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Chapter 10

FAMILY MEDICINE SHOULD ENCOURAGE ITS CLINICIANS TO SUBSPECIALIZE: NEGATIVE POSITION

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ABSTRACT

Subspecialization in primary care has been proposed as a pragmatic solution to a perceived problem in access to and costs of health services, as well as a mechanism to increase the prestige of 'generalist' physicians in an era when specialists enjoy exalted status. In this paper, we review the theoretical objections as well as evidence derived from studies of the impact of subspecialization. Theoretical objections start with the characteristics of primary care, many of which are antithetical to subspecialization. The high prevalence of multi-morbidity in primary care practice also argues against the effectiveness of disease-oriented subspecialization. Moreover, the contributions of specialization to the health of patients is poorly understood, and current evidence suggests that the greater the number of specialists, the greater the costs of care, with little commensurate gain in health. An additional consideration is the potential adverse effect of decreasing the amount of time available to the primary care of patients. Existing evidence supports at least some of these theoretical objections. Referrals to specialists seem to increase rather than decrease, and there are no savings in costs. Other approaches to reduce unnecessary visits to specialists have been suggested; many of these are based on a better understanding of what various levels of care specialists can best provide, and

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the organization of many diagnostic and management strategies in the community rather than in tertiary care hospitals.

Subspecialization in primary care[1] has been proposed as a pragmatic solution to a perceived problem in access to specialists and costs of health services. In this paper, we review the theoretical objections as well as evidence derived from studies of its impact.

THEORETICAL OBJECTIONS TO SUBSPECIALIZATION IN PRIMARY CARE

The Nature of Primary Care

Primary care is person-focused care over time, the point of first contact for each new health problem, comprehensive in nature, and the coordinator when care has to be sought elsewhere in the health system. In its most advanced form, it maintains a focus on the needs of populations as well as individual patients.

Comprehensiveness is a key, and perhaps the most important, organizational feature of primary care. International comparisons (in the 1980s and 1990s) found it (and its closely affiliated characteristic of family orientation) to be the feature of primary care most consistently associated with an overall health system orientation towards primary care [1].

Comprehensiveness constitutes the provision of all needed health services; in primary care, this means providing all needed services except those that are too uncommon for the primary care practice to maintain competence in dealing with them without assistance. This definition is based on evidence that quality of care depends in part on experience, and if problems are encountered too infrequently (perhaps occurring in less than one per thousand patients in a year), competence cannot be maintained [2]. This suggestion is supported by others [3, 4], who point out that 'problems' concern suspected as well as actual diagnoses. The counterpart of comprehensiveness is coordination; when patients have to be seen by other specialists, the primary care practitioner must integrate care so that it is seamless for the patient.[2]

What does comprehensiveness have to do with the issue of subspecialization in primary care? First, it is necessary to distinguish inadequacies in comprehensiveness of primary care from the need for specialist care. When common problems, such as injuries requiring minor surgery and common skin ailments, are now referred, the appropriate strategy is to expand the competence of all primary care physicians (and increase their pay accordingly). Subspecialization, in contrast, involves problems too uncommon to be dealt with in primary care. Second, to the extent that primary care practitioners specialize, comprehensiveness is

[1] Primary care physicians are general/family physicians and in the United States and some other countries may include general pediatricians and general internists who see patients on direct self-referral..

[2] Comprehensiveness has two components. The first represents the capacity of the practice to address problems in the practice population. The second represents the extent to which the range of problems in the population of the practice are, in fact, addressed by the practice. Instruments to assess both of the components of primary care are available.[2, 5]

compromised because there will never be enough subspecialists in primary care to deal with the very large variety of needs in the primary care practice population. By drawing away some of the energies now devoted to dealing with a full range of services to meet needs, comprehensiveness of the practice will be sacrificed. Subspecialization narrows the range of interests and increases the depth of focus on some problems to the detriment of others in primary care, thus transforming a 'binocular' vision into a monocular one [6].

Subspecialization in Primary Care is an Unwise Strategy for Other Reasons

1. Multi-Morbidity

Multi-morbidity is defined as the co-occurrence of otherwise unrelated health problems. Because of the multiplicity of interrelated influences on health, morbidity is not randomly distributed in the population. Rather, it clusters in particular individuals and, especially, in particular population subgroups. However, it is very common, particularly with increasing age. It is a considerable burden on the health services system by virtue of its prevalence, its impact on use of resources, and its association with increased vulnerability to adverse effects of interventions [7]. Most clinical practice guidelines are oriented towards the management of specific diseases, and there is little scientific basis for effective practice in the presence of multi-morbidity [8]. Specialization, or subspecialization, offers no help in the management of patients with multi-morbidity, who constitute the majority of patients in primary care practice [9-11].

2. Uncertain Contribution of Specialty Care

Whereas much is known about the characteristics and contributions of primary care [12], very little is known about the characteristics and contributions of specialty practice.

Referral rates vary markedly across countries [13], as does the percentage of people who see one or more specialists in a year [14, 15]. Thus, little is known regarding criteria for referral to specialists [16]. Specialists contribute to the process of medical care by providing consultations for unclear diagnosis and/or treatment; by performing procedures and tests that are not provided in primary care because they require skills that primary care physicians do not have or require equipment that is too costly for primary care practice; or by providing ongoing care for patients with conditions too rare or unusual for the primary care practitioner to maintain competence. It is likely that no more than 3% of the workload of specialists should be for long-term follow-up. However, it appears that two-thirds to three-quarters of visits to specialists are for routine follow-up instigated by the specialist (unpublished analyses from the United States (US) National Ambulatory Medical Care Survey). Such observations provide powerful support for the notion that rates of visits to specialists are excessive, and that primary care physicians could provide much of this follow-up care, consulting with specialists directly rather than by means of a visit by the patient.

There is, in addition, mounting evidence that much of specialist care is inappropriate and potentially harmful because the adverse effects outweigh the benefits. There are large variations in both costs of care and in frequency of interventions, even within countries. In the US, areas with high use of resources and a greater supply of specialists have neither better quality of care nor better results of care [17-19]. In the US, about 70% of practicing

physicians are specialists, a percentage that is not much larger than in many other industrialized nations (except for Canada, the United Kingdom (UK), Germany, and France) [20, 21]. However, the intensity of the work of specialists is much greater in the US than elsewhere [12, 22]. In US studies, states and areas with a large supply of specialists have worse outcomes, including overall mortality, mortality associated with heart disease, mortality associated with cancer, neonatal mortality, life span, and low birth weight [23], likelihood of late (rather than early) stage diagnosis of colorectal cancer [24]; and later detection of breast cancer [25]. Therefore, the prospect of specialization within primary care raises the issue of what the benefit to population health would be, particularly if the subspecialists were trained in a specialist mold.

With few exceptions, specialization is based on an orientation towards organ systems (e.g., eye, pulmonary, endocrine glands) and toward 'diagnosis.' Diagnosis has become more central as medicine has become increasingly technical, specialized, and bureaucratized. Diagnosis is becoming inexorably and increasingly dependent on tools and techniques, resulting in 'a glorification of the specialist at the expense of the generalist' [26].

Physician specialists are universally trained in hospital settings, where the prevalence of illness is both greater and more severe than in the community [27]. Only one in a thousand people are seen in a teaching hospital in any given month; only one in 750 people with illness are seen in such a hospital, and only one of 250 adults who consult with a physician in a month are referred to such a hospital [28]. These observations, originally made more than forty years ago, have recently been confirmed for both adults and children [29, 30]. Primary care physicians use information from their previous knowledge of patients and community history (personal, family and social) to avoid tests that are highly likely to be falsely positive [3][3]. Prevalence has an impact on the probability of the target condition after test results are available (post-test probability). For example, the likelihood of a final diagnosis of colon cancer, given a positive test for rectal bleeding, is one in a thousand in the population, one in fifty in a primary care practice, and one in three in a gastroenterology clinic (in health systems where primary care physicians influence whether or not people are seen by specialists) [31].

One of the main roles of the generalist is to avoid referring the majority of people who have a symptom or sign that is unlikely to be associated with a treatable condition, for example, the 49 of the 50 people with a sign for cancer but not the diagnosis of cancer [27]. If subspecialists were to receive their training from specialists, in hospital settings, their presence in primary care would increase the likelihood of excessive testing, with consequent high rates of false positive tests, and with a much greater likelihood of adverse effects from the cascade of interventions that are set off by testing done or done too early in the primary care setting. Because of their higher suspicion of illness, physicians in primary care who subspecialize refer MORE, not less, to specialists, thus compounding the problem of inappropriate interventions and adverse effects. A graphic example of the dangers inherent in testing people with a low probability of illness was provided by a calculation of the likely effect of routine screening of prospective joggers for occult heart disease. Were this to be

[3] The greater accuracy of illness probability can be calculated using the Bayes theorem, which combines the illness probability before testing with the information derived from the test.

undertaken, more people would die from adverse effects of unnecessary intervention than would die a sudden death while jogging [32]. New epidemics are another case in point. In Toronto, in 2003, for every patient with documented SARS, there were 10 diagnosed as potential SARS and 1400 healthy but worried people [33]. If physicians had been assigned to 'specialize' in SARS during this epidemic, a very large and unnecessary burden would have been put on the health care system in order to detect the one case out of 1410.

3. Creation of Unwarranted Demand for Specialist Care

Increasing effectiveness of modern health services and heightened societal expectations result in greater demands from consumers. It generally is assumed that what patients want is in their best interests. But health care consumerism may be deleterious for the patient without an adviser and coordinator of care, generally represented by a primary care physician who knows the patient well. For example, a retrospective analysis of 23 children with abdominal pain concluded that the actions of families sometimes approach the 'significant harm' threshold that justifies compulsory legal interventions; 'a culture of parental consumerism in health care, however well intentioned, needs to be accompanied by robust systems to protect the best interests of the child' [34].

Subspecialization will drive primary care more towards the specialty mode of conceptualizing health problems,[4] and will convey both to the profession and to the public a perception that the 'only way' to practice scientific medicine is through specialization. Primary care focuses on health problems and opportunities of people, with an appreciation of the distribution and nature of illness in populations, rather than on disease-oriented care. In contrast, specialists (particularly medical specialists) are trained to be disease-focused, primarily managing diseases within the organ system of their training. Subspecialization, in the current context of medical practice, tends to be oriented towards specific diseases or techniques, particularly in countries in which specialists dominate the health services system (such as in the US). Thus, in many places, primary care physicians may choose to 'specialize' in conditions such as diabetes, cardiovascular disease, or asthma, on the basis of postdoctoral posts with specialists in a medical institution or through continuing education courses organized by specialists. In the context of primary care, it makes more sense to 'subspecialize' in conditions such as homelessness, unexplained symptom syndromes, difficult patients, or inequities in receipt of health services, all of which are particular challenges in primary care and none of which is a subject of specialization in medical teaching institutions.

4. Compromised Primary Care

Were primary care physicians to spend part of their time in an area of subspecialization, they would have to reduce the time they devote to primary care, thus compromising the maintenance of their skills as primary care practitioners. Being a good primary care practitioner requires not only training but also experience. Common problems occur commonly in primary care, but conditions of very low prevalence will require a minimum practice size to retain competence. Thus, a practice based on each practitioner being a

[4] Specialists see a disease as a biopathological phenomenon with a characteristic mechanism and a predictable course.

subspecialist in something will reduce its ability to remain highly competent across the range of issues that arise in primary care, resulting in decreased comprehensiveness of the practice and increasing referrals outside of the practice. Generalists swim in a 'sea of uncertainty' and frequently use 'see and wait' as an alternative when faced with likely non-disease or self-limited disease [6]. Specialists and subspecialists are less experienced in seeing and tolerating clinical uncertainty, as the problems they manage are more differentiated by virtue of their already having been screened. Therefore, they more often formulate hypotheses related to rare and serious organic diseases [35]. In dealing with these hypotheses, they will initiate a diagnostic and therapeutic cascade that threatens quaternary prevention (that is, the maxim 'first, do no harm'; primum non nocere).[5]

Subspecialization within primary care will reduce continuity between patients and their primary care clinician by reducing the time available for primary care practice among the subspecialists AND by increasing the proportion of visits to physicians who are not the primary provider with whom the patient has the best relationship. Quality of care as measured against technical standards (performance of procedures set according to guidelines) may improve, but outcomes of care, in terms of improvement in health, are likely to decline because they depend on far more than technical quality. Knowing the patient well is critical, for example, in diagnosing depression [38].

Subspecialization in primary care also increases inequities between rural and urban practices. Rural practices, which are generally smaller, are unable to support subspecialization. As a result, a policy of encouraging subspecialization will concentrate resources in large communities and thereby increase the geographic maldistribution of primary care practitioners.

5. Dangers of Over-Medicalization

An additional disadvantage of specialization is the increased likelihood of failing to recognize the adverse effects of interventions and overmedicalization stemming from compromised coordination when other physicians are involved in caring for patients. Treating all diseases and all risk factors may appear logical but may not be logical; in fact, high quality is important, but excess quantity is dangerous. Multiple interventions and medications, even if individually of high quality, for individual patients increase the risk of adverse effects and drug interactions [39, 40]. Good care needs to be 'patient-centered' and physicians should increasingly abandon disease as the focus of medical care, and replace it with attainment of health goals [41]. Genetics itself will force the change from 'disease centered' to 'patient-centered,' because genetic heterogeneity makes diseases differ from one individual to another [42].

From a theoretical viewpoint, the opposite of subspecialization in primary care (efforts to instill more 'holistic' thinking in specialty care) through the incorporation of primary care approaches may be more beneficial. For example, in Denmark, primary care physicians work as part-time advisers and coordinators with hospital staff to improve their performance and their coordination with primary care [43].

[5] Quaternary prevention connotes actions taken to identify patients who are at risk of over-medication, to protect them from new medical interventions, and to suggest to them interventions that are ethically acceptable [36, 37].

EVIDENCE ON THE UTILITY OF SUBSPECIALIZATION IN PRIMARY CARE

The preponderance of investigation on the subject of subspecialization in primary care comes from the UK. In that country, a National Health Services (NHS) Plan (2000) recommended that there be 1000 specialist General Practitioners (GPs) (primary care physicians) by the year 2004. Dubbed GPwSIs (GPs with a Special Interest), they were intended to take referrals from other GPs for a range of conditions, but would also work with hospital consultants. The intent was to improve access to specialty services and reduce waiting times; to streamline the process of care; to develop and spread best practice; and to facilitate the linkage of primary and secondary care 44]. An early evaluation of pilot programs in ENT (Ear, Nose, and Throat) conditions indicated many issues that needed to be resolved before the program could achieve its aims. Although these programs could potentially reduce the number of referrals to hospital consultants by 30-40%, they require hiring of additional personnel to cover the care of patients of the physicians who subspecialized and were therefore unable to handle their clinical primary care responsibilities [44].

A subsequent analysis of subspecialization experiences [45] based on 11 of the approximately 1000 GPwSI clinics in 2004 showed a wide variety of foci. Four of the 11 were primarily developed to make testing more available; three were for diagnosis and treatment, and the remaining four were mainly focused on treatment. Waiting times were reduced (in comparison with waiting times for hospital consultants), and half of the patients waited under two weeks. However, 39% of patients waited between two and six weeks, and the remainder waited longer. The most frequently reported outcome of the GPwSI consultation was a follow-up appointment (40%). There remained considerable concern that these services were not using risk management and clinical governance to facilitate clinicians' self-evaluation of their care, with the result that their characteristics resembled specialty clinics rather than primary care facilities in how they viewed their responsibilities.

The 'Tier 2' services envisaged by the 2000 NHS plan had as a purpose 'managing demand and the primary/community/secondary care interface'. The Greater Manchester Health Authority [46] reviewed data from all primary care trusts in the region in 2003 and found variable impact on reducing referrals to hospital clinics, with some increase in referrals for some conditions (e.g., headaches), thus raising the question as to whether GP specialists might generate additional demand for services in the absence of greater need for them. This evaluation provided valuable information about the kinds of services that primary care organizations choose when given the opportunity to devise such clinics. Of the 51 services identified, 29 were surgical or procedural in nature (e.g., orthopedics, ophthalmological, minor surgery); 7 were dermatological; and 15 were 'medical' (e.g., diabetes (3), musculoskeletal/rheumatological (6)), and three were for mental health/drug-related conditions.

A randomized controlled trial of a GPwSI services for patients deemed eligible for dermatology [47] concluded that there were no differences in outcome between patients seen in the new services and those referred to hospital clinics, while the GPcSI services were more accessible and preferred by patients. However, the costs were higher in the GPwSI services

and the cost-effectiveness ratios were high, based on the degree of increase in access and, especially, dermatology life quality [48].

Roland [49], in reviewing these and other studies, concluded that specialization in primary care increases referrals without improving health outcomes and with increases in costs and administrative challenges.

WHAT MIGHT BE DONE TO REDUCE UNNECESSARY VISITS TO SPECIALISTS?

As noted above, there are both strong theoretical as well as empirical reasons for rejecting a reorganization of services to encourage subspecialization in primary care. In view of the strong interest among many primary care physicians in gaining the prestige (and possibly financial rewards) associated with conventional disease- and procedure- oriented specialty care, what other solutions might be found to address the problems of access to needed services while reducing the demand for specialty services?

The first step is to better understand when specialty services are really warranted and thereby to increase access to them [50]. For example, in most countries wealthier people use more specialist care (although not more primary care) than do more socially disadvantaged people. In countries with both a public sector and a private sector, people who see specialists in the public sector have worse health and more co-morbidity [51]. This indicates that referrals are more appropriate in public systems with strong primary care, including first-contact with a primary care practitioner acting as an appropriate entry 'filter' to specialists. Moreover, in almost every country, wealthier people are more likely than less wealthy people to be seen by specialists [52]. Why this is so is unclear.

Existing data systems, as from the Netherlands, the UK, and from well-integrated health systems in the US, Australia, and New Zealand, could make it possible to design collaborative studies in documenting the role now played by specialists in providing care, according to the proportions for short-term diagnostic testing, advice, and guidance; routine follow-up; long-term consultation, and long-term direct provision of disease-oriented care. Variability in these proportions across different health systems would provide answers (or at least clues) on the characteristics of health systems that influence the nature and extent of referral and specialty care in their populations. These analyses would also provide the basis for a search for evidence on the benefits of referrals to specialists, and the subsequent development by generalists of evidence-based guidelines for referral to specialty care for people with varying degrees of morbidity. The analyses would further highlight potential problems occurring within primary care that do not fit into the conventional disease paradigm. These include, but are not limited to, different patterns of signs and symptoms not now resolvable to a conventional diagnosis, social problems that present as manifestations of illness, and the influence of multi-morbidity on responsiveness to and adverse effects from apparently indicated clinical interventions.

Providing a greater role for clinical research and subsequent clinical decision-making will greatly boost the credibility and prestige of primary care clinicians within both the public and the professional communities. It will also facilitate understanding, on the part of medical

teaching institutions, that contributions to knowledge are not limited to those that specialists make.

Planning for facilitated access to needed diagnostic testing depends on the frequency of need for specific tests and procedures. Despite this, new technology is often appropriated by specialists, even though much of it is appropriate for primary care [53]. For example, control of the INR (International Normalized Ratio, an expression of the prothrombin time) by using warfarin to manage atrial fibrillation could be relocated to primary care [54], but is still controlled primarily by hematologists in many countries [55].

Efficiency dictates that where frequency of need is high, community testing facilities should be developed in coordination with primary care services and with specialty consultant backup for help with interpretation of results, when needed (rather than routinely). Less frequent procedures would have to be seen in more specialized regional centers, but with greater timeliness as a result of workloads lowered by the availability of community testing centers.

Planning for facilitated access to advice and guidance on diagnosis and management is already on the agenda in the UK, where specialist outreach into primary care in the community has been tried in various forms. Preliminary evidence indicates that this outreach has at least three benefits: more rapid and more convenient access of people to the advice of specialists (through their primary care physician), education of the primary care physician in facets of disease-oriented care that need to be considered in developing a treatment plan, and education of specialists as to how diseases present in community practice rather than in specialty practice. It is now well recognized in the UK that the greatest challenge is to create incentives to develop seamless services for people with long-term conditions, by providing the organizational basis for greatly enhanced primary care and improved coordination of care between primary care and specialist care [56]. Another innovation arising in the UK is the training and deployment of nurses to provide supplementary care, including prescribing, within specialty (rather than primary care) practices. This strategy alone would greatly increase access to specialty services when they are needed for the care of less common conditions [57].

In the long run, every health care system would profit from a focus on organization of services according to the frequency and severity of needs in communities. What has been lacking so far is a scientific basis for secondary care primarily with regard to short-term testing, procedures, and advice and guidance. Each health system needs to decide on the appropriate functions of primary care physicians (in the community), secondary care physicians (community hospitals and referral facilities), and tertiary care physicians (in medical centers). Although these levels of care now exist, there is no evidence-base to support decisions as to what services should be provided at what level, and how care may be better coordinated through use of electronic technology for record transfer and for providing services long-distance. This is the challenge for the future.

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