases per 1000 patients in 2004 to 268 in 2009 (not in table). Table 1 shows trends in the number of contacts per 1000 patients for these five diagnoses. The number of contacts for shoulder and knee complaints increased; for neck, low back, and unspecified back complaints no linear trend was found.

### **Volume of Physical Therapy Care**

Data from 89,150 patients who used physical therapy were used. The percentage of patients treated by a physical therapist grew from 17% in 2004 to 21% in 2009 (Figure 2). In the years before 2004 a less sharp increase was found, and a decrease between 2003 and 2005.

Raw data showed that the median number of treatment sessions for referred patients declined from nine in 2006 to seven in 2010; for self-referrers it declined from seven to six sessions. Figure 3 shows the trends for the period 2006-2010. Standardized for age, gender, and diagnoses, selfreferrers had on average three sessions less than referred patients.

Table 2 shows patients' demographics and health related data of the patient population in physical therapy practice in 2004/2005, 2006/2007, and 2009/2010. In 2009/2010, patients were more often male, older, higher educated, had shorter duration of complaints, and had more experience with previous physical therapy than in 2004/2005. With the exception of gender, all changes were already apparent in 2006/2007.

In 2010, 94.3% of the referred patients received treatment after the initial intake; the remainder were not given treatment - for unknown reasons. Of the self-referrers, 86.9% received treatment after the initial intake (raw data). Figure 4 shows the results from the standardized trend analyses.

### **Access to Physical Therapy Care**

Raw data showed a growth in the proportion of self-referrers from 28.9% in 2006 to 46.2% in 2010.

Multilevel-analyses, standardized for gender and age, showed a rise from 27.8% [95%-CI: 26.7%- 28.9%] to 44.2% [95%-CI: 41.6%-46.9%] ( $p < 0.001$ ). Figure 5 shows changes in the use of selfreferral for several groups of patients. Younger patients and those with (low) back complaints were more often self-referrers than other patients. Between 2004/2005 and 2009/2010 the proportion of patients with acute complaints grew from 38% to 43% (Table 2).

### **DISCUSSION**

This evaluation indicates that self-referral did not result in a significant decrease in the volume of GP care for prevalent diseases in physical therapy practice. Some small decreases in volume of care were shown; however, incidence rates were already declining before self-referral was introduced.

For knee complaints, though, an increase in number of contacts was found. This could be related to a rise in the number of knee complaints in the Dutch population<sup>28</sup>. Altogether, trends in total General Practice usage in the Netherlands, show a yearly increase of about 6% between 2006 and 2009<sup>29</sup>. From that perspective, our results are quite remarkable. Nonetheless, it cannot be concluded that the introduction of self-referral has led to a reduced workload which was what the Ministry hoped for. Moreover, when self-referral does result in a decreased workload, it may be that this decrease is not noticed by GPs, as only 13% of the GP consultations are related to musculoskeletal complaints<sup>30</sup>. Similar results were found by Holdsworth et al. (2008) where GPs reported being unaware of a change in the number of patients consulting them about musculoskeletal problems or that there had been no change since the introduction of self-referral<sup>31</sup>.

In physical therapy practice, the number of patients has grown since the introduction of self-referral.

However, it is unknown to what extent this is due to self-referral. The use of physical therapy has been growing for decades, and the increase since 2006 was largest for patients aged 40 to 65 years, while it was mostly younger patients who used self-referral. Moreover, the patient population in physical therapy practice has shifted to an older population. Therefore, population ageing and the increasing prevalence of chronic diseases has contributed to the growing use of physical therapy. The main changes in the composition of the patient population were found for level of education and duration of the complaint. Although patients with higher levels of education are more likely to use self-referral, the Dutch population in general showed a rise in level of education as well<sup>32</sup>. Since the number of treatment sessions per patient decreased since 2006 and is lower for self-referrers compared to physician-referred patients - as was also shown by Mitchell et al. (1997)<sup>33</sup>, Pendergast et al. (2012)<sup>34</sup>, and in a recently published systematic review<sup>35</sup> - it is still unclear whether the total consumption of physical therapy has increased.

When looking at access to care, we see that a large, growing group of patients used self-referral.

Since this was already the case in the initial period after introduction it seems that self-referral fulfilled a need among patients and was a logical choice in the health care pathway for many patients. The volume of self-referrers has exceeded expectations and is larger than that was seen in data from international studies<sup>19, 36</sup>. This growth might partly be explained by more individuals being aware that they can access physical therapy without a physician referral. In October 2006, 58% of the Dutch population knew that physical therapists were accessible without referral<sup>37</sup>. It could be expected that, when self-referral became common knowledge, stabilization would occur.

However, current data do not show that yet.

The increase in the proportion of patients with acute complaints indicates faster access to physical therapy, which is better for patients' outcomes, as there is evidence that early treatment produces favorable outcomes in therapeutic effectiveness<sup>38-40</sup>. Furthermore, self-referrers receive fewer prescriptions, are less often referred for a radiograph and for secondary care, and have less need for invasive treatments compared to patients with GP-referrals<sup>6, 35, 41</sup>. In Scotland, nearly all GPs and physical therapists that were involved in a self-referral trial reported having "high levels of comfort with and confidence in" self-referral to physical therapy<sup>31</sup>. Scottish self-referred patients are more satisfied with their treatment than patients referred by their GP<sup>42</sup>. On the other hand, it is possible that some of these patients receive unnecessary care. Given the growth in numbers of patients, this is still possible. Nevertheless, patients who use self-referral less often receive treatment after the first intake than referred patients, which was also shown by Ohja et al (2014)<sup>35</sup>. Despite this knowledge, it is still unclear whether patients are able to choose the qualitatively best available care provider, i.e. whether the right patient comes to the right place, and whether they receive the right care. To answer such questions, extensive cost-effectiveness and quality-of-care studies in GP care as well as physical therapy care are necessary.

From Dutch studies it is known that the majority of Dutch physical therapists experienced greater acknowledgements and increased professional responsibility as positive effects of self-referral<sup>43</sup>.

Comparable with the Netherlands, physical therapists in Scotland also reported high levels of comfort with self-referral<sup>31</sup>. Furthermore, Dutch physical therapists believed there were a number of benefits for patients, including faster access, increased freedom of choice and quicker recovery<sup>43</sup>. These advantages for patients had been considered prior to the introduction of direct access<sup>4-6</sup> and were partly also aims of the Ministry. Patients' arguments for using self-referral are mostly related to their familiarity with the complaint or the health care professional<sup>44</sup>. These are known factors for initiating access to health care services<sup>45</sup>, and were found in previous research on selfreferral<sup>46</sup>.

The main negative experience for Dutch physical therapists was the larger number of GP-referred patients who did not bring a referral letter<sup>43</sup>. In this situation, it was unclear to the physical therapist whether a patient had been fully examined by the general practitioner and whether the therapist ought to follow clinical reasoning for the self-referral path or the path for physicianreferred patients. Another important negative experience was the increased administrative burden<sup>43</sup>.

The introduction of self-referral involves extra registration and administration concerning screening-related information and additional reports to GPs in the case of self-referrers.

Furthermore, it can more often be necessary to ask GPs for additional medical information. In the Netherlands, GPs traditionally fulfill a role as gatekeepers within the health care system. It is therefore important that they have a good overview of their patients' health problems. Bossen et al.

showed that some of the Dutch physical therapists experienced problems in communicating with GPs<sup>43</sup>. In-depth research on the collaboration and information sharing between physical therapists and GPs regarding patient care is, therefore, recommended.

One of the major concerns in relation to self-referral was that physical therapists would miss pathology. No Dutch data were available for studying this topic. From international research it is known that self-referred patients are at minimal risk for gross negligence care when seen by physical therapists<sup>47</sup>. Furthermore, it appears that experienced physical therapists have the same level of knowledge as orthopedists in managing patients with musculoskeletal disorders<sup>48,49</sup> and have clinically diagnostic accuracy comparable to that of orthopedic surgeons<sup>49,50</sup>.

Additionally, Boissonnault et al. (2006) concluded that physical therapists use effective multifactorial screening strategies leading to timely patient referrals to physicians when necessary<sup>51</sup>. Therefore, the chance that pathology is missed is likely to be negligible.

### **Strengths and Limitations**

A strength of the current study is that it was based on monitoring data from existing data sources, including a Dutch nationally representative database, giving the opportunity to perform longitudinal analyses. Data in this database are based on routinely available electronic health records used to file patient information. These data are checked continuously on incorrect or missing data. However, the databases relate to different patient populations and variable time frames. Therefore, analyses beyond disciplines had to be performed on an aggregated level, whereas we prefer



analyses on the patient's level. Availability of linked data on GP care and physical therapist care for the same patient population would give the opportunity to study health care pathways in greater depth.

Creating linked data is the major goal within NPCD at this moment.

A limitation of the study is that the physical therapy data came only from physical therapists working on general conditions in general practice settings. It can be expected that, for example, therapists specializing in sports injuries treat a higher number of self-referred patients. Physical therapists specialized in sports injuries are often working close to people in sports facilities and are more easily accessible. Therefore, for future research it would be interesting to include data from specialized physical therapists in the database. Furthermore, it is unknown to what extent feedback to GPs takes place and how this feedback is handled by the GP.

Despite the above mentioned limitations, the presented data show the effects of the introduction of self-referral from various perspectives and are unique as they include pre- and post-data over a long time frame. Evaluations like this can assist policy makers in debates on self-referral. This is also suggested by Bury & Stokes (2013) who recently investigated the current professional, regulatory, and health service contexts in which self-referral is available in countries within the European Union<sup>52</sup>. In conclusion, the current study indicates that the introduction of self-referral in the Netherlands has fulfilled most of the expectations held in advance for patients and physical therapists. With regard to GP care, no changes in workload have been found. As the percentage of patients using self-referral is still growing and uncertainty remains whether self-referral affects health care consumption, cost-benefit analyses concerning self-referral in physical therapy care are recommended.

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## TABLES AND FIGURES

Table 1. Number of contacts for musculoskeletal complaints in general practice per 1000 patients, standardized for age and gender, 2006-2009 (source: NPCD - GP data)

	2006	2007	2008	2009	Linear trend 2006-2009
Neck complaints	19.7	19.6	21.0	20.3	n.s.
Back complaints	22.8	23.5	26.8	23.8	n.s.
Low back pain	34.8	35.2	36.4	39.5	n.s.
Shoulder complaints	23.0	25.4	29.1	31.5	p<0.001
Knee complaints	26.6	28.4	32.5	37.0	p<0.001

n.s.: not statistically significant

Table 2. Demographic and health-related characteristics of the patient population in physical therapy practice in 2004/2005, 2006/2007, and 2009/2010 (source: NPCD – physical therapy data)

		2004/2005	2006/2007	2009/2010	p
<b>Gender</b>	Male	41.0	40.8	42.3	0.001
	Female	59.0	59.3	57.7	
<b>Age</b>	18-39 years	30.1	28.4	29.1	<0.001
	40-59 years	42.6	42.4	41.2	
	60 years or older	27.3	29.2	29.7	
<b>Education level<sup>a</sup></b>	Lower	38.6	37.9	33.8	<0.001
	Medium	38.9	37.0	36.2	
	Higher	22.6	25.1	30.0	
<b>Diagnoses<sup>b</sup></b>	Low back pain	13.8	14.3	15.0	<0.001
	Neck complaints	11.1	11.7	10.8	
	Shoulder complaints	6.4	6.1	9.0	
	Unspecified back complaints	7.2	8.3	8.2	
	Knee complaints	5.0	5.2	6.3	
	Other	56.6	54.4	50.8	
<b>Duration of complaint<sup>c</sup></b>	< 1 month	37.5	41.8	43.2	<0.001
	1-3 months	26.7	24.5	25.0	
	> 3 months	35.8	33.7	31.8	
<b>Recurrent complaint<sup>d</sup></b>	Yes	35.4	35.9	34.9	0.084
	No	64.6	64.1	65.1	
<b>Previous PT<sup>e</sup></b>	Yes	46.5	50.2	53.2	<0.001
	No	53.5	49.8	46.8	
<i>Total number of patients</i>		26,862	25,494	24,070	

Number of cases with missing data:

<sup>a</sup> 2004/2005: 6,184; 2006/2007: 5,962; 2009/2010: 6,541

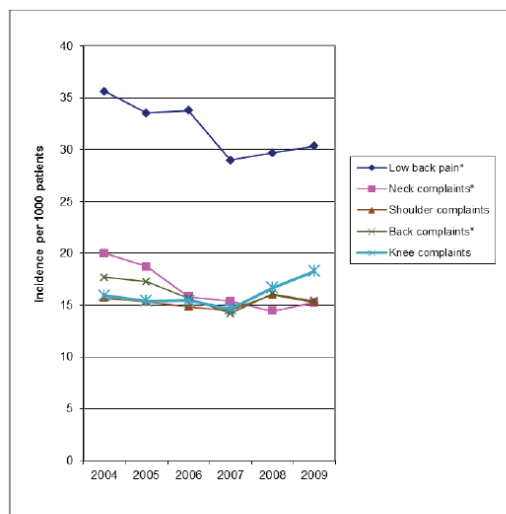
<sup>b</sup> 2004/2005: 2,955; 2006/2007: 2,477; 2009/2010: 1,923

<sup>c</sup> 2004/2005: 3,072; 2006/2007: 2,335; 2009/2010: 1,738

<sup>d</sup> 2004/2005: 3,440; 2006/2007: 2,902; 2009/2010: 2,060

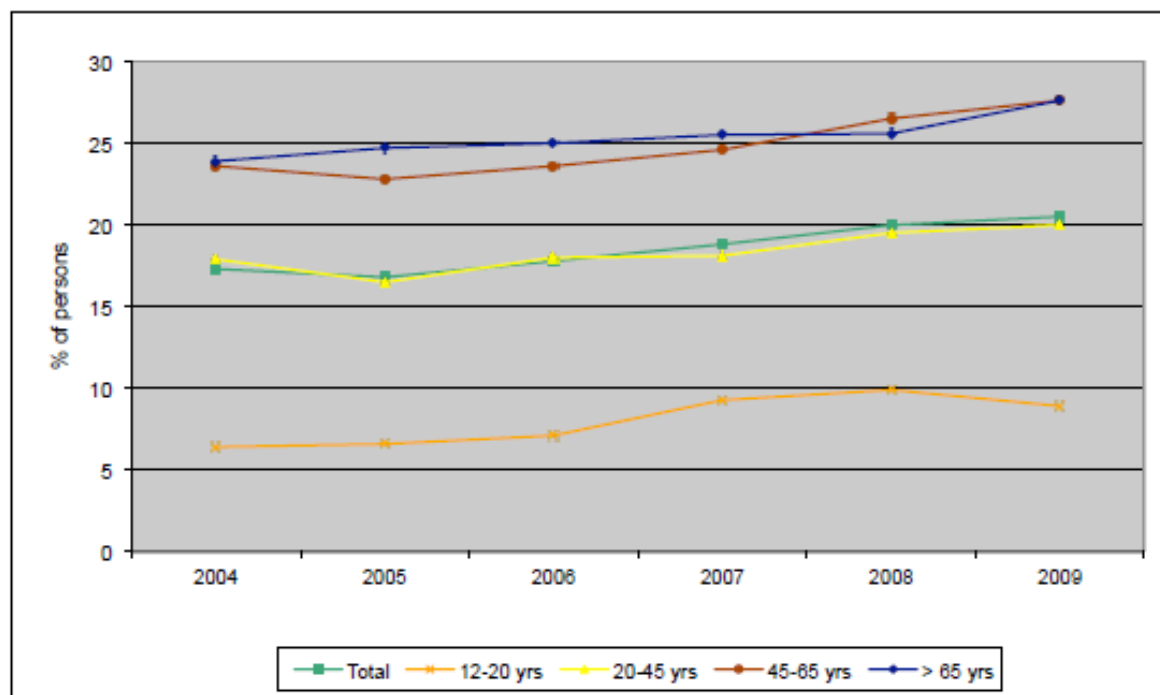
<sup>e</sup> 2004/2005: 4,483; 2006/2007: 5,621; 2009/2010: 4,516

Figure 1. Incidence of low back pain, neck complaints, back complaints, shoulder complaints, and knee complaints in General Practice between 2004 and 2009, standardized for age and gender (source: NPCD - GP data)



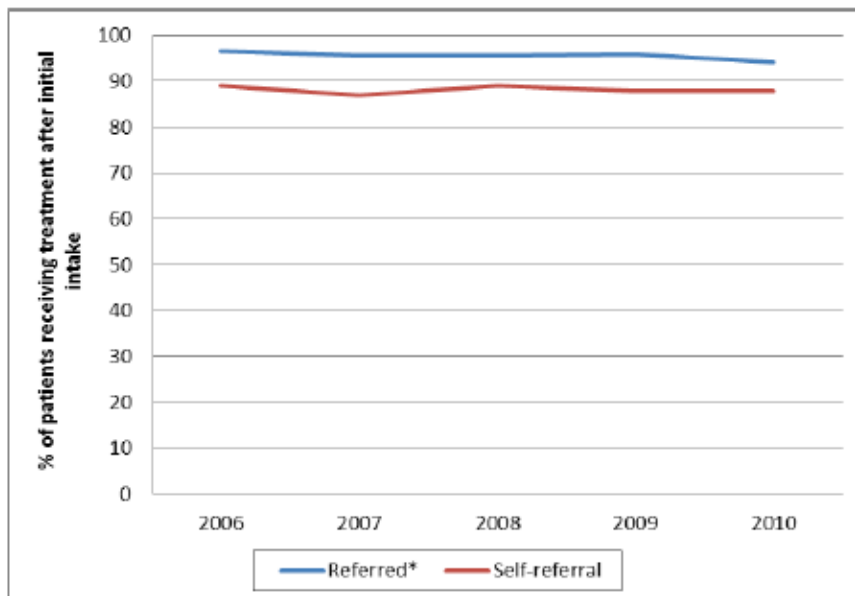
\* linear trend:  $p < 0.001$

Figure 2. Persons contacting a physical therapist in a year as a percentage of the total population and as a percentage of age groups, 2004 - 2009 (source: Statistics Netherlands)



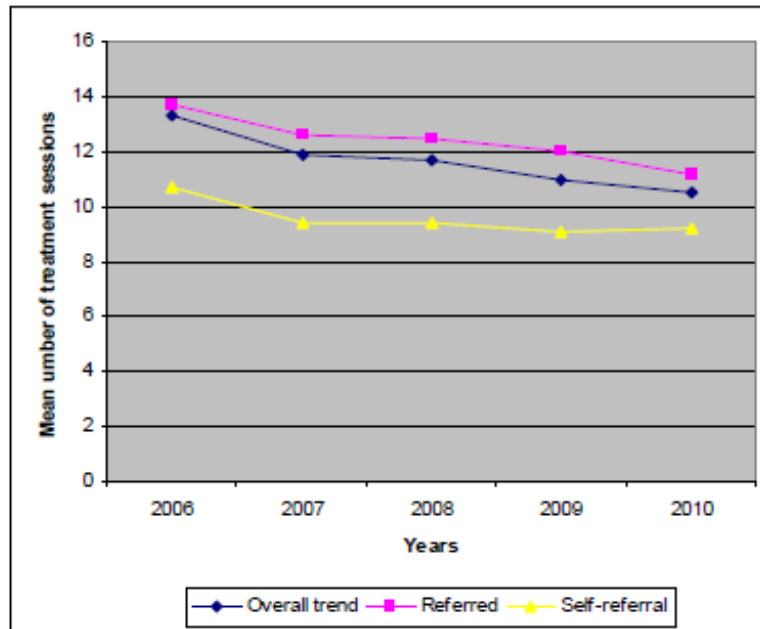
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**Figure 3. Percentage of patients receiving physical therapy treatment after initial intake in the period 2006-2010 for referred patients and self-referrers, all standardized for age, gender and diagnosis (source: NPCD - physical therapy data)**



\* Trend for physician-referred patients show a statistically significant linear decline ( $p < 0.05$ )

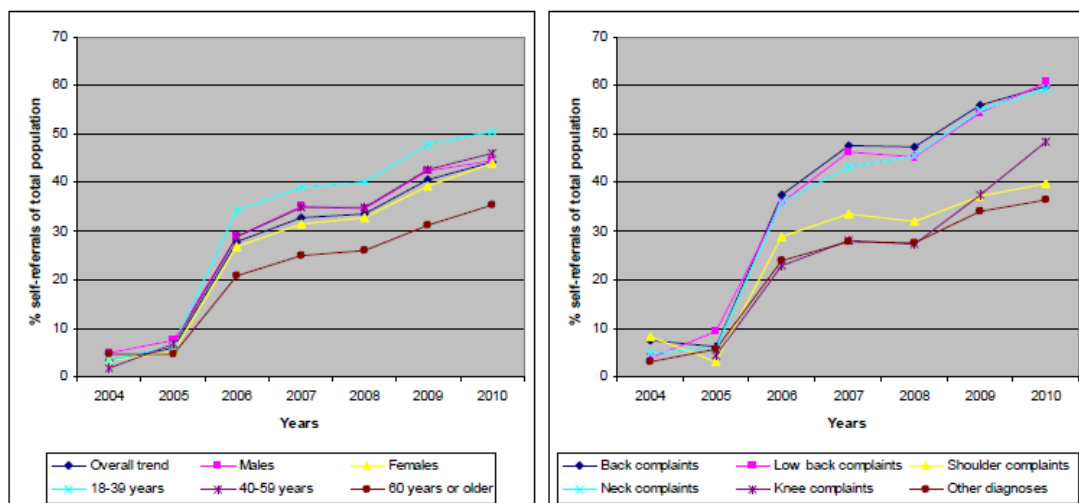
Figure 4. Mean number of physical therapy treatment sessions per year in the period 2006-2010, overall trend, and trends for referred patients and self-referrers, all standardized for age, gender and diagnosis (source: NPCD - physical therapy data)\*



\* Overall trend, trend for physician-referred patients, and trend for self-referred patients show a statistically significant linear decline ( $p < 0.001$ )



Figure 5. Self-referrers as percentage of total population using physical therapy between 2004 and 2010, overall trend, trends for gender, trends for age, and trends for diagnoses (source: NPCD - physical therapy data) \*



\* all linear trends are statistically significant ( $p < 0.001$ ). Patients who used self-referral before 2006 were instructed to get a medical referral.

#### Box 1. Description of the Dutch health care system [25]

The Dutch health care system has always been a (largely) publicly funded health care system where general practitioners act as gatekeepers, controlling and coordinating access to specialty services. In 2006 the insurance system changed significantly.

Before 2006, physical therapists were only accessible after referral by a physician. Over 90% of patients attending a physical therapist were directly referred by their GP. The remaining 10% were referred by a medical specialist. People in the Netherlands had either public or private health insurance, depending on their income. About 66% of the population were publicly insured. Public insurance cover for physical therapy was nationally regulated. Due to rising health care costs, coverage has become increasingly more restricted. From 1996, public insurance cover for physical therapy was restricted to nine visits for all conditions. In 2004, claims were further restricted. Only when suffering from a chronic condition as specified on a list were people with public insurance covered for physical therapy, and only from the tenth visit onwards. The first nine visits were for patients' own account. However, people could obtain additional private insurance that covered physical therapy both for non-chronic conditions and the first nine visits in case of a chronic condition. Private insurance was not nationally regulated.

In 2006, the distinction between public and private health care insurance was removed.

Nowadays one basic insurance package is compulsory for everyone, and over 99% of the Dutch population have basic insurance. Furthermore, physical therapy is accessible without a referral. Cover for physical therapy in the basic package is further restricted. Nowadays, physical therapy is still only covered when suffering from a chronic disease, but only from the 21<sup>st</sup> visit onwards and some conditions have been deleted from the list that specifies the chronic conditions. Most additional insurance packages cover physical therapy, but they vary in coverage degree.

In the Netherlands, over 20% of the population contacted a physical therapist annually [22].

Every physical therapy visit lasts about 25 minutes, and physical therapists are paid per visit, irrespective of the type of diagnosis and intervention. Nearly all therapists working in primary care are organized in private practices. Training for physical therapists consists of four years of higher vocational education leading to a Bachelor of Health degree.