The Dutch outcome-based payment model of ParkinsonNet: A case study

Country Background Note: Netherlands

Floris.P. Vlaanderen, (Radboud University Medical Center and ParkinsonNet), Patrick.P.T. Jeurissen (Radboud University Medical Center and Ministry of Health Welfare and Sport), Marjan.J. Faber (ParkinsonNet and Radboud Univerisity Medical Center), Marten Munneke (ParkinsonNet), Bastian.R. Bloem, (ParkinsonNet, Nijmegen Centre for Evidence Based Practice, Radboud University Medical Center)

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1. Overview

ParkinsonNet is a Dutch nationwide network of 66 professional regional networks. Each of these regional networks consists of a limited number of specifically trained healthcare professionals involved in the treatment of PD. The primary objective of ParkinsonNet is to increase the quality of life of patients with PD, by improving the care delivery to affected patients. The participating healthcare professionals have to meet certain quality standards. The introduction of ParkinsonNet had consequences for providers, insurance companies and patients. Several studies have shown positive effects on both quality of care and healthcare costs (Beersen et al., 2011; Bloem & Munneke, 2014; Munneke et al., 2010; Nijkrake et al., 2010; van der Marck et al., 2013).

One major target for improvement of the care of patients with PD is the introduction of a new payment system. ParkinsonNet, Radboud UMC, and two insurance companies are currently developing a new payment model, according to the principles of value-based healthcare (Porter & Teisberg, 2006). This model will be based on budgets for a population of PD patients per geographical region. In the future, the reimbursement for the individual healthcare worker out of these budgets will be dependent on clinically relevant outcomes. These outcomes can be measured and monitored by ParkinsonInsight, which is a quality registry and control system that was recently implemented across the country.

ParkinsonNet, Radboud UMC and the insurance companies expect that this payment model will lead to a decrease in (unnecessary) service utilisation, an increase in cooperation between providers, and more transparency in the quality of care. This is expected to lead to increased quality of care and lower healthcare costs.

Although many aspects of the payment model are still under development, a pilot has started in 2014. This pilot is limited to hospital care, and is based on population-based budget allocation, without outcome-based payments. The pilot is currently running in Radboud UMC, but is planned to be expanded to other hospitals in future. The first results are expected at the end of 2015.

2. ParkinsonNet

2.1 Overview

ParkinsonNet is a Dutch nationwide network of 66 professional regional networks, each consisting of a limited number of specifically trained healthcare professionals from 17 different professional disciplines (Appendix A). The participating healthcare professionals work mainly in primary care settings, with less prominent and more variable involvement of secondary and tertiary care settings. They are all involved in the treatment of patients with PD. The primary objective of ParkinsonNet is to improve care delivery for patients with PD, in order to improve their quality of life. Subsidised by the Radboud University Medical Centre (Radboud UMC), ParkinsonNet started in 2004 as a single regional network of physiotherapists in the area of Nijmegen. It now consists of 66 multidisciplinary regional networks covering the entire country, and it is funded by the Dutch association of health insurance companies (Zorgverzekeraars Nederland, ZN). Appendix B shows an overview of the regions of ParkinsonNet.

2.2 Organisation

In each region, providers can join the ParkinsonNet after following a baseline one to three day training course that is mainly dedicated to upgrading the professional expertise for their specific profession (typically using evidence-based guidelines of ParkinsonNet as teaching material); additional time is allocated to providing generic information about PD and the latest developments in the treatment, and to the training for multidisciplinary collaboration. After participation, the healthcare provider becomes a ParkinsonNet member. Members pay an annual profession-specific membership fee.

One of the objectives of ParkinsonNet is to concentrate the care for PD patients into their network. Access to the training courses is therefore restricted. In regions where a sufficient number of providers for a specific profession has been reached, new providers of that profession will not be allowed to become members, as this would dilute the care across too many professionals. This maximum is defined by the ParkinsonNet Coordination & Innovation Centre (C&I centre) and by the regional coordinator of that region. There are special conditions that allow providers to become a member, even when the maximum number of members for this profession is reached; for example, when an applicant provider can prove he already treats many PD patients.

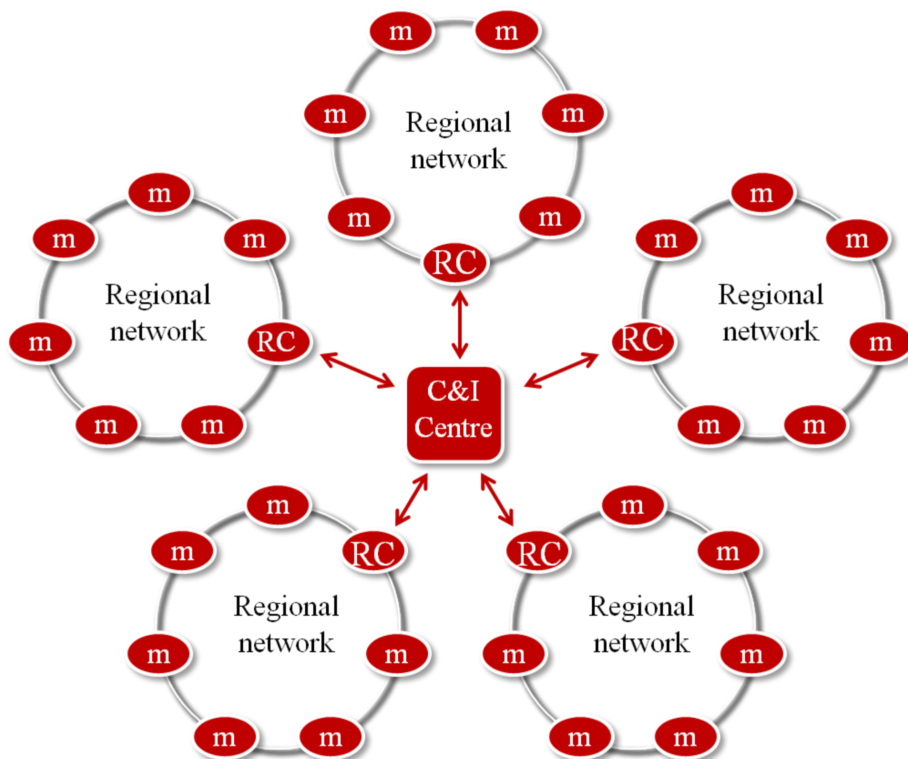
ParkinsonNet provides its members with additional profession-specific courses and guidelines about PD, and stimulates cooperation between providers. ParkinsonNet members can deploy the ParkinsonNet logo as a quality certificate. Note that the members are not employees of ParkinsonNet (they pay a membership fee, as one would to an association), and they are not paid by ParkinsonNet.

The regional networks are nationally coordinated by the C&I centre, which functions as a head office. In each regional network, one member acts as the regional coordinator, a role which involves:

- Acting as the official liaison between the regional network and the C&I centre;
- Stimulating and motivating the regional members;
- Organising regular meetings with the regional members;
- Encouraging the members to use the ICT facilities of ParkinsonNet.

The regional coordinator must be in close contact with the C&I centre and is responsible for the implementation of its innovations. The regional coordinator can also provide feedback from the regional members to the C&I centre. The regional coordinator receives no reimbursement for these tasks and might delegate some of these tasks to other members in the region. An overview of the organisation is shown in Figure 1.

Figure 1. Diagram of the organisation of ParkinsonNet



Note: C&I: coordination and innovation; m: member; RC: regional coordinator

Source: Authors' compilation

2.3 Quality standards for ParkinsonNet members

ParkinsonNet members have to meet a number of quality standards to maintain their membership:

1. Treat a minimum number of patients with PD annually. The exact amount depends on the professional discipline. For example, for physiotherapy this number is 10 PD patients per year.
2. Deliver data for quality assessments. See also section 3.2 about the national quality registry (ParkinsonInsight), which offers outcome indicators for PD care.
3. Visit at least two multidisciplinary team meetings within their regional network per year, to discuss cases, to stimulate regional collaboration, and to be updated on recent developments.
4. Visit the annual ParkinsonNet congress at least once every two years.
5. Pay an annual membership fee. This fee is profession-specific.

2.4 The impact of ParkinsonNet on quality of care and healthcare costs

ParkinsonNet has been evaluated in several observational and experimental studies (Beersen et al., 2011; Munneke et al., 2010; Nijkrake et al., 2010; Wensing et al., 2011) and in one non-randomised clinical trial (van der Marck et al., 2013). Furthermore, ParkinsonNet is evaluated by an annual survey completed by its members. The following effects were found:

- Healthcare costs decreased in most studies: from €640 per patient per year (Beersen et al., 2011) up to €727 in 24 weeks (Munneke et al., 2010); at a national level, this represents costs saving up to €15-20 million per year.
- The first evaluation found no effect on health outcomes (Munneke et al., 2010; van der Marck et al., 2013). However, this study focused on a young (recently introduced) network that, at the time, consisted of specifically trained physiotherapists only.
- Later studies focused on more experienced networks that were multidisciplinary in nature. The results showed that complications occurred less frequently in ParkinsonNet regions: a large observational study of health insurance claims shows that patients with PD in ParkinsonNet areas sustained fewer fractures than those in other areas, including a 55% decrease in hip fractures (Beersen et al., 2011; Bloem & Munneke, 2014).
- Patients treated by ParkinsonNet professionals had a lower likelihood of being admitted to a rehabilitation centre or a nursing home (Beersen et al., 2011).
- A non-randomised clinical trial about the differences between the ParkinsonNet approach and usual care found small differences in disability score and quality of life due to the implementation of ParkinsonNet. However, these differences disappeared after correction for base-line disease severity (van der Marck et al., 2013).

- ParkinsonNet increases the referral rates of patients to its members. In 2006, a ParkinsonNet physiotherapist had an average treatment volume of 17.6 patients with PD per year, instead of 2.4 patients per year that was typical for generic physiotherapists prior to the introduction of ParkinsonNet (Nijkrake et al., 2010).
- An observational study of 104 ParkinsonNet members showed great variations in quality and density of connections between professionals. A higher caseload and hospital affiliation were associated with stronger connectedness (Wensing et al., 2011).
- A survey completed by 500 PD patients showed that PD patients are able to recognise certain aspects of expertise. However, they show relatively few signs of selectively choice behaviour for expert physiotherapists (Ketelaar et al., 2013).

2.5 ParkinsonNet and its benefits for members

Becoming a ParkinsonNet member brings several advantages for its members:

1. Gaining knowledge and expertise, which will improve the quality of care they deliver (Beersen et al., 2011; Nijkrake et al., 2010).
2. Membership will also increase their status among colleagues, since they will be considered experts in PD (Bloem & Munneke, 2014).
3. Increasing their PD patient volume (Munneke et al., 2010; Nijkrake et al., 2010), via two mechanisms:
    i. Patients (or their representatives) will look for providers with expertise in their disease. For this purpose, ParkinsonNet has developed an online "Parkinson healthcare finder". This tool helps patients to find a ParkinsonNet member of a certain profession close to their home. Healthcare providers (including those who are not members of ParkinsonNet) can also use this same Parkinson healthcare finder when considering a dedicated referral.
    ii. A patient can experience a financial incentive to visit a ParkinsonNet member, as some insurance companies have contracts with ParkinsonNet members for PD related care exclusively (see also: section 2.6 about the consequences for healthcare insurance companies).
4. Collaborating with other members, by:
    i. Attending multidisciplinary meetings within their own region.
    ii. Using online communities for communication and information exchange; these have been developed specifically for this purpose by ParkinsonNet (see www.ParkinsonConnect.nl).

2.6 ParkinsonNet and its consequences for healthcare insurers

In the Dutch healthcare system, private insurance companies function as payers and purchasers of healthcare services. The insurance companies negotiate with the providers about the price, the volume and the quality of the care.

Studies have shown that the implementation of ParkinsonNet lowers healthcare costs (Beersen et al., 2011; Munneke et al., 2010). Because of the assumption that the decreased healthcare costs are beneficial for the insurance companies, ZN agreed on a financial contribution to ParkinsonNet. The annual costs for maintaining and coordinating ParkinsonNet are 1.5 million Euros. Approximately 50% of this value is financed by the individual membership fees. The other 50% is currently paid by the ZN grant. Due to the success of ParkinsonNet, an increasing number of insurance companies have decided to reimburse PD related care only when this is delivered by ParkinsonNet members. This means that patients who visit generic members, will either not be fully reimbursed, or not at all. This incentivises the concentration of care.

2.7 ParkinsonNet and its consequences for patients

Visiting a ParkinsonNet provider can have benefits for the patient: there is evidence that ParkinsonNet providers have more expertise and operates better according to the scientific guidelines. This results in positive health outcomes in terms of prevention of accidental falls and hip fractures, decrease in rehabilitation time and reduction in the use of nursing homes (Beersen et al., 2011; Bloem & Munneke, 2014; Munneke et al., 2010; Nijkrake et al., 2010).

ParkinsonNet provides patients with information about their disease. An example of this is ParkinsonTV (www.ParkinsonTV.nl). This is a monthly talk show broadcasted on the internet, in which several experts talk about a specific aspect of the disease. Another example is the ‘Parkinson healthcare finder’ (see section 2.5).

Recently, ParkinsonNet and some private industrial parties have decided to develop a series of new products for patients. This project is called ParkinsonNeXt. One example is a small wearable device that measures the physical activity of a patient. This information can be used as a proxy for the progression of the disease. This objective information can be valuable for both the patient and the involved healthcare provider(s).

An inherent limitation of ParkinsonNet is that the travelling distance to a ParkinsonNet provider might be longer than to a generic provider (a side effect of concentration of care). This factor, and the willingness of patients to travel further for better quality, is currently subject of studies.

There are, in general, no financial or organisational limitations for patients: a patient can visit both ParkinsonNet and generic providers if he/she wishes. However, since some insurance companies have recently decided to only sign contracts with ParkinsonNet members for the care for PD, financial barriers may arise for patients who choose to visit a generic provider.

3. The payment model

3.1 Overview

To improve the care for PD, the Radboud UMC, the ParkinsonNet C&I centre, the regional ParkinsonNet of Nijmegen and two insurance companies (VGZ and CZ) are developing a new payment model. They are working on a system which uses outcome-based payments following the principles of Michael Porter (Porter & Teisberg, 2006). The objective is that the local networks will be reimbursed by integrated budgets provided by the two insurance companies. These budgets will be based on the expected care required by the population of a region. ParkinsonNet named these bundled payments ‘population-based budgets’. Such budgets hold constraining powers to the total level of expenses.

In contrast to general line item budgets, the population-based budgets of ParkinsonNet will be outcome-based, because the reimbursement for each participating professional will depend on healthcare outcomes. These outcomes will be independently measured by validated outcome indicators. ParkinsonNet, Radboud UMC and the insurance companies expect that this payment model will generate more positive incentives to efficiency than the current one, leading to better health outcomes while keeping costs controlled.

Population-based budgets hold the precondition to harmonise the financial incentives for professionals and their intrinsic motivation, by preventing underfunding while increasing the incentives for better quality of care. This leads to better service (Berg et al., 2013). Outcome-based payments focus on quality of care while limiting the use of resources (Ikkersheim et al., 2014). Furthermore, population-based budgets might lead to a reduction of the administrative burden (Berg et al., 2013).

3.2 ParkinsonInsight: outcome indicators for PD care

To stimulate transparency and improve quality, ParkinsonNet, the Dutch association of PD patients (Parkinson Vereniging) and the Dutch National association of Neurologists (NVN) have created a national quality registry named ParkinsonInsight. The objective of ParkinsonInsight is to develop and offer feedback about high quality process, structure, and outcome indicators. Together with the national associations of the different professions, and based on international literature, they have developed and validated an indicator set. This set consists of 21 profession-specific and multidisciplinary indicators. In April 2014, the list of indicators, as they are applicable to care provided in outpatient hospital clinics, was implemented in the Neurology department of ten Dutch hospitals as a pilot experiment. ParkinsonInsight uses record data whenever possible, thus minimising the administrative burden.

After 6 months, this pilot experiment showed the applicability of ParkinsonInsight in Dutch hospitals. Therefore, ParkinsonNet and the NVN agreed that the ParkinsonInsight is available for all Dutch hospitals from January 2015. The data is administrated by the Dutch Institute for Clinical Auditing (DICA). Hospitals receive their own outcomes for quality assessment with anonymous benchmarking by funnel plotting of all hospitals. For the next two years, the outcomes will remain unavailable for third parties until better insight is gained into the validity and relevance to everyday clinical practice. After this period, DICA will publish the results on their website, upon each hospitals agreement. Making outcomes and costs publicly available will give patients, providers and insurers information on the (differences in) quality of care. Additionally, publication may help providers and insurers to check if the results are valid.

ParkinsonNet, Radboud UMC and the insurance companies agreed that the outcome indicators of this set might be suitable for an outcome-based payment model. These outcome indicators are:

Patient-reported:

- Quality of life (measured by PDQ-39)
- Patient experience (measured by CQ-index)

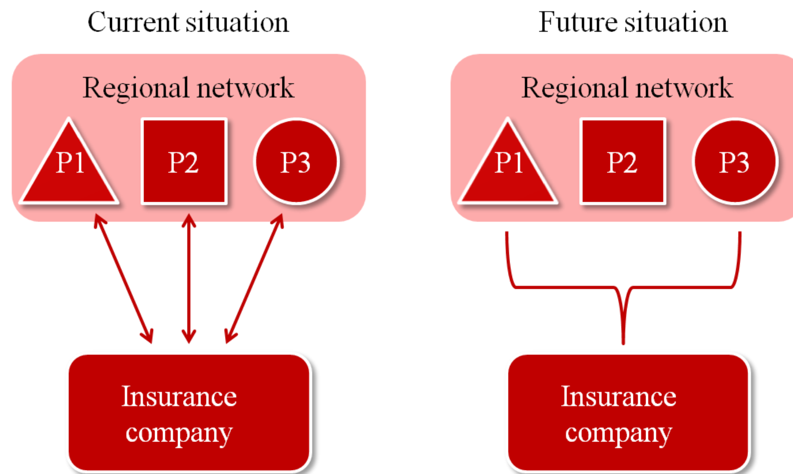
Claim data from healthcare insurers

- Percentage of PD patients that are hospitalised per year
- Percentage of PD patients that are hospitalised in nursery homes per year
- Percentage of PD patients that suffer hip fractures

3.3 The design of the payment formula

In Dutch healthcare, all providers negotiate the reimbursement of the different types of service they deliver with private insurance companies. As a result, each provider may have contracts with different insurance companies. Contracts are supposed to be about reimbursement, but also about the volume and the quality of the delivered care. The current situation is shown in Figure 2 on the left-hand side.

Figure 2. Current and future situation of contracting ParkinsonNet providers by insurance companies



Note: P: provider (the difference in shapes represents the difference in profession)
Source: Authors' compilation

In the new payment model, the insurance companies provide a capitated budget fee for all PD related care in the region. This budget fee can be based on the expected PD related healthcare cost of the population. The ultimate objective is that the insurance companies will sign contracts with regional ParkinsonNet providers exclusively. In the end, all services of all providers would be integrated in one service: "Parkinson healthcare Region X". This will lead to the situation described by the right-hand side of Figure B.

Within the regional networks, an outcome-based payment scheme will reimburse all the members, taking into account the quality of care they provide. For this payment scheme, the previously described outcome indicators of ParkinsonInsight may be used. The objective is that all the members will be reimbursed according to a pre-arranged formula, based on the indicator scores. When providers deliver the requested care and remain under the pre-arranged budget, possibilities exists for a shared savings model, in which the savings will be divided between insurers and providers.

However, some important aspects of the design of the payment model are not defined yet. It has not been determined how the budget will be calculated (for example, based on average historical regional costs, or on a normative formula). Additionally, it is still unclear who will be held responsible when determined budgets are overrun. For example, under the current version, some providers face stronger enforcement regulations than others. Savings as a result of reduced necessity of follow-up do not automatically accrue towards the regional networks to cover for certain upfront investments. Furthermore, the payment formula used to divide the resources between the individual professionals and institutional providers within the regional networks is still subject of study.

Although many aspects of the payment model are still being developed, ParkinsonNet and the two insurance companies expect that it will improve the care for PD since:

- It has been extensively shown that FFS payments increase service utilisation, regardless of its effectiveness. It is envisioned that outcome-based payments will eventually generate a 'fee-for-quality', in which quality is prioritised over volume.
- The model is based on budgets that will be allocated to the entire network instead of to the individual providers. This might stimulate cooperation.
- The fact that the reimbursement are outcome-based acts as an additional incentive: better cooperation leads to better outcomes, while better outcomes lead to higher reimbursements for the providers.
- Treatments with little or no effect will be less profitable to providers, and they will be discouraged to use them.
- Publishing healthcare outcomes makes the model transparent. Providers can easily compare their outcomes and this might stimulate intrinsic professional motivation.

3.4 Differences to other outcome-based payment models

Development and implementation of new outcome-based payment models are often initiated by public payers (for example, primary care payments in the UK, or Accountable Care Organizations in the USA). This top-down approach is often necessary because prices are strictly regulated in most countries. When that is not the case, as in the Netherlands, bottom-up approaches are much more important.

Additionally, ParkinsonNet is a non-profit initiative of both Radboud UMC and the Dutch Association of Neurologists. Since it is not affiliated to any governmental body, it is a non-profit organisation led by a

group of professionals. This is an important difference to most payment models, which are public initiatives.

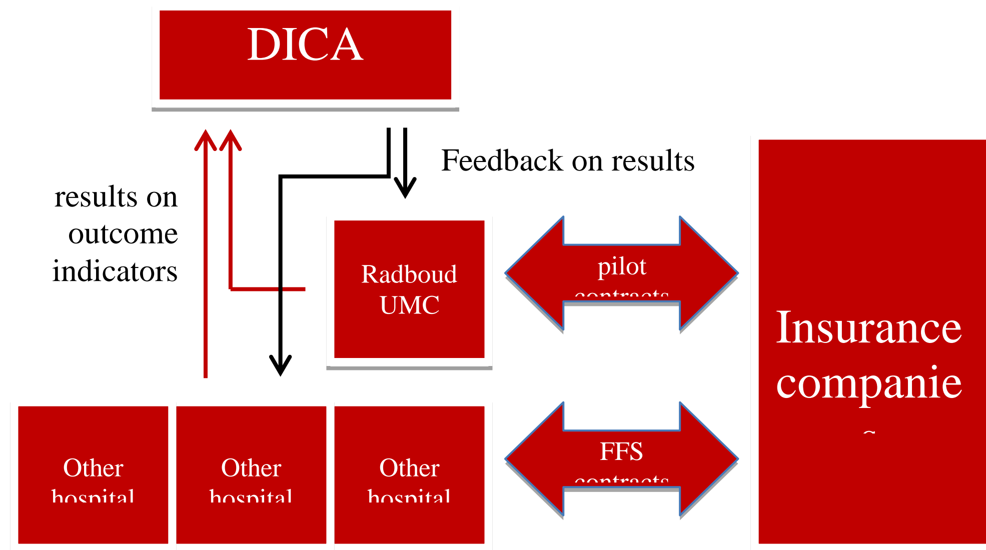
3.5 Implementation of the payment model

Although many aspects of the payment model are still under development, ParkinsonNet has started with the implementation of a "light" version in a pilot setting. This is limited to hospital care and is based on a population-based budget allocation, but to this date without outcome-based payments. The aim is to prepare the implementation of the future payment model. PD patients are divided into three groups: 1) <5 years after diagnosis, 2) 5-10 years after diagnosis and 3) 10+ years after diagnosis. Radboud UMC and two insurance companies agreed on a fixed capitation fee per patient per category and a maximum number of patients in each category. These fees cover all diagnostics, treatments and follow-up visits. Additionally, Radboud UMC committed to being included in the top 25% of the ParkinsonInsight indicator scores.

Despite the fact that health outcomes are measured in this pilot, there is no *direct* relation between the actual quality outcomes and the reimbursement. This is a main difference between the current pilot and the future outcome-based payment model.

Since the use of the indicator set is available from January 2015 on, the other Dutch hospitals report their outcomes too, but they are reimbursed by the 'traditional' FFS-model. A diagram of the pilot is shown in Figure 3.

Figure 3. Diagram of the current pilot



Note: DICA: Dutch Institute for Clinical Auditing; FFS: fee-for-service

Source: Authors' compilation

The pilot runs from January 2015 and the first results of the evaluation are expected by the end of 2015. In 2016, other hospitals might join the pilot. In 2017, ParkinsonNet intends to incorporate primary care providers in this pilot as well. The current pilot is supported by two specific insurance companies (VGZ and CZ). Together they insure approximately 35% of the Dutch national population (Dutch Healthcare Authority, 2014). ParkinsonNet hopes that other insurance companies will join in the coming years.

3.6 Considerations

The combination of an outcome-based payment model with population-based budgets, implemented in the organisational structure of ParkinsonNet, is expected to increase the quality of PD care while controlling healthcare costs. Evaluations have already shown that ParkinsonNet has positive effects on both quality of care and costs[1].

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[1] *Most of these studies were performed or paid by ParkinsonNet itself, but we have no indication that this interfered with the results as these studies have been peer reviewed as well.*

However, the suggested payment model involves risks. One of the most important issues is that the model might be in conflict with the Dutch healthcare system, because:

i) The Dutch healthcare system is a private system (under strict public regulations). Competition is one of the keystones. If insurance companies are faced with only one regional network for PD, this may be considered a monopoly. Although competition between regional networks may occur given geographical proximity, these will all be members of ParkinsonNet.

ii) The same problem occurs with competition within the region. If almost all patients are treated by ParkinsonNet providers, there is little competition between them and generic providers.

The data collection, inherent to the new payment model, will be carried out as efficiently as possible. However, the increment in administrative burden may be significant, especially when the system is first implemented.

Depending on the specific aspects of the implementation, there is a small risk that the reimbursements for ParkinsonNet members might be less profitable than reimbursements under FFS. This might create an incentive for providers to leave the system. It might create an incentive for gaming the system as well.

Finally, the following issues still have to be resolved:

- The payment formulas are not completed. For example, it is not yet decided how the budgets will be distributed among the different providers within the networks (between primary and secondary care, for instance).
- It has not been decided on whom the responsibility of managing the budgets will fall, and what will happen when budgets are exceeded.
- The Dutch healthcare system is strictly divided in ‘care’ and ‘cure’. Only the ‘cure’ (hospitals, primary care, etc.) is reimbursed by the private insurance companies. However, patients with PD make use of the ‘care’ (nursing homes, home care, etc.) as well. At this moment, there is no plan to overcome this financial issue.

4. Concluding remarks

ParkinsonNet is a Dutch nationwide network of 66 professional regional networks. Each of these regional networks consists of a limited number of specifically trained healthcare professionals involved in the

treatment of PD. The primary objective of ParkinsonNet is to increase the quality of life of patients with PD, by improving the care delivery to affected patients. The participating healthcare professionals have to meet certain quality standards. The introduction of ParkinsonNet had consequences for providers, insurance companies and patients. Several studies have shown positive effects on both quality of care and healthcare costs (Beersen et al., 2011; Bloem & Munneke, 2014; Munneke et al., 2010; Nijkrake et al., 2010; van der Marck et al., 2013).

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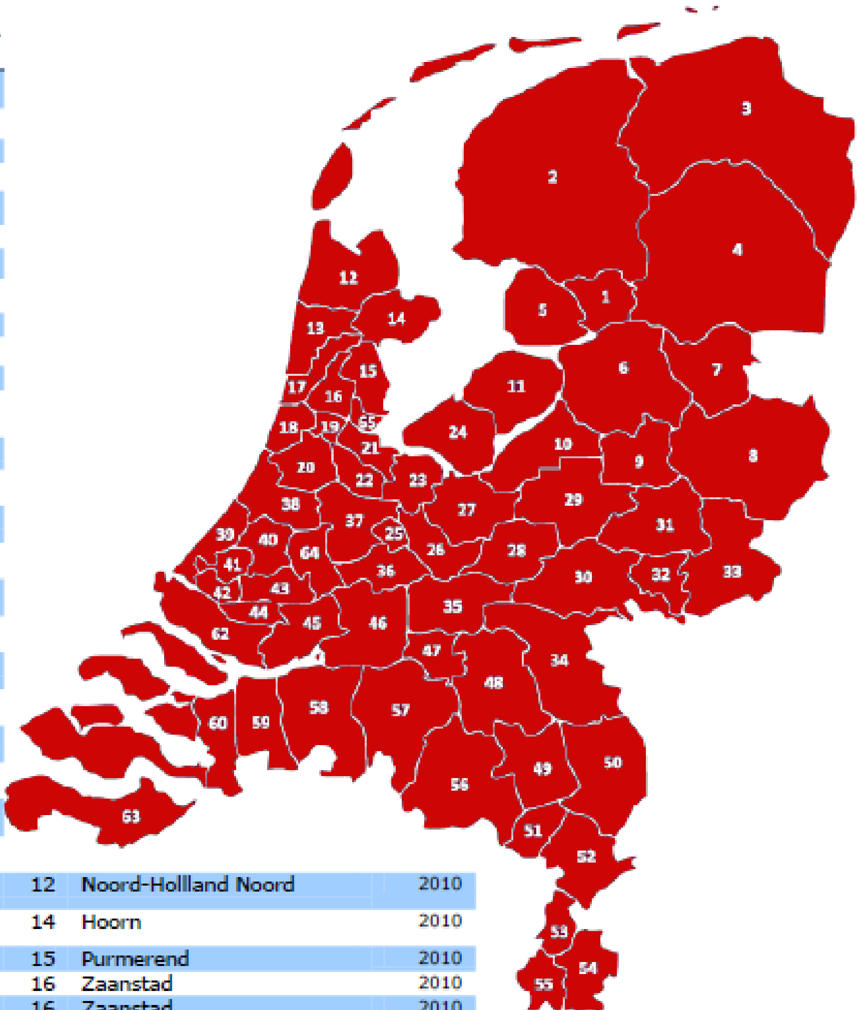
Appendix A: List of healthcare professions involved in ParkinsonNet.

- Clinical Geriatrician
- Dietician
- Exercise therapist
- Geriatrician
- Neurologist
- Nurse practitioner
- Nurse specialist
- Occupational therapist
- Pharmacist
- Physical therapist
- Physician assistant
- Psychiatrist
- Psychologist
- Rehabilitation physician
- Sexologist
- Social worker
- Speech therapist

Appendix B: Overview of the Regional Networks of ParkinsonNet (2011)



	Network	start			
30	Arnhem-Zevenaar	2005			
34	Nijmegen-Boxmeer	2005			
18	Haarlem	2006			
23	t Gooi	2006			
32	Doetinchem	2006			
41	Delft	2006			
47	s Hertogenbosch	2006			
48	Oss-Uden-Veghel	2006			
56	Eindhoven	2006			
64	Gouda	2006			
9	Deventer	2008			
28	Ede-Wageningen-Veenendaal	2008			
29	Apeldoorn	2008			
31	Zutphen	2008			
39	Den Haag	2008			
40	Zoetermeer	2008			
50	Venlo	2008			
10	Harderwijk	2009			
13	Alkmaar	2009			
35	Tiel	2009			
38	Leiden	2009			
42	Schiedam	2009			
43	Rotterdam-Noord	2009			
44	Rotterdam-Zuid	2009			
45	Drechtsteden	2009	12	Noord-Hollland Noord	2010
46	Gorinchem	2009	14	Hoorn	2010
49	Helmond-Geldrop	2009	15	Purmerend	2010
51	Weert	2009	16	Zaanstad	2010
52	Roermond	2009	16	Zaanstad	2010
53	Sittard-Geelen	2009	17	Beverwijk	2010
54	Heerlen-Kerkrade	2009	19	Amsterdam-West	2010
55	Maastricht	2009	20	Haarlemmermeer	2010
57	Tilburg-Waalwijk	2009	21	Amsterdam-Centrum-Oost-Zuidoost	2010
58	Breda	2009	22	Amsterdam-Amstelland	2010
59	Roosendaal	2009	24	Almere	2010
60	Bergen op Zoom	2009	25	Utrecht-Stad	2010
61	Zeeland-Noord	2009	26	Utrecht-Zuidoost	2010
62	Zuid-Hollande Eilanden	2009	27	Eemland	2010
63	Zeeuws-Vlaanderen	2009	33	Winterswijk	2010
1	Steenwijk	2010	36	Utrecht-Zuidwest	2010
3	Groningen	2010	37	Woerden	2010
5	Noordoostpolder	2010	65	Amsterdam-Noord	2010
6	Zwolle	2010	2	Friesland	2011
7	Hardenberg-Ommen	2010	4	Drenthe	2011
11	Lelystad	2010	8	Twente	2011

Source: Beersen et al., 2011