Healthcare Systems

Future Predictions for Global Care

Edited by

Jeffrey Braithwaite

Russell Mannion

Yukihiro Matsuyama

Paul G. Shekelle

Stuart Whittaker

Samir Al-Adawi

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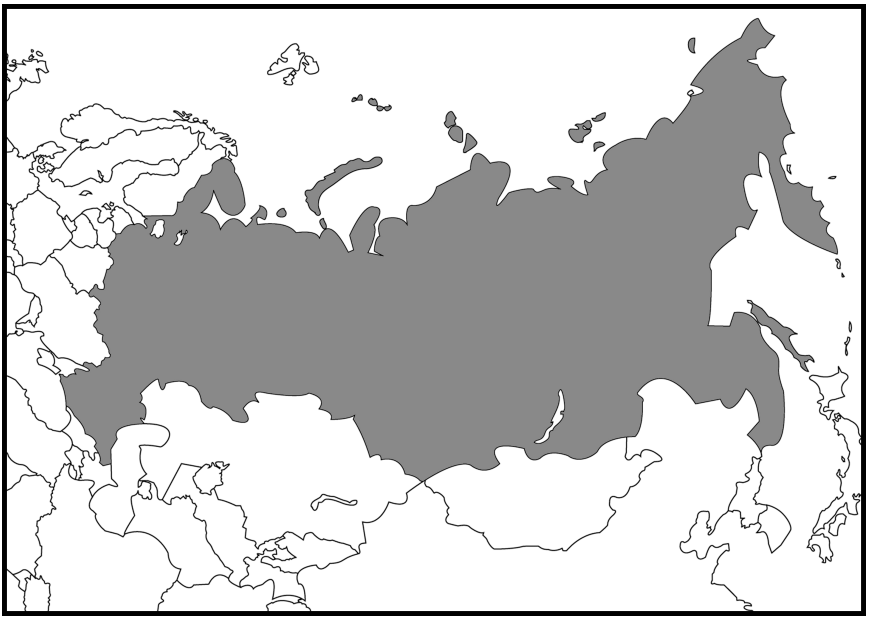
Russia

The Future of Physicians' Specialization

Vasiliy V. Vlassov and Mark Swaim



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Russian Data

- Population: 144,342,396
- GDP per capita, PPP: $23,162.6
- Life expectancy at birth (both sexes): 70.5 years
- Expenditure on health as proportion of GDP: 7.07%
- Estimated inequity, Gini coefficient: 41.6%

Source: All data are from the World Health Organization and World Bank. Latest available data used as at October 2017.
GDP = Gross Domestic Product
PPP = Purchasing Power Parity

Background

By the eighteenth century, medicine was grappling with rapidly expanding knowledge and technologies (Williams, 2000). So that multiple standards of care for the same condition were not in conflict, specialties based on physician affinity developed out of generalist practice. By the late twentieth century, nations diverged in a number of specialties earning official recognition, but a singular trend of growth in specialization was unchanged. Specialization may seem to be ornamentation that denotes technical prowess and knowledge advancement, but it is essential in that it alters workforce self-organization and delivery of care, and channels patients into more finely distinguished pathways of care.*

Specialization legitimates medical professionalism in the public eye, especially when physicians validate the importance of generalists. In 1999, major medical organizations promulgated a "Charter on Medical Professionalism" that espoused professionals, including specialists, as activists in healthcare reform (Haynes et al., 1986).

When does a new (sub)specialty germinate? When does it crystallize? New specialties emerge when physicians recognize a scope of services employing a set of technologies dictated by a set of problems to be treated. A specialty or its subspecialty may form around an organ, a set of related organs, or a particular anatomical area. However, while this is a necessary precondition, a specialty will only develop if its objectives align with those of the society in question, along with its healthcare system. Thus, the hepatitis C viral epidemic led to a

* For this review we searched MEDLINE using next strategy: (specialization[mh] OR specialty OR specialized) AND (training OR education) AND (doctors OR physician* AND 2000:2017[dp] AND (trend* OR future OR progress* OR tendency OR perspective). Excluded were issues of race and gender pertaining to specialization, physician (e/im)migration, international cooperation, aging and reimbursement. A reference list was bolstered by deploying the similar search strategy at scholar.google.com and snowballing. The Russian perspective is enriched from author VVV's collection and the database "Rossiiskaia Meditsina".

new American specialty, transplant hepatology. Every specialty must be recognized by the system's power brokers and represented in the healthcare structure. A hospitalist proctologist designation, for instance, lacks standing where all in-hospital care (such as in post-Soviet Russia) is provided by hospitalists.

Early-career physicians inexorably seek more (sub)specialty training because specialties are perceived to be more prestigious, providing a better lifestyle, improved work conditions, higher incomes, and scope of services consistent with personal interests. The Western model perceives a difference in income between the (sub)specialist and the generalist; this difference may be substantial in other nations, and may have been greater in other eras (Sloan, 1970).

The trend to seek subspecialization is widespread. In all affluent nations and across all specialties, moving into subspecialties is the norm: it is ubiquitous (Brotherton et al., 2005). Most developed nations face an increasing oversupply of subspecialists, but this abundance is not equally distributed. Canada, for example, has had at least 60% of ophthalmology residents pursue fellowships (e.g., in vitreoretinal surgery) over the past 25 years (Fisher, 2016). Trainees compete for more rarefied credentials and access to better teachers. For poorly understood reasons, subspecialists within pediatrics are less common (Mayer and Skinner, 2004).

A tendency to seek a narrower scope of practice is prevalent also in both middle- and low-income nations. In fact, the orientation among all doctors in all countries in the twentieth century trends away from general practice (Newton and Grayson, 2003). However, low purchasing power reduces the growth of subspecialist cadres in poorer nations. In many post-Soviet countries, primary care physicians are in short supply, but specialists, paradoxically, are even less accessible: they emigrate from the public health sector to the private clinics and "cherry-pick" patients.

Because the general practice workforce has collapsed, along with public esteem for general practice, a number of corrective initiatives have emerged, some durable and showing signs of success (Martin et al., 2004). For example, some U.S. medical schools secure students biased toward primary care, and the number of pediatrics residents seeking subspecialty training in the United States has decreased significantly (Mayer and Skinner, 2004). The reasons for such changes are unclear, however; it may be that certain educational drives are retaining residents in family medicine and in proximity to where such care is needed, or it may be a consequence of less quantifiable sociological factors (Fagan et al., 2015).

Future Reflections

In most post-Soviet countries, getting subspecialty training is simple. Residencies are short (1–2 years) and the specialization is merely 6 months of additional training. Doctors in these programs are treated as students, and

are paid shamefully low stipends. The need to extend residency training is widely accepted, but resources are scarce and legislative will to change regulations relating to doctors-in-training is absent. To fill primary care positions, Russia recently took a strange turn by changing federal healthcare law (law 323): residency is currently not required for new graduates who choose to practice primary care. Russia has thus forfeited the main achievement of medical education in the twentieth century, at great cost to physician expertise. Sooner or later, the Russian system will need to establish a reasonable period of residency training, despite the fact that this runs counter to the pressing need for a greater number of primary care doctors.

While specialization was organ-oriented until the early twentieth century, later specializations cropped up around new pathophysiological concepts, for example, infectious diseases and endocrinology. Expanding knowledge and technological advances led to arcane, asymptotically narrow subspecialties, such as vascular neurology (Adams and Biller, 2014) and neurohospitalist (Chang and Pratt, 2012). The pendulum has swung too far.

The proliferation of specialties leads to problems of who best manages a patient: which specialty should deal with the eye problems of diabetes, for example? The eye was once the province of a singular (sub)specialist, but now many speak for the organ. Prostate cancer is reckoned with differently by generalists, urologists, oncologists, and radiation oncologists. Bewilderingly, in some quarters this has provoked calls for the creation of neosubspecialties, such as vulvology (Micheletti et al., 2002), to overcome the issues incurred by treatment by too many diverse subspecialties of one organ, tissue, or site.

The transformations of both medicine and society alter the disposition of medical graduates toward specialty, and always will. The fact that we now live longer lives, with a related increase in the likelihood of suffering, has sparked the emergence of palliative care medicine, just as decades earlier similar factors led to a geriatrics specialty. The United Kingdom now has more palliative care specialists than the combined number of oncologists and neurologists (Doyle, 2007).

What governs and regulates subspecialization? The most acute demonstration of the management of subspecialization may be the United States, where market forces provide dominant but incomplete control (Stoddard et al., 2000). Market forces are an inadequate mechanism when it comes to timing: training and its duration dictate deficit and supply. In other countries, shortages in some specialties and surfeits in others have led to efforts to implement centrally regulated training volume. Regulation of this kind may be guided by such methods as the U.S. FutureDocs Forecasting Tool, which estimates the supply of physicians and capacity to meet population needs up until 2030 (Ricketts et al., 2017).

The American system perceives its specialist supply issues as having been exhaustively studied, but this is inaccurate (Mayer and Skinner, 2004). The need for either specialists or subspecialists varies wildly by region in the

United States, and the reasons for this are unclear. Some analyses of physician graduate training statistics suggest that the American physician workforce will fall short and that the nation needs more graduates and residency positions (Jolly et al., 2013). Short-term interventions never work, however, because physician training is lengthy and cumbersome; indeed, this fact alone may make policy interventions deleterious. Population demographics do suggest that many countries, from the United States to post-Soviet countries, would be best served by considering overall physician numbers rather than responding to the community demand for specialists.

Impact

The increasing proportion of specialists comes at a cost to the proportion of generalists, and subspecialists grow in prevalence at a cost to the pool of specialists. Will there be a ceiling on the numbers of (sub)specialists? Likely, each society will contrive its own solution. Technologies will always advance, and societies will change, and these will limit or drive specialization, but more specialization is likely to be the prevailing trend for the next decades. The human brain arguably copes well with what can be mastered in about 3 years of training, and the expansion of medical knowledge disturbs an equilibrium that tends to move away from generalism. In budget-conscious systems, a cap on the subspecialist workforce is inevitable. An obvious "natural" ceiling for subspecialization is that the very narrow specialty may not provide enough patients to keep a physician engaged (Ricketts et al., 2016). As yet, however, this mechanism does not appear to act on a large scale anywhere.

Prospects

Can we remedy the side effects of growing specialization? One remedy is the development of the more collegial, team-based approach. This has long been promoted, but the system gravitates to the fragmentation of care. Time is a barrier. Another, more problematic approach is to give generalist training to subspecialist physicians (Levi, 2017). In essence, this approach is not new—all systems of subspecialist training have grown out of generalist training. However, such an approach is unlikely to be popular: subspecialists may ignore non-relevant expertise and filter out cases that disturb their homogenous practice.

An alternative remedy has been proposed: the expert-generalist, that is, the general practitioner who has been trained in a subspecialty area

(Fins, 2015). This approach is not radically new either, and is commonplace in some countries, such as the United Kingdom and Canada.

Conclusion

It is expected that we will continue to see an increase in the subspecialization of physicians in successful healthcare systems, along with initiatives to reverse this trend. Physicians' areas of expertise are likely to become increasingly idiosyncratic, which may have an adverse effect on healthcare quality and lead to greater inequality when it comes to accessing specialist care.