

© Springer Science+Business Media New York 2015

Ana Johnson

and

Thérèse Stukel

Medical Practice Variations

Health Services Research

10.1007/978-1-4899-7573-7\_74-1

## Medical Practice Variations in Primary Care

Gert P. Westert<sup>1</sup>, Judith D. de Jong<sup>2</sup> and Philip da Silva<sup>3</sup>

(1)Scientific Institute for Quality of Healthcare (IQ healthcare), Radboud University Medical Center, 114 IQ healthcare, P.O. Box 9101, 6500 HB Nijmegen, The Netherlands

(2)Netherlands Institute for Health Services Research, Utrecht, The Netherlands

(3)NHS Right Care, Derby, UK

**Gert P. Westert (Corresponding author)**

Email: [gert.westert@radboudumc.nl](mailto:gert.westert@radboudumc.nl)

**Judith D. de Jong**

Email: [j.dejong@nivel.nl](mailto:j.dejong@nivel.nl)

**Philip da Silva**

Email: [veraluz521@gmail.com](mailto:veraluz521@gmail.com)

Email: [phil@veraluz.co.uk](mailto:phil@veraluz.co.uk)

## Abstract

Primary care practice varies hugely from place to place. This chapter starts with establishing the existence of medical practice variation in primary care presenting some remarkable examples from the abundance of existing literature, which demonstrates variation in primary care practice at all levels: between countries, within countries across regions, and between practices.

The chapter will discuss how the visibility and transparency of clinical behavior in combination with shared resources is an important stepping-stone to understand how a “local practice style” evolves.

We will explore whether or not these factors influence decisions on prescription, referrals, diagnostics, treatment, and advice. It is suggested that when clinical behavior is made transparent to colleagues and decision making is shared with patients or when shared resources are used, GPs working in the same practice behave more alike.

Finally, it is hypothesized that gatekeeping by GP's helps (or should help) to reduce unwarranted variation in secondary care. The evidence in the literature that actually supports this is scarce and disappointing. Despite the crucial and pivotal role of GPs in many Western countries, substantial variation in the utilization of unnecessary or unwarranted elective surgery and/or hospital treatments is observed that could be avoidable if professional guidance was adhered to by GPs. At present Dutch GPs do not seem to be capable of avoiding unnecessary hospital care if they feel that it does not add to a patient's value.

# Introduction

Healthcare systems differ with respect to position and function of primary care. In most Western countries people have a medical home, a first entry point for medical care. In the UK, Denmark, and the Netherlands, this is the general practitioner. In countries that are more oriented toward care by medical specialists, a family physician, or internist, takes up the role of the generalist, acting as a navigator in the healthcare system to advise patients on when and where to go when having a health problem. In some countries general practitioners (GPs) act as the gatekeeper to secondary care. In most of the Scandinavian countries, the UK (NHS) and the Netherlands people need a referral from their GP to see a hospital doctor. In the UK there is a private sector next to the NHS, where people can self-fund treatment to bypass the GP, and in the USA the access to specialist care depends on a person's health insurance policy. Many US citizens nowadays are enrolled in an HMO or PPO where, if a referral for specialist care is required, they have to see a generalist first.

Shackelton-Piccolo et al. ( [2011](#) ) summarize and state that:

“What occurs at the level of primary care is important for several reasons; (a) it is the gateway to the healthcare system, crucially determining the course of many diseases, costs and patient outcomes; (b) it is where the vast majority of illness in society is presented and cared for; (c) it may be the point of origin for the generation and amplification of many reported disease disparities; and (d) it may also be the point of origin for ever increasing costs of health care, implying that the most expensive piece of medical technology may be a physician's pen”.

Ideally, at the entry point of care, a patient is engaged in a good conversation with their GP when they receive a diagnosis, a treatment, or referral, which should be based on clinical need and which should be independent of the chosen GP or the practice where this family physician is employed. Yet this position is far from everyday reality and is no different from specialist or hospital care. It is clear that GPs do vary in medical practice style and how they treat their patients. We know that patients are not alike. We also know that GPs and their practices are not alike. Of more concern though is that the circumstances that shape people's decisions vary too, for doctors as well as for patients, leading to (sometimes huge) variation in primary care.

In this chapter the focus is not on the individual doctor – patient interaction, but on the population level where the performance of practices serving large groups of patients will be studied. The question is: as a patient, does it matter on which practice door you knock for care?

## Variation Creeps Through Every Pore

The literature about variation in primary care is certain about one thing: variation is evident at all levels and can be found all over the place. A MEDLINE/PubMed search of the MeSH terms “Primary Health Care” and “Clinical Practice Variation” yields some 2,995 (January 20, 2015) publications describing various examples and evidence of this phenomenon.

De Jong et al. ( [2006](#) ) observed that after adjusting for differences in practice populations (age, sex, race, type of insurance, education, and health), the average number of contacts patients have with a Dutch practice varies widely (De Jong et al. [2006](#) ). High and low contact practices differ by 3.7 contacts per patient on an annual basis. Furthermore, it was observed that contacts with the practice hugely differ between practices after controlling for case severity. In patients rating their health as “(very) bad,” the frequency of contacts between the 96 practices varies from 2.1 to 12.2, with an average of 7.1 contacts at practice level.

Wammes et al. ( [2013](#)) asked 148 Dutch GPs to indicate how often they would want to see the following case on a yearly basis: 60-year-old male, high blood pressure, under control, no further medical problems. The answers show striking differences: 28 % said “every 3 or 4 months,” another 42 % said “every 6 months,” and finally 31 % answered “once a year.” This example illustrates that although care for high blood pressure patients is important to GPs, the amount of care necessary is supply sensitive or dependent on GP practice style, with some interventions often adding no value to the patient. The present guideline on high blood pressure provides no evidence-based advice on the appropriate consultation rate.

It is acknowledged that guidelines are not without challenge and that barriers to adherence lie with both the clinician and patient (Lugtenberg et al. [2011](#)), and for clarity we define guidelines as being systematically designed accounts that translate the findings of research into best practice, in order to assist clinicians find the most appropriate care for reducing variation in healthcare (Spyridonidis and Calnan [2011](#)). The findings of a study revealed that overall and on average, Dutch GPs showed to adhere in almost two third of all decisions to national professional guidelines (Van den Berg et al. [2009](#)). In this study a multilevel logistic-regression analysis was conducted of 170,677 decisions made by GPs, referring to 41 Guideline Adherence Indicators (GAIs), which were derived from 32 different clinical guidelines. Of note, 84 % of the remaining variation in guideline adherence was located at GAI level, which means that the differences in adherence levels between guidelines are much larger than differences between GPs. Thus, variation between GPs can be substantial, depending on the guideline. One reason for this distrust of guidelines is that clinicians frequently question the evidence base, which in turn becomes a barrier to implementation (Spallek et al. [2010](#)). Berg van den et al. ( [2009](#)) observed that guideline recommendations that require an extra time investment are significantly less well adhered to, while those that can save time are significantly more often adhered to. Recommendations that reduce the likelihood of a follow-up consultation for the same problem are more often adhered to when compared to those that have no influence on this.

Moreover, Vedsted et al. ( [2004](#)) observed that the variation in the proportion of frequent attenders was considerable between 262 Danish practices. The standardized percentage ranged, with 10th to 90th percentile, from 4.3 % to 13.2 %: a factor of 3.1.

Furthermore, primary care physicians also vary in the certainty of assessing a diagnosis when seeing a patient. Shackelton-Piccolo et al. ( [2011](#)) explored differences between internists and family practitioners in their suggested diagnoses, level of diagnostic certainty, and test and prescription ordering, when encountering exactly the same “patient” with a diagnosis of coronary heart disease (CHD). The findings reveal that internists were more certain of a CHD diagnosis than family practitioners and that they were more likely to act on that diagnosis. Family practitioners were more likely to diagnose (and were more certain of) a mental health condition. “While many physicians simultaneously entertain several alternative diagnoses, diagnostic certainty has shown to have an important influence on subsequent clinical actions such as stress testing and prescription of beta-blockers” (Shackelton-Piccolo et al. [2011](#)). Of note and besides the differences between internists and family physicians, the authors also found remarkable “within-group” differences within the two types of doctors.

Other commentators reported large differences in diagnostic test ordering including a Spanish study by Lumbreras et al. ( [2012](#)) which showed a huge difference in PSA test ordering behavior among ten PMCs between the years of 2002 and 2009.

Baker et al. ( [2006](#)) observed that despite the availability of clinical guidelines for the management of low back pain (LBP), there continues to be wide variation in general practitioners’ (GPs’) referral rates for lumbar spine x-ray (LSX) in the UK. Evans ( [1990](#)) noticed a large variation of referral rates

among the 13 practices in the Torfaen Local Health Board area in the UK with an unexplained range of 2.6–7.7 per 1,000 patients.

Finally, prescribing drugs to patients varies tremendously between PMCs, both between areas in a country and between countries. The latter has been documented by Butler et al. (2009): “There is a wide variation between European countries in antibiotic prescribing for patients in primary care with lower respiratory tract infection (LRTI) that is not explained by case mix and clinical factors alone.” The authors report two interesting findings regarding patients’ recovery. “Firstly, there were significant differences between networks in both severity of symptoms on day one (intercept) and the recovery rate (slope). Differences in the recovery rate, however, were small, and patients recovered at a similar rate regardless of network. Secondly, whether a patient was prescribed antibiotics or not was statistically associated with outcome. The magnitude of this association amounted to a difference of a tenth of a single per cent in the symptom severity score after 7 days, which is not clinically relevant” as cited from Butler et al. (2009). The Butler study underscores the fact that variation in practice style does exist and cannot be neglected. It is striking that in this example a wide range of practice styles did not make a difference to the aim of healthcare: improving health.

In summary, there is convincing evidence that variation persists across primary care from place to place, making the question about understanding it more prominent. How can practice variation in primary care be explained? What are important factors?

This chapter now attempts to better describe variation as a social phenomenon. Practice variations in GP care – at least in the Netherlands – have primarily been studied between individual GPs where until some 15 years ago GPs used to work in single-handed practices, but now more than half of the Dutch GPs work in partnerships or groups (Boerma and Fleming 1998) which is a similar model to that of the UK. Working in partnerships or groups implies mutual dependency and influence on treatment decisions (Groenewegen et al. 2002). This chapter will progress to elaborate on two contextual characteristics that influence doctors’ medical decision making. The first is about the visibility and transparency of individual professional behavior. The thesis is that when behavior is more visible, there is less variation in practice styles between GPs.

The second is about the referral process. The hypothesis is that if GPs are engaging patients in the decision making and restrictive in handing over patients unnecessarily to medical specialists, and that they really do guide their patients about the effectiveness and value of, for example, elective surgery, it is expected that less patients are confronted with unnecessary hospital diagnostics and treatments which may do more harm. As a result it is expected that regional differences in hospital activities will be lower. The question behind this is under what circumstances GPs are willing and capable to take up their role as gatekeeper?

Two questions are posed in the remaining of this chapter and data and evidence from the Netherlands and UK (question 2) are applied to answer these questions:

**1.**

To what extent and under which circumstances do GPs working in the same practice behave alike?

**2.**

To what extent do GPs in their role of gatekeeper guide and coach patients to avoid unnecessary hospital care? What are the barriers that GPs see at present?

# About Being Alike and Being Different: A Matter of Circumstances

The assumption is that medical treatment is based on theoretical knowledge, built on evidence and clinically relevant to the presenting patient only. Patients, and other laypersons, have a lack of medical knowledge and thus are not optimally equipped to judge the medical decision of physicians. This gives the profession of medicine its special social and legal status (Evans [1990](#)).

The fact that medical practice variation persists at all levels, even when clinically relevant variables are taken into account, undermines this position leading to the profound observation that: if physicians do what is best for their patients, based on evidence, how come there is variation in treatment between medically similar patients? Existing explanations are mostly based on individual preferences or (social) circumstances (Wennberg [1999](#); Verstappen et al. [2003](#)) and yet, even where the patient is engaged in the decision process and reviews the treatment options available to them, variation persists.

If we follow Freidson's argument ([1975](#)), it could be determined that medical practice variation persists because professional behavior is more related to the (social) circumstances in which physicians work than to their professional education. This line of reasoning implies similarities in clinical decision making and behaviors occurring between colleagues sharing a work environment. Westert ([1992](#)) observed such similarities in the use of hospital care among physicians working in the same hospital, while there was variation between these hospitals at the same time. De Jong et al. ([2003](#)) found that GPs showed similarities in attitudes and stated medical behavior when working in the same practice, while there were differences between GPs working in different practices, leading to the conclusion that sharing a work environment is related to similarities in medical behavior. On the basis of that literature, the assumption is that less variation would be observed within a primary care organization than between a number of GPs' practices for different clinical activities.

Variation in medical practice between physicians may be the unforeseen consequence of differences in incentives and circumstances between their working environments, sometimes providing perverse incentives, opportunities, and constraints in behavior, regardless of the use of shared resources, like assistants and equipment, which is considered an important aspect of working in the same environment. The work environment serves as a social system in which decisions take place which may lead to physicians making similar medical decisions for similar patients. However, those systems are not monolithic organizations established to provide standardized care. Those systems, as are most healthcare systems, a part of a complex adaptive system where organizations self-manage and where clinicians stretch their freedom to act, where decisions are more unpredictable, and where variation is widespread.

An important precondition for some of that variation to be reduced and for care to become more predictable is the visibility and transparency of decision making and behavior. When behavior is visible, group norms usually develop. Without that transparency GPs run the risk of being criticized not only by their patients but also by their colleagues particularly when they deviate from local practice while working in the same partnership. Colleagues sharing a work environment develop an informal (norm) system to help protect their common interests and to overcome free riding and maintain solidarity (Lazega [2000](#)).

This perception was highlighted by De Jong et al. ([2006](#)) showing in their study how (and if) visibility of clinical behavior and the use of shared resources influence variation in medical practice between GPs working in different practices. Some of the clinical activities that were studied are more visible for colleagues than others, some use shared resources, and others do not. When clinical

behavior is visible or shared resources are used, similarities were expected between GPs working in the same practices.

De Jong et al.'s ( [2006](#) ) study also confirms that clustering of variation within practices depends on the clinical activity studied. GPs sharing a work environment differed more from colleagues working in other practices than from their colleagues working in the same practice. This was found for activities like treatment and diagnostics performed in the GPs' practice. For prescription, referral to other providers of care, diagnostics performed in the laboratory, and advice, it was the other way round. For these activities practices looked more alike than GPs working in the same practice. The authors conclude that there is less variation within practices when shared resources are used and when behavior is visible and transparent to colleagues.

In the next part of the chapter, another topic is explored and discussed: What to expect from GPs in reducing medical practice variation in the hospitals? This question addresses the amount of integration of two crucial elements (and separately financed parts) of the healthcare system (GP care and hospital care) in the Netherlands and the UK. To what extent do GPs shape or avoid unnecessary care, signaled by the existence of medical practice variation in hospitals, and are they capable and willing to reduce it?

## Do GPs Act as Gatekeepers to Avoid Unnecessary Hospital Care?

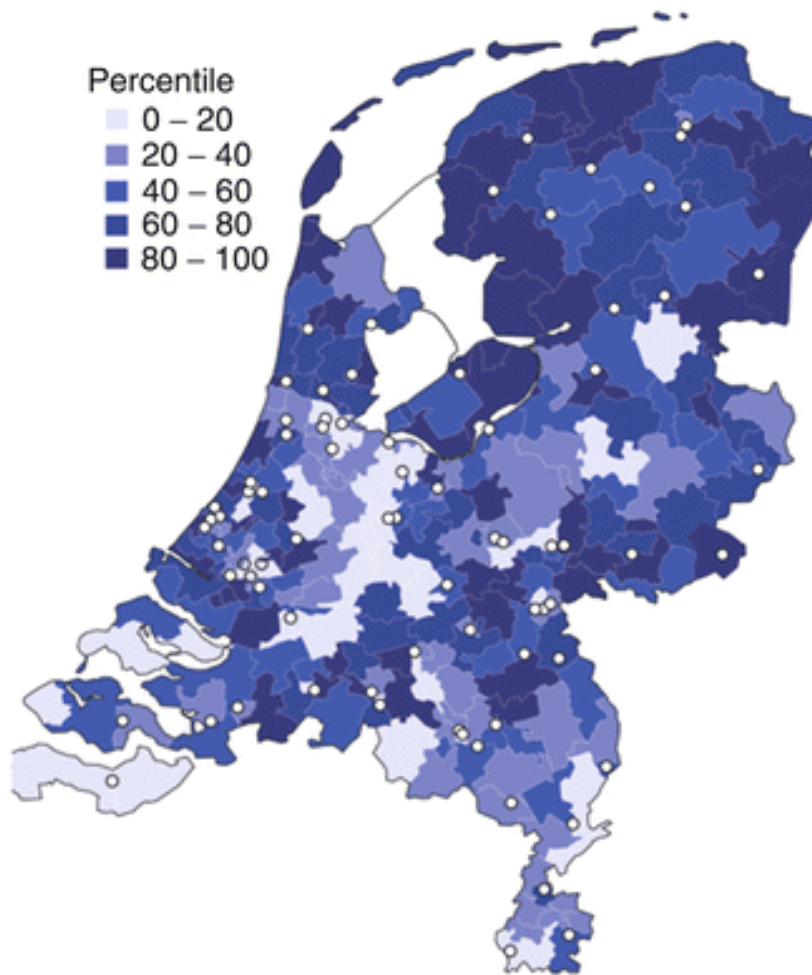
In countries such as the UK, Denmark, and the Netherlands, GPs are ideally positioned to act as gatekeeper for specialist care and as navigator for their patients. One out of 20 GP consultations leads to a referral to a hospital physician. One expects that GPs making those referrals do try to avoid their patients being provided with any unnecessary hospital visits, diagnostic tests, and other procedures of lower value.

The expectation being that GPs would engage with their patient to guide them through complex medical decisions through a process of shared decision making. Shared decision making is a process in which patients are guided to review the treatment options available to them and helped to make a decision which best suits their needs and values (e.g., whether or not a surgical procedure is indicated), but to what extent do they?

Before referring patients to a surgeon or other secondary care colleague, GPs should minimize the information asymmetry for their patients, e.g., what is the effectiveness of back surgery in case of a lumbar herniated disk? Is a MRI necessary? Is a referral indicated or not yet? The hypothesis is: if GPs take their task as gatekeeper serious, the number of unnecessary investigations and treatment interventions will be lower.

However, in the data from the "NHS Atlas of Variation" in England ( [www.rightcare.nhs.uk](http://www.rightcare.nhs.uk) ) and the data from Fig. [1](#), we can observe that this is not the case (Department of Health [2011](#)). In the Netherlands a threefold regional variation in back surgery (lumbar herniated disk) exists. In the lowest quintile the range is 17–49 procedures per 100,000 and in the highest quintile 78–125 per 100,000. Apart from the fact that surgeons clearly vary in their practice style, the map (Fig. [1](#)) questions whether GPs vary in taking up their role to guide patients and whether or not as gatekeepers they can reduce regional variation in surgery.

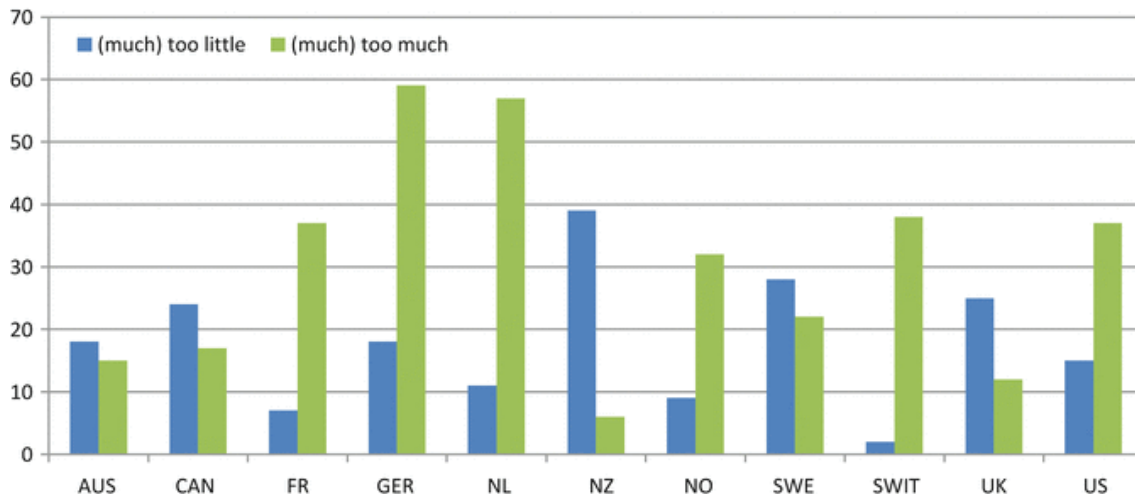




**Fig. 1**

Regional variation in case-mix adjusted number of lumbar herniated disk procedures in the Netherlands, 2011 (Zorgverzekeraars Nederland, December 2013)

What does the research literature tell about the determinants for referral by GPs? A PubMed search (“GP referral determinants”) of the literature shows that research on this topic is almost nonexistent. Most publications deal with issues of delay of referral (e.g., in case of major depression, stroke, obesity). Van de Pol et al. observed that the 5–10 years’ working experience as a GP compared to less than 5 years of experience was associated with less specialist referrals for respiratory tract infections. Recently a survey was executed among Dutch GPs on the appropriateness of healthcare utilization in the Netherlands. The central question was whether or not Dutch patients receive too much or not enough healthcare. The survey was triggered by a recent Commonwealth Fund finding that almost 60 % of the GPs in Germany and the Netherlands state that patients receive too much care, both primary care and in hospitals (Faber et al. [2012](#); Schoen et al. [2012](#)). Figure 2 shows that both countries are really exceptional in this. In New Zealand as well as the UK, the opposite was observed: between 30 % and 40 % of the GPs stated that patients need more care than they actually receive.



**Fig. 2**

Thinking about the medical care that your patients receive – not just from you, but from all their providers, including specialists – what is your opinion about the amount of medical care they receive (Source: Commonwealth Fund IHP survey, 2012. It is (much) too little much (Family Practice (2014) 31(5):499–501 first published online June 10, 2014. doi:10.1093/fampra/cmu027, Fig. 1))

In the Netherlands the finding above instigated additional research by Wammes et al. (2013), conducted in the spring of 2013. A random sample of 600 GPs was approached and surveyed to confirm the finding and to elaborate on the explanations for this. The main aim was to find an answer to explain why many GPs consider that care in the Netherlands is too easily accessible. The initial finding was confirmed by a survey of GPs ( $n = 157$ ) where 84 % of GPs state that the amount of hospital care that Dutch patients receive is (far) too much. Sixty-five percent of those GPs responded that medical specialists are focused on treating patients instead of other modes of treatment, for example, watchful waiting or *in dubio abstinere*. Furthermore, 60.4 % of those GPs stated that they also tend to provide too much care.

The question arising from these results is why the gatekeeper of the Dutch healthcare system does not turn the gate ajar and (why) do GPs differ in their practice style when it comes to referring to medical specialists?

In the Netherlands all citizens are listed with a GP of their own choice. Van Dijk et al. (2013) reported that the number of referrals per GP practice varies substantially, up to threefold. The pooled data (2006–2010) for surgery show that the range of variation between GPs is large: 54–156 per 1,000. This means that GPs vary in referral rates and also that they have different thresholds for making those referrals to secondary care.

In the survey the GPs were invited to identify the drivers for inappropriate referrals that occur. The two dominant factors turned out to be time and avoiding mistakes, with 62.5 % of the respondents stating that they send patients to another provider when “there is not enough time for that particular patient” and 61.3 % of those surveyed mention that “being afraid of making mistakes” is another key factor that drives referrals. GPs also state (56 %) that it is time consuming to convince patients that additional testing or a referral will not add much value to their outcome. Dutch GPs find it hard to combine evidence-based medicine with strong patient preferences and beliefs and 91 % claim that they find it difficult to say no to patients. Almost 90 % agree with the statement “if patients really want a certain type of care, she/he will get it eventually anyway.”

These drivers, combined with a payment system that predominantly pays GPs a fixed (60 %) amount per listed patient and a DRG-like system for hospitals and in most cases a fee for services in hospitals, make it more understandable, but not acceptable that there is an unforeseen consequence of the



incentive structure to let patients pass “the gate,” regardless of presenting symptoms and condition. Once they have passed this gate and have been registered in the system, hospital doctors will take over and may provide care, following the motto “more is better” as dictated by the payment structure. They show variations to be service driven or to put it differently: treatment and intervention means getting paid, whereas watchful waiting means no payment.

Looking at Fig. 2 again, the UK and the Netherlands perhaps differ in position on the “too much care” question as only a small percentage of the NHS GPs state that patients get too much care. The other difference is that the GPs in England have been given a central role in healthcare commissioning. In the Netherlands this role is with the health insurers. So, the question is raised, “Do the GPs in England acting as gatekeepers and commissioners of care successfully put the squeeze on hospital care to reduce variation?”

The UK, similar to the Netherlands, faces the same pressure of an increasing demand for services, caused largely by the impact of an aging population and medical science developments and a lack of resources consequent on the period of austerity. In these circumstances, it should not be surprising that there is an increased focus in gaining more value from finite resources or that there is a sharper focus on understanding the concept of medical practice variation in the provision, uptake, and costs of healthcare (Corallo et al. 2013) with the aim of identifying and reducing unwarranted variation to release resources for higher value care. The NHS in England has responded, publishing the “NHS Atlas of Variation” series and placing a spotlight on variation, demanding that the NHS identifies and reduces unwarranted variation.

The evidence that unwarranted variation persists in the English NHS is inescapable, making the current policy directive to search for and reduce unwarranted variations a reasonable one, but the execution and achievement of this directive is far from straightforward. The NHS in England has adopted a quasi-market approach to managing healthcare and a process of driving efficiency, separating the NHS into providers and commissioners, and the latest reform described in the White Paper “Equity and Excellence: Liberating the NHS” (DH 2010) has placed general practitioners at the center of the new commissioning organizations. This role for GPs in England is not new, it has been tried previously, but it does introduce some conflicts of interest as it could be argued that GPs now have three roles: commissioner, carer, and gatekeeper.

The NHS in England is not alone; most developed health systems advocate the increasing engagement and participation of clinicians in the management and leadership of their organization and it is unsurprising that there is considerable interest in doctors becoming more involved in management (Irerri et al. 2011). Indeed, some suggest that GP-led commissioning can only be achieved by extending the gatekeeper and role of healer to encompass commissioner, but with budgetary control (Smith and Mays 2012). The engagement of GPs in commissioning may also help to reduce the imbalance of supply sensitive care where it is suggested that commissioning organizations are considered weak in relation to providers (Abbott et al. 2009). The question remains though, can GPs, as gatekeepers or commissioners, identify and reduce unwarranted variation in either or both of primary and secondary care?

Unwarranted variation is the hallmark of poor quality and a key driver of lower value healthcare. The conundrum of unwarranted variation has long been a concern to policy makers and decision makers alike and has received growing interest when brought into sharp focus in the UK through the publication of the “NHS Atlas of Variation” series ( [www.rightcare.nhs.uk](http://www.rightcare.nhs.uk)). However, to achieve the ambition to move forward from the observation and recording of variation, the NHS needs to gain a better appreciation to be able to understand how to explore, classify, respond, and mitigate unwarranted variation.

The question to the NHS in England and other countries facing a similar challenge is how to allocate resources more rationally to reconcile the growing demand within available funds to ensure the population receives a high value care, based on medical need and choice, not institutional survival and unnecessary clinical interventions. Delivering the right care in the right setting could see many patients enjoy better outcomes at lower cost to the NHS if variation was better understood and where unwarranted variation was reduced.

The significance of the challenge, however, should not be underestimated, and the current uncoordinated approach of managers, clinicians, patients, and carers, each creating their own framework and justification for dealing with unwarranted variation, is now indefensible. The issue requires better organization and leadership, which should build on the skills and knowledge of clinician's and managers in primary care.

Primary care and in particular GPs are well placed to lead this work, after all the majority of the population are registered with a GP of their choice. GPs also hold a well-respected position with the public which should enable the crafting of a shared narrative for GPs to work together to harvest good practice and to transform existing ways of working where it is considered they contribute to unwarranted variation.

There is no greater leadership challenge for GPs than to apply their skills and resources to transform the way care is delivered, improving the quality and outcomes that matter most to patients and the public.

There is evidence that GPs in England and elsewhere are beginning to rise to that challenge; we know that GPs respond very well to good data even that which identifies them as an outlier as described in a qualitative study of GPs in England (DaSilva [2013](#)). In that survey of GPs, there was acknowledgement that variation exists and that it is not restricted to secondary care, and that GPs welcomed support to create ways of classifying and tackling unwarranted variation, but they were less supportive of more standardized care as each patient is unique:

“to use variation as a tool ... is a valuable tool, it's a really good prompt and I don't know of any GP or clinician that does not respond to being an outlier when you look at variation.” [GP]

However, while GPs were willing to use variation as a prompt for reviewing their practice, they were unequivocal about two issues; the first is the source of data to display those variations:

“We (GPs) have had some dreadful data used to measure our performance....it does depend who and how those data are provided...it's an issue of trust and then ownership....one of the first reactions [from GPs] is that the data is not right; it's a defence of our clinical practice.” [GP]

And the second is that any lever used to manage performance or measure their clinical practice as a means of reducing unwarranted variation was unjust and would not work, with a justification by one GP claiming that

“To practitioners on the coalface, their variation is never unwarranted.” [GP]

The issue of standardized care and the uniqueness of individual patients is often used by GPs and other clinicians to defend their unwillingness to either adhere to clinical guidelines which are acknowledged as being effective tools for evidence-based care and reducing variation in healthcare and costs and for improving the quality of patient care (Grimshaw [1995](#); Rashidian et al. [2008](#)) and considered the most common initiative to reduce unwarranted variation in clinical practice (Kennedy et al. [2010](#)) or to search for unwarranted variation.

Time will tell whether or not GPs in England and the Netherlands will eventually be successful in classifying and reducing unwarranted variation. What we can learn from both countries is that bringing about a renaissance of interest to policy makers, clinicians, and managers is only the start of the journey. The next powerful step is making variation in healthcare visible to physicians and to the public and only then will the search for unwarranted variation really begin as health systems start to

reduce the problem of unwarranted variation and increase value, for their patients and tax payers. Knowledge fuels change and will help to blow away the fog of healthcare (Source: TEDx Dartmouth 2011- Albert G. Mulley, Jr.: Who Can Fix Health Care? - March 6, 2011.).

## References

Abbott S, et al. NHS purchaser–provider relationships in England and Wales: the view from primary care. *Soc Policy Admin.* 2009;43:1–14.

[CrossRef](#)

Baker R, Lecouturier J, Bond S. Explaining variation in GP referral rates for x-rays for back pain. *Implement Sci.* 2006;1:15.

[PubMedCentral](#) [PubMed](#) [CrossRef](#)

Boerma WGW, Fleming DM. The role of general practice in primary health care. World Health Organization. London: The Stationary Office; 1998.

Butler CC, Hood K, Verheij T, Little P, Melbye H, Nuttall J, Kelly MJ, Mölstad S, Godycki-Cwirko M, Almirall J, Torres A, Gillespie D, Rautakorpi U, Coenen S, Goossens H. Variation in antibiotic prescribing and its impact on recovery in patients with acute cough in primary care: prospective study in 13 countries. *BMJ.* 2009;338(7710):1545–8. doi:10.1136/bmj.b2242 (Published 24 June 2009).

Corallo AN, et al. A systematic review of medical practice variation in OECD countries. *Health Policy.* 2013;114:5–14.

[PubMed](#) [CrossRef](#)

DaSilva P. A report on a piece of structured research. (Submitted in part fulfilment of DBA programme at Nottingham Trent University, unpublished.); 2013.

de Jong JD, Groenewegen PP, Westert GP. Mutual influences of general practitioners in partnerships. *Soc Sci Med.* 2003;57:1515–24.

[PubMed](#) [CrossRef](#)

Department of Health. Equality and excellence: liberating the NHS. London: DH; 2010.

Department of Health. NHS Atlas of variation compendium 2. London: DH. [www.rightcare.nhs.uk](http://www.rightcare.nhs.uk); 2011.

Evans RG. The dog in the night time: medical practice variations and health policy. In: Andersen TF, Mooney G, editors. The challenges of medical practice variations. London: The Macmillan Press; 1990. p. 117–52.

Faber M, van Loenen T, van den Berg M, Westert G. Huisarts kan zorg betaalbaarder maken. *Medisch Contact*. 2012;46:2574–6.

Freidson E. Profession of medicine. A study of the sociology of applied knowledge. New York: Dodd, Mead; 1975.

Groenewegen PP, Dixon J, Boerma WGW. The regulatory environment of general practice: an international perspective. In: Saltman RB, Busse R, Mossialos E, editors. Regulating entrepreneurial behaviour in European health care systems. Buckingham: Open University press; 2002. p. 200–14.

Grimshaw J, Freemantle N, Wallace S, Russell I, Hurwitz B, Watt I, Long A, Sheldon T. Developing and implementing clinical practice guidelines. *Qual Health Care*. 1995;4(1):55–64.

[PubMedCentral](#) [PubMed](#) [CrossRef](#)

Ileri S, et al. A qualitative and quantitative study of medical leadership and management: experiences, competencies, and development needs of doctor managers in the United Kingdom. *J Manag Market Healthc*. 2011;4:16–29.

[CrossRef](#)

Jong JD, de Groenewegen PP, Westert GP. Medical practice variation: does it cluster within general practitioners' practices? In: Westert GP, Jabaaij L, Schellevis FG, editors. Morbidity, performance and quality in primary care. Oxford/Seattle: Radcliffe publishing; 2006.

Kennedy PJ, Leathley CM, Hughes CF. Clinical practice variation. *Med J Aust*. 2010;193(8 Suppl):S97–9.

[PubMed](#)

Lazega E. The collegial phenomenon. The social mechanisms of cooperation among peers in a corporate law partnership. Oxford: Oxford University Press; 2000.

Lugtenberg M, et al. Perceived barriers to guideline adherence: a survey among general practitioners. *BMC Fam Pract.* 2011;12:98.  
[PubMedCentral](#) [PubMed](#) [CrossRef](#)

Lumbreras B, López-Garrigos M, Salinas M. Variation in prostate specific antigen (PSA) test ordering in primary care centers: tendencies 2002–2009. *Clin Lab.* 2012;58(5–6):573–7.  
[PubMed](#)

Rashidian A, Eccles MP, Russell I. Falling on stony ground? A qualitative study of implementation of clinical guidelines' prescribing recommendations in primary care. *Health Policy.* 2008;85(2):148–61. Epub 2007 Sep 4.  
[PubMed](#) [CrossRef](#)

Schoen C, Osborn R, Squires D, et al. A survey of primary care doctors in ten countries shows progress in use of health information technology, less in other areas. *Health affairs.* 2012;31(12):2805–2816.  
[PubMed](#) [CrossRef](#)

Shackelton-Piccolo R, McKinlay JB, Marceau LD, Goroll AH, Link CL. Differences between internists and family practitioners in the diagnosis and management of the same patient with coronary heart disease. *Med Care Res Rev.* 2011;68(6):650–66. doi:10.1177/1077558711409047 Epub 2011 Jun 16.  
[PubMedCentral](#) [PubMed](#) [CrossRef](#)

Smith JA, Mays N. GP led commissioning: time for a cool appraisal. *Br Med J.* 2012;344:e980.  
[CrossRef](#)

Spallek H, et al. Barriers to implementing evidence-based clinical guidelines: a survey of early adopters. *J Evid Based Dent Pract.* 2010;10:195–206.  
[PubMedCentral](#) [PubMed](#) [CrossRef](#)

Spyridonidis D, Calnan M. Are new forms of professionalism emerging in medicine? The case of the implementation of NICE guidelines. *Health Soc Rev.* 2011;20:394–409.  
[CrossRef](#)

van den MJ B, de Bakker DH, Spreeuwenberg P, Westert GP, Braspenning JC, van der Zee J, Groenewegen PP. Labour intensity of guidelines may have a greater effect on adherence than GPs' workload. *BMC Fam Pract.* 2009;10:74.

## [CrossRef](#)

van Dijk CE, Korevaar JC, de Jong JD, Koopmans B, van Dijk M, de Bakker DH. Kennisvraag: ruimte voor substitutie? Verschuivingen van tweedelijns- naar eerstelijnszorg. Utrecht: NIVEL; 2013. 109 p.

Vedsted P, Sørensen HT, Nielsen J, Olesen F. Variation in proportion of frequent attenders between Danish general practices. *Scand J Public Health*. 2004;32(3):188–93.

[PubMed](#) [CrossRef](#)

Verstappen WHJM, Van der Weijden T, Sijbrandij J, Smeele I, Hermsen J, Grimshaw J, Grol RPTM. Effect of a practice-based strategy on test ordering performance of primary care physicians. *JAMA*. 2003;289:2407–12.

[PubMed](#) [CrossRef](#)

Wammes JJG, Verhoef L, Westert GP, Assendelft P, Jeurissen PP, Faber M. Onnodige zorg in de Nederlandse gezondheidszorg, gezien vanuit het perspectief van de huisarts. Celsus Academie voor Betaalbare Zorg, UMC St Radboud/ VWS, 2013.

Wennberg JE. Understanding geographic variations in health care delivery. *New Engl J Med*. 1999;340:52–3.

[PubMed](#) [CrossRef](#)

Westert GP. Variation in use of hospital care [dissertation]. Assen: Van Gorcum; 1992.

Zorgverzekeraars Nederland: <https://zn-assets.zn.nl/p/32768/files/Praktijkvariatierapport%20%20electieve%20zorg%20aandoeningen.pdf>. Accessed 27 Jan 2015.