GPs with special interests: unanswered questions

Juan Gervas, Barbara Starfield, Concepción Violán and Sergio Minué

ABSTRACT

The *NHS Plan* signalled the creation of GPs with special interests (GPwSIs) in the UK. The role of a GPwSI involves the acquisition of knowledge and skills that enable GPs to dedicate a portion of their time to performing the role of consultants to their colleagues within the ambit of general practice, and with respect to specific health problems encountered. The objectives behind the introduction of GPwSIs are to improve the patient's access to specialist care, to cut waiting-list times, and to save on referral costs, (and as a consequence to increase the prestige of the GPs involved). However, the reality may not meet these expectations. Before accepting the proposition for universal implementation of GPwSIs empirical evidence is required to demonstrate that overall health is improved (of patients as well as the population); patients, especially patients of doctors working alone or in small groups (specifically in rural areas) are not disadvantaged; referral is improved and made more appropriate to the requirements of patients and their health problems; real prestige is generated, not only among GPs and students, but also among patients; biological views typical of the specialist are not promoted; and a brake is not applied to other alternatives in, or the reorganisation of, primary care.

Keywords

family medicine, general practitioners with special interests, specialism.

INTRODUCTION

The growing trend towards specialisation in medicine is creating pressure for greater specialisation in general practice.¹⁻⁴ In the UK GPs with a tendency towards super-specialisation in general medicine are termed GPs with special interests (GPwSIs).⁵ This involves GPs acquiring knowledge and skills that enable them to dedicate a portion of their time to performing the role of consultant to their own colleagues, with regard to specific health problems, such as minor surgery, hypertension, drug addiction, and headache, so that patients can be referred for 'expert' intervention.^{5,6}

The official objectives behind the role of GPwSIs are to improve the patient's access to specialist care, cut waiting-list times, and save on referral costs.^{5,6} As a consequence, the prestige of the GPs involved would be expected to increase (as signalled by heightened self-esteem of the GPwSI), with general practice becoming more appealing to students and junior doctors, and with associated greater patient satisfaction (as manifested by re-registration with the practices with GPwSIs).⁷

In this article problems surrounding the concept of GPwSIs are considered with emphasis on unanswered questions about the impact this post has on general practice.

PART VERSUS WHOLE

Specialist medicine developed over the course of the 19th and 20th centuries, accompanied by increasing specialisation in other areas of societal endeavour. The impetus towards specialisation was based on acknowledging the specialist as an expert in a specific field, and on the assumption that the expert was a professional with a greater, or better, capacity to resolve a problem in the specialist's field.⁴ This interpretation is founded on the supposedly greater diagnostic power and considerable use of the technology on the part of the specialist.⁸ When comparing the performance of generalists with that of specialists, the latter provide a higher quality of care for problems in their own area of special interest.^{8,9} Generalists, on the other hand, provide better health care to individuals and the population, when the measure of quality is the overall health of the individuals and not just their specific problems.^{9,10}

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Therefore, the generalist improves the whole; the specialist, the parts.¹¹ The logic would be to link both types of professionals to obtain the best healthcare system.⁹ Working with parts alone is potentially dangerous because of the high degree of comorbidity and the coordination needed (but generally lacking in medical practice) to pre-empt errors, as well as the excesses, of medicine.^{12,13} Previous analyses have not considered the experiences of GPwSIs and their association with an improvement in the overall health of the population.^{7,14–17} Given that in over 40% of cases the outcome of a consultation with a GPwSI is a follow-up visit, this implies poor control and resolution of clinical questions while focusing on patient's problems.^{15,16} Follow-up visits appear to be the most frequent reason for consultation, at least to some specialists in countries such as the US.¹⁷ Conversely, in European general practice, the percentage of visits for follow up are approximately 25%.¹⁸ Follow-up rates matter because there is some evidence of fewer follow-up appointments by specialist outreach clinics than in hospital outpatient departments in the UK.⁷

BIG VERSUS SMALL

The majority of GPs in industrialised countries are independent professionals who work alone or in small groups with two or three colleagues. This occurs in Australia, Austria, Belgium, Canada, Denmark, France, Germany, Holland, Ireland, Italy, Japan, New Zealand, Norway, Switzerland, the UK and the US. In the UK, where working in groups has been systematically encouraged, the basic type of organisation of up to three GPs represented 56% of all centres in England, 53% in Wales, and 52% in Scotland in 2004.¹⁹

Group practice had been a trend that began in the 1940s in Canada, in kibbutzim (before the establishment of the state of Israel), and the UK. The World Health Organisation promoted these 'health centres' and 'primary care teams' from the 1970s.²⁰ In Finland, Sweden, and Spain large health centres were created, in some cases in the form of 'mega-centres' with more than 30 clinicians and a total workforce of up to 100 people. Since then, due to cultural influence and business organisational practices, 'the team' has become the universal 'Holy Grail' in family medicine. But when these large centres and their 'teams' are compared to small groups (working alone or in groups of a maximum of three clinicians), the results repeatedly confirmed that the purported advantages of the large centres were in fact non-existent.^{21–23}

Promoting the concept of GPwSIs implicitly assumes that bigger is better, as it involves a large pool of practitioners who sub-specialise: having GPs within a practice spending some of their time

How this fits in

The training of a new cadre of GPs with special interests (GPwSIs) was a key part of the UK governments' 2000 *NHS Plan*. The development of GPwSI services is a method of increasing access to specialist services. The general conclusion from empirical studies is that GPwSI programmes decrease waiting times, with no definitive results about referrals and cost. This article examines critical questions about GPwSI services, for example, the impact on patients' and population health, that need answering before accepting the proposition for universal implementation of GPwSIs. There is concern about its effectiveness and impact on generalism.

working as GPwSIs implies more GPs in the practice to cover their absence. GPwSIs also need support from teams that include administrators, specialist nurses, and other health professionals.⁷ However, no study has examined the impact of increasing practice size associated with the introduction of GPwSIs. The concentration of resources that encourage the development of 'special interests' would be considered, theoretically, a disadvantage for the traditional model of healthcare provision for a dispersed population, that is, bigger is not necessarily better for rural and remote communities.²⁴

RESOLUTION VERSUS REFERRAL

Variability in referral rates and practices^{25,26} suggests that the expectations of GPs are inconsistent with regard to the extent of their ability, and confidence, to prevent, cure, care for, coordinate, contain, console and/or help patients. There have been many studies on referral, but little light has been shed on 'appropriateness of referrals'.^{25,26} It is still not clear whether it is better to refer many or a few patients, what the best timing for the referral is, or the point at which the benefits of referral outweigh the costs (both in monetary and non-monetary terms). There are many factors that influence decisions to refer, including comorbidity and the complexity of patients' problems, demands of the patients and their families, and the level of training of the GP and auxiliary personnel.^{25,26}

Increasing referrals rates generate waiting lists,^{7,14} and much of the UK interest in the role of GPwSIs is based on concerns regarding waiting times and the cost of the referrals.^{5–7,14} Studies of the impact of GPwSIs on referrals and on waiting lists have not reached definitive conclusions; the rate of referrals varies in different studies with the only consistent decrease found with waiting times.^{7,14,16,17,27} Increases in the costs of the GPwSI programme can outweigh any reduced costs as a result of referrals.^{7,27}

In general, there has been repeated demonstration that, contrary to expectation, the greater the training

of the GP in a specific clinical area, the greater the rate of referral for conditions in this specialty.^{17,27} Furthermore, increasing focus on care in specific areas could increase patient pressure for referral even though referrals may be inappropriate; for example, as in the case of headache.²⁸

PRESTIGE OF GENERALISTS AND SPECIALISTS

In Western medicine the specialist, as an expert, has a prestige that is denied the generalist.⁴ This difference affects family doctors as well as general internists.² General medical knowledge, non-specific 'soft' information, and generalist attitudes are less valued.⁴

Many large organisations find it very difficult to relate to individual customers and, hence, they actively promote the development of general attitudes that facilitate interconnecting with clients and fulfilling their objectives, more than merely fulfilling set tasks.²⁹ The health system appears to move away from improving the development of connecting with patients and their overall needs.²⁹ Promoting the prestige of specialists fragments provision of care and can increase unnecessary referrals to specialists, with the associated problems.^{4,12,13,29}

The assumption is that 'special interest' will bring prestige to some professionals already trained in dealing with diffuse thinking and uncertainty.^{7,14,29,30} The conflict between their expertise in general knowledge and their new focus on specialist knowledge may become frustrating. Prestige, instead of being increased, may decline as GPwSIs refer more frequently to 'real' specialists.^{7,17,27} As primary care doctors increasingly emulate specialists with their emphasis on diagnostics, their attraction to technology, and their interest in packaged and fragmented knowledge (a technique, a disease, a sex, an apparatus or system, an age), their focus on specialised knowledge may be at the expense of their special skills in general practice. Both patients and students may increasingly learn that a disease focus (rather than a patient focus) is more valued, and valuable.

MONO-CAUSAL VERSUS MULTI-CAUSAL

The overall view of the patient is central to general practice; the simultaneous consideration of health problems in the context of the family and the community¹⁻⁴ and the assertion that 'we care for the individuals, not just the disease'.⁴ This implies considering that a health problem results from multiple determining factors, many a long way from the healthcare system. It is the 'bio-psycho-social' view³¹ that the GP brings to bear on the basic problems, which only partially arise within the context of the consulting room. From the population point of

view, the bio-psycho-social model helps in addressing the 'inverse care law' (therefore, the more care is needed, the less is provided).³² The healthcare response can, and should, be varied and appropriate to the frequency and severity of health problems.³³

The movement towards implementing the GPwSI role is based on the biological model of medical care. 'Special interests' will change the focus of general practice from the context of the person to the disease and the technique, and strengthen the focus on the biological model rather than on the currently-accepted bio-psycho-social model.³¹ This mechanistic approach to patient care will weaken rather than strengthen the generalist's role.⁴

CAPITATION AND SALARY VERSUS FEE-FOR-SERVICE

Instituting a programme of GPwSIs has implications for the way in which GPs are reimbursed. Salary remunerates the doctor's time. Capitation remunerates the care of defined populations. Fee-for-service remunerates the doctor for the volume of activities undertaken. These three forms of payment are encountered in different health systems of developed countries. None has clear advantages over the others except, perhaps, in capitation payments associated with the GP's function as a healthcare filter, and which appear to help contain the costs of the health service without worsening the health of the population.^{10,34} Capitation remuneration exists in Denmark, Holland, Ireland, Italy, Norway, Slovenia, Spain, and the UK.³⁵ The world trend is towards its introduction, and it is currently being followed in various ways in Belgium, Canada, France, and Germany.³⁶ The interest behind such capitation payments is in controlling costs, and its allocation to a population for which it is 'assigned' assumes that the GP integrates biological, community, and epidemiological viewpoints. Simultaneously, interest has grown regarding the forms of payment that provide incentives for quality of care, such as the effectiveness of pay for performance.³⁷ However, the movement towards incentives for improving the quality of care of certain diseases does not necessarily improve the overall health of patients if other services are sacrificed to gain the financial benefits.^{38,39}

The Quality and Outcomes Framework, as a pay-for-performance type of incentive, is based on the fragmented thinking of the specialist which is incorporated in many protocols. It implies that diseases are mono-causal and merely biological. As such, the pay-for-performance concept is typical of the fragmented thinking of the specialists.

There have been no analyses, even theoretical, of the consequence of methods of payment when implementing the GPwSI concept. But an interest in

the fee-for-service manner of payment is implied. If GPs are to imitate specialists in outpatient settings (as in the US), it is logical that fee-for-service philosophy and adopting pay for performance according to protocols will prevail, with a consequential focus on particular health problems and 'disease management'.⁴⁰

CONCLUSION

Family medicine has lost prestige in many countries.^{7,41,42} It is assumed that prestige can be recovered via super-specialisation in various identified areas, such that certain GPs act as a consultant to their other colleagues in primary care.^{5-7,14,17} Furthermore, super-specialisation assumes that access to specialised knowledge would improve referrals, and decrease the cost of health care. Reality does not conform to these expectations.^{17,27}

Before accepting the proposition for universal implementation of GPwSIs empirical evidence is required to show that:

- overall health is improved (of the patients as well as that of the population);
- patients, especially patients of doctors working alone or in small groups (and, specifically, in a rural environment) are not disadvantaged;
- referral is improved and made more appropriate to the requirements of the patients and their health problems;
- real prestige is generated, not only among GPs and students but also among patients;
- biological views typical of the specialist are not promoted; and
- a brake is not applied to alternative systems in primary care.

These issues can be addressed by seeking empirical evidence. For example, there are a wide variety of measurement techniques to assess overall health and functional status that can be applied to primary care.^{43,44} There are tested methods of comparing appropriateness and the quality of referrals.^{45,46} When implementing GPwSI programmes, there are appropriate indicators to monitor and understand the consequences.

The justification for GPwSIs, while ostensibly motivated by a need to reduce the costs associated with hospital-based specialist care and by a perceived need to improve the stature of GPs may, as its underlying rationale, attempt to reduce the historical dominance of the hospital and increase the power of primary care physicians in a 'primary care-led health system'. The strategy adopted in the UK runs the risk of emulating the US health system with its well-developed community-based specialists that now

provide more care than primary care physicians. In contrast, the strategy ('transmural care') adopted in the Netherlands is aimed at increasing the role of primary care physicians by increasing their direct consultations with specialists and their ability to directly access the diagnostic facilities of hospitals. Coordination of care, defined as the facilitation of the movement of patients through the healthcare system, can be enhanced by a variety of mechanisms, including defining shared and separate responsibilities of 'care-providing practitioners' and creating mutual respect and trust through the development of procedures for more appropriate consultation.⁴⁷ The challenge is to increase the ability of GPs to provide a more comprehensive range of services with appropriate consultation and advice from specialists and GPwSIs, rather than the transfer of responsibility for patient care to them.

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Competing interests

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REFERENCES

1. Stephens GG, Amundson LH, Bishop FM, *et al*. The intellectual basis of family medicine revisited. *Fam Med* 1985; **17**(5): 219–230.
2. Stevens R. Issues for American internal medicine through the last century. *Ann Intern Med* 1986; **105**(4): 592–602.
3. Heath I, Evans P, Weel C. The specialist of the discipline of general practice. Semantics and politics mustn't impede the progress of general practice. *BMJ* 2000; **320**(7231): 326–327.
4. Stein HF. Family medicine's identity: being generalists in a specialist culture? *Ann Fam Med* 2006; **4**(5): 455–459.
5. Department of Health. *The NHS plan: a plan for investment, a plan for reform*. London: HMSO, 2000.
6. Department of Health/Royal College of General Practitioners. *Implementing a scheme for general practitioners with special interests*. London: RCGP, 2002.
7. Nocon A, Leese B. The role of UK general practitioners with special clinical interests: implications for policy and service delivery. *Br J Gen Pract* 2004; **54**(498): 50–56.
8. Rosenberg CE. The tyranny of diagnosis: specific entities and individual experience. *Milbank Q* 2002; **80**(2): 237–260.
9. Starfield B. New paradigms for quality in primary care. *Br J Gen Pract* 2001; **51**(465): 303–309.
10. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. *Milbank Q* 2005; **83**(3): 457–502.

11. Heath I, Sweeney K. Medical generalists: connecting the map and the territory. *BMJ* 2005; **331**(7530): 1462–1464.
12. Tinetti ME, Bogardus ST Jr, Agostini JV. Potential pitfalls of disease-specific guidelines for patients with multiple conditions. *N Engl J Med* 2004; **351**(27): 2870–2874.
13. Wright N, Smeeth L, Heath I. Moving beyond single and dual diagnosis in general practice: many patients have multiple morbidities, and their needs have to be addressed. *BMJ* 2003; **326**(7388): 512–514.
14. Jones R, Rosen R, Tomlin Z, et al. General practitioners with special interests: evolution and evaluation. *J Health Serv Res Policy* 2006; **11**(2): 106–109.
15. Oxley D. *A rapid appraisal of clinics run by GPs and practitioners with special clinical interests*. London: Kings College, University of London, 2005.
16. Crowley CJ. Are GPs who specialise in dermatology effective? High cost of general practitioners with special interests is a fallacy. *BMJ* 2006; **332**(7532): 54.
17. Starfield B, Gervas J. Comprehensiveness versus special interests: family medicine should encourage its clinicians to subspecialize: negative. In: Kennealy T, Buetow S (eds). *Ideological debates in family medicine*. New York: Nova Publishers, 2007: in press.
18. Lamberts H, Brouwer HJ, Marinus AFM, Hofmans-Okkes IM. The use of ICPC in the Transition Project. Episode-oriented epidemiology in general practice. In: Lamberts H, Wood M, Hofmans-Okkes I (eds). *The International Classification of Primary Care in the European Community*. Oxford: OUP, 1993.
19. Royal College of General Practitioners. *Profile of UK practices. Information Sheet No 2*. London: Royal College of General Practitioners, 2005.
20. Fry J, Hasler J (eds). *Primary health care 2000*. Edinburgh: Churchill Livingstone, 1986.
21. Bojke C, Gravelle H, Wilkin D. Is bigger better for primary care and trusts? *BMJ* 2001; **322**(7286): 599–602.
22. Hombergh PVD, Engels Y, Hoogen HVD, et al. Saying 'goodbye' to single-handed practices; what do patient and staff lose or gain? *Fam*

COMMENTARY

Gervas *et al*¹ set some difficult tests against which, they suggest, services provided by GPwSIs should be measured. To say that the 'overall health is improved (of the patients as well as that of the population)' by services provided by GPwSIs is probably unrealistic. Very few parts of the health service could claim to do this. It is also easier to say that 'referral is improved' than to demonstrate that this has happened, in the absence of clear standards of what is 'better' in terms of referrals.

So can the existence of GPwSIs be a good thing? In the UK the split between hospital-based specialist care and community-based general practice was made formal at the start of the NHS in 1948. There have always been practitioners who crossed this line. In the UK they have been clinical assistants or associate specialists, in other health systems such as the US community-based practitioners may have admitting rights to hospitals.

The title GPwSI was created under the *NHS Plan*² and envisaged primarily as a way of delivering a higher level of expertise in managing chronic medical conditions in primary care. In practice, some GPwSIs deliver care in chronic conditions such as diabetes or chronic obstructive pulmonary disease, while some clinics in, for example, ENT, dermatology, or echocardiography, are based on acute episodes of performing procedures or making diagnoses. While some of these things can be delivered within the current framework of UK general practice, employing a GPwSI carries specific expectations: that there will be appropriate training and supervision in place, audit of work done, and a system of payment separate from usual primary care. Whatever the role, it is hard to see how appropriately trained, qualified, and supervised clinicians, delivering expert care locally, can be bad for patients.

From the practitioners point of view there are real benefits in becoming a GPwSI. Being a good generalist and offering whole-person medicine to large numbers of patients daily is challenging. GPs may feel that in a career spanning 30 years there is limited scope for professional development. Learning new skills allows personal development and is energising and refreshing. It gives clinicians scope to bridge the gap between primary and secondary care to the benefit of both. They may interact with and educate colleagues. They can take a role in commissioning of care which has both a generalist perspective and a disease-specific one. This energy can renew and invigorate their work as a generalist. As larger numbers of GPs work less than full time the idea that a particular clinician is not always available has become easier for both clinicians and patients to manage and understand.

Professor David Haslam has said 'there is little doubt that enthusiasm for a special interest is truly beneficial to morale, recruitment and retention, and most importantly, to patient care'.³

Unfortunately, the main barriers to the wider implementation of GPwSIs may be the 'planning blight' produced by constant re-organisations of the NHS, especially its commissioning functions. In the future there may be real competition for this role from specialists actively seeking work in community settings as the workforce expands. Then, GPwSIs will have to prove their worth both clinically and financially. I believe that the generalist background and skills they can bring to their management of patients referred by colleagues will help them to do this.

Michael Robertson

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REFERENCES

1. Gervas J, Starfield B, Violán C, Minué S. GPs with special interests: unanswered questions. *Br J Gen Pract* 2007; **57**: 912–917.
2. Department of Health. *The NHS plan: a plan for investment, a plan for reform*. London: HMSO, 2000.
3. Royal College of General Practitioners. *General practitioners with special interests*. RCGP Information Sheet: January 2006. http://www.rcgp.org.uk/pdf/ISS_INFO_11_JAN06.pdf (accessed 9 Oct 2007).

- Pract* 2005; **22**: 20–27.
23. Wang Y, O'Donnell CA, Mackay DF, Watt GCM. Practice size and quality attainment under the GMS contract: a cross-sectional analysis. *Br J Gen Pract* 2006; **56**(532): 830–835.
  24. Rural Access Working Group. *Centralisation and specialisation of hospital services: bigger is not necessarily better for rural and remote communities*. London: Academy of Medical Royal Colleges, 2005.
  25. Spencer P. *General practices and models of the referral process*. London: Tavistock Institute of Human Relations, 1971.
  26. Rosen R, Florin D, Hutt R. *An anatomy of GP referral decisions. A qualitative study of GPs' views on their role in supporting patient choice*. London: King's Fund, 2007.
  27. Roland M. General practitioners with special interests — not a cheap option. *BMJ* 2005; **331**(7530): 1448–1449.
  28. Morgan M, Jenkins L, Ridsdale L. Patient pressure for referral for headache: a qualitative study of GPs' referral behaviour. *Br J Gen Pract* 2007; **57**(534): 29–35.
  29. Farmer J. Connected care in a fragmented world: lessons from rural health care. *Br J Gen Pract* 2007; **57**(536): 225–230.
  30. Moffat MA, Sheikh A, Price D, *et al*. Can a GP be a generalist and a specialist? Stakeholders views on a respiratory general practitioner with a special interest service in the UK. *BMC Health Serv Res* 2006; **6**: 62.
  31. Engel GL. The need for a new medical model: a challenge for biomedicine. *Science* 1977; **196**(4286): 129–136.
  32. Hart JT. The inverse care law. *Lancet* 1971; **1**(7696): 405–412.
  33. Hart JT. *A new kind of doctor*. London: Merlin Press, 1988.
  34. Delnoij D, Van Merode G, Paulus A, Groenewegen P. Does general practitioner gatekeeping curb health care expenditure? *J Health Serv Res Policy* 2001; **5**(1): 44–45.
  35. Gervas J, Pérez Fernández M, Starfield B. Primary care, financing and gatekeeping in western Europe. *Fam Pract* 1994; **11**(3): 307–311.
  36. Gervas J, Pérez Fernández M. Western European best practice in primary health care. *Eur J Gen Pract* 2006; **12**(1): 30–33.
  37. Milgate K, Cheng SB. Pay-for-performance: the MedPAC perspective. *Health Affairs* 2006; **25**(2): 413–419.
  38. Fleetcroft R, Cookson R. Do the incentive payments in the new NHS contract for primary care reflect likely population health gain? *J Health Serv Res* 2006; **11**(1): 27–31.
  39. Mangin D, Toop L. The Quality and Outcomes Framework: what have done to yourselves? *Br J Gen Pract* 2007; **57**: 435–437.
  40. Bodenheimer T. Disease management — promises and pitfalls. *N Engl J Med* 1999; **340**(15): 1202–1205.
  41. Bodenheimer T. Primary care — will it survive? *N Engl J Med* 2006; **355**(9): 861–864.
  42. Wright B, Scott I, Woloschuck W, Brenning F. Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine. *CMAJ* 2004; **170**(13): 1920–1924.
  43. McDowell I, Newell C. *Measuring health. A guide to rating scales and questionnaires*. New York: OUP, 1987.
  44. WONCA Classification Committee. *Functional status measurement in primary care*. New York: Springer-Verlag, 1990.
  45. Roland MO, Bartholomew J, Morrell DC, *et al*. Understanding hospital referral rates: a user's guide. *BMJ* 1990; **301**(6743): 98–102.
  46. Knottnerus JA, Joosten J, Daams J. Comparing the quality of referrals of general practitioners with high and average referral rates: an independent panel review. *Br J Gen Pract* 1990; **40**(334): 178–181.
  47. Calnan N, Hutten J, Tiliak H. The challenge of coordination: the role of primary care professionals in promoting integration across the interface. In: Saltman R, Rico A, Boerma W (eds). *Primary care in the driver's seat? Organisational reform in European primary care*. Maidenhead: Open University Press, 2006: 85–104.