Pediatric Neurology Referrals in Armenia: Lessons We Can Learn

Dr. Bingham conceptualized and designed the interview study that inspired the report and drafted the initial manuscript; Drs. Sukhudyan and Hakobyan contributed to planning and design of the interview study that is the basis for the report, coordinated and facilitated data collection, and critically reviewed the manuscript; and all authors approved the final manuscript as submitted. All authors are practicing pediatric neurologists.

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The pace of change in medicine—in the world—means that we cannot afford to live in silos. We need to reach beyond our borders, to teach, and to be taught, by people from other disciplines, with other politics, from other cultures. On that premise, and considering the prevalence of ethnic Armenians among his in-laws, one of us (Dr. Bingham) arranged a 5-month sabbatical in Armenia. In addition to conducting collaborative teaching exercises and clinical work, the project, sponsored by the Fulbright Scholar Program of the US State Department, aimed to better understand working relationships between pediatric neurologists and pediatricians in the context of referral.

Having survived in the last 100 years a genocide, decades of totalitarianism, a major earthquake, a border war, and a massive exodus of its population (10 million diasporan, 3 million native Armenians), Armenia represents one of the oldest, and perhaps most resilient, cultures on earth. Like several other post-Soviet countries, Armenia is a land-locked, developing country in central Asia. Its health care system, in transition from the former Soviet system, combines a fee-for-service system with a governmental insurance program for children under age 7 years, or for individuals who have disabilities, or belonging to other socially vulnerable groups. Despite fragmentation, the authority of the central Ministry of Health, and of hospital directors, reflects a health care bureaucracy that persists from the Soviet era. Pediatric clinicians thus cope with a hierarchical administrative system that has historically been disinclined to foster self-regulation.

Semi-structured interviews with a convenience sample of Armenian clinicians (20 pediatricians, 6 pediatric neurologists) revealed strikingly similar referral scenarios between the United States and Armenia, and the continuing impact of the Soviet health care system, a “single payer” system that ended 25 years ago. In Armenia, as in the United States,5–7 a set of recurring complaints, often brought to clinical attention by parents perceived as disproportionately worried, prompt many referrals: angry, explosive behaviors; febrile seizure; benign macrocrania; fussy, sleepless infants; tics; mild head trauma; breath-holding spells; and headache. Pediatricians justified these referrals by using pragmatic and ethical rationales founded in beneficence; considering the specialists’ authority and skills, referral could assuage parental fears and help avoid missing important
diologic studies as screening tools, and also grandparents who expect radiologic testing for their grandchildren. The excessive use of head ultrasound to screen populations constitutes one example of how Soviet-era teaching continues to influence referral patterns, as well as families’ apprehensions and expectations. Children who have benign external hydrocephalus are often inappropriately treated with acetazolamide when head ultrasound reveals findings consistent with that condition.

Partly as a result of the Soviet “Semashko” model that emphasized specialty care, many general pediatricians lack training in common neurologic or developmental signs or symptoms in infants and children. This educational gap hampers pediatricians’ ability to respond to worried parents who may, in turn, demand specialty referral. As Armenian pediatric neurologists have taken steps to educate their generalist colleagues regarding common, simple concerns, pediatricians increasingly take on responsibility for these cases (eg, febrile seizures).

**SELF-REGULATION**

Specialists and general pediatricians at referral centers in Yerevan frequently accommodate families awaiting unscheduled visits—referred and self-referred—at their office door. The Ministry of Health has in the past mandated that families presenting after day-long drives with referral documentation in hand must be seen on the same day. Clinicians who have been able to negotiate with their Directors (who own and administer the hospitals) have sometimes been able to induce reforms in these scheduling rules.

**SOVIET INFLUENCES: POSITIVE LEGACIES**

Thanks to the strong emphasis on specialty medicine in the Soviet era, the ratio of pediatric neurologists to population served in Armenia is similar to that in the United States (total ∼25, population near 3 million). Perhaps because only a small percentage of the population actually uses the health care system, it is possible to see a pediatric neurologist in Yerevan within a week of referral. Armenian pediatricians differ from US pediatricians in voicing satisfaction with the availability of their colleagues in pediatric neurology.

The Soviet medical system had strengths in the arenas of rehabilitation medicine, as well as prevention and treatment of infectious disease, and the Ministry of Health has extended its rehabilitation network with newer “Centers for Development and Rehabilitation Health” throughout the country. Immunization rates exceed 90% in many villages in outlying regions around Armenia, which means prevention of neurologic sequelae of brain infections. The coherence and camaraderie between pediatrician and pediatric neurologist seems relatively strong in responding to cases of meningitis or encephalitis.

Just as in the United States, Armenian pediatric hospital centers and pediatricians are in the midst of a transition, with increasing pressures on primary care practitioners to assume new responsibilities so as to avoid specialty referral. Armenian pediatric clinicians continue to struggle for consensus regarding which patients should be referred, and with what urgency. And the target is moving: Armenian clinicians, similar to US pediatricians, describe increasing complaints related to attention-deficit/hyperactivity disorder and autism. Although Armenia’s sole medical school, Yerevan State Medical University, currently lacks a Pediatrics Department, clinicians hope for the resuscitation of a vigorous, productive department
like the one they remember from Soviet times.

Despite our disparate cultural, economic, and political history, the concerns and tensions associated with the referral process in Armenia resonate strongly with those of US pediatricians and pediatric neurologists. In both countries, specialists’ evaluation can benefit the families of children who have common, benign conditions by alleviating anxiety, but may interfere with specialists’ capacity to see sicker patients; in both countries, stigma associated with neurologic disease undoubtedly colors the referral process; in both countries, clinicians often lack local organizational structures that could facilitate their quest for greater autonomy, or transition to more efficient distribution of health care systems. Cooperative international efforts will need to carefully examine how and whether US or European guidelines can be adapted to developing post-Soviet countries like Armenia.

We in the west can also learn from Armenians’ dedication and resourcefulness as they provide health care on a shoestring budget. Our meetings showed how similar our educational needs, as well as those of the families and communities for whom we care, can be. Looking ahead, international collaborations among pediatricians and pediatric neurologists will do well to identify educational programs that assist general practitioners and families to distinguish common, benign, symptom complexes from more serious conditions.

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