Pediatric Neurology Referrals in Armenia: Lessons We Can Learn

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, 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 symptoms.
diologic studies as screening tools, and also grandparents who expect radiologic testing for their grand-
children. The excessive use of head ultrasound to screen populations con-
stitutes one example of how Soviet-era teaching continues to influence re-
ferral patterns, as well as families’ apprehensions and expectations. Chil-
dren who have benign external hydro-
cephalus 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,² many general pediatricians lack train-
ing in common neurologic or develop-
mental signs or symptoms in infants 
and children. This educational gap ham-
pers pediatricians’ ability to respond to 
worried parents who may, in turn, de-
mand specialty referral. As Armenian 
pediatric neurologists have taken steps 
to educate their generalist colleagues 
regarding common, simple concerns, pe-
diatricians increasingly take on responsi-
bility for these cases (eg, febrile seizures).

SELF-REGULATION
Specialists and general pediatricians 
at referral centers in Yerevan fre-
quently accommodate families await-
ing 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 doc-
umentation in hand must be seen on 
the same day. Clinicians who have been 
able to negotiate with their Directors 
(who own and administer the hospi-
tals) have sometimes been able to in-
duce 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 simi-
lar to that in the United States (total 
∼25, population near 3 million). Per-
haps because only a small percentage 
of the population actually uses the 
health care system,¹ it is possible to 
see a pediatric neurologist in Yerevan 
within a week of referral. Armenian 
pediatricians differ from US pedia-
tricians⁴ 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,⁶ and the Ministry 
of Health has extended its rehabili-
tation network with newer “Centers 
for Development and Rehabilitation Health” throughout the country. Im-
munization rates exceed 90% in many 
villages in outlying regions around 
Armenia,¹ which means prevention of 
neurologic sequelae of brain infec-
tions. 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,⁴,⁵,⁶ Ar-
menian pediatric hospital centers and 
pediatricians are in the midst of a 
transition,¹ with increasing pressures 

on primary care practitioners to as-
sume new responsibilities so as to 
avoid specialty referral. Armenian pe-
diatric clinicians continue to struggle 
for consensus regarding which pa-
tients should be referred, and with 
what urgency. And the target is mov-
ing; Armenian clinicians, similar to 
US pediatricians,⁵ describe increasing 
complaints related to attention-deficit/ 
hyperactivity disorder and autism. Al-
though Armenia’s sole medical school, 
Yerevan State Medical University, cur-
rently 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.

REFERENCES

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Pediatrics 2014;134;e639
DOI: 10.1542/peds.2014-0254 originally published online August 25, 2014;

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