Hot Topics in Public Health: the Case of Armenia

Varduhi Petrosyan, MS, PhD

Professor of Health Sciences and Dean

Gerald and Patricia Turpanjian

School of Public Health

January 20-29, 2017

Armenian Heritage Cruise
History

- Established September 21, 1991
- Co-founded by the University of California, Armenian General Benevolent Union (AGBU), and the Government of Armenia
- Affiliated with the University of California since inception
- Accredited since 2007 by the WASC Senior College and University Commission (WSCUC)

President Gardner of UC and President Agbabian of AUA signing affiliation agreement in July 1991.
AUA’s Value Proposition

- American-style higher education offered in the best tradition of academic freedom by internationally-trained faculty.
- Emphasizing critical thinking, multi-disciplinary studies, learning how to learn, and service to society, all in an ethical and merit-based environment.
- Access to state-of-the-art facilities and technology for learning and research.
AUA’s Impact

- Retain the best and brightest in Armenia by:
  - enabling them to take desirable and well paying jobs
  - preparing them to innovate, compete and be entrepreneurial
  - providing academic career opportunities to returning Armenian scholars

- Attract Diaspora-Armenian and international students to study at AUA, expanding knowledge about Armenia and developing a worldwide network of ambassadors

- Contribute to Armenia’s development by preparing Western-educated workforce and shape the class of leaders and entrepreneurs that transform Armenia
Alumni

3,060 as of June 2016

- 73.1% live and work in Armenia or Artsakh – in private sector, NGOs or government.
- 26.9% work abroad – UN, WHO, faculty members in top US, Canadian and European universities, mostly reaching back to AUA and Armenia.
Turpanjian School of Public Health

- Works actively to improve population health and health services in Armenia and the region
- Affiliated with Johns Hopkins Bloomberg School of Public Health (Memorandum of Understanding renewal every 5-years)
- Member of the Association of Schools of Public Health in the European Region (ASPHER)
- Memorandum of Understanding with the Ministry of Health of the Republic of Armenia to closely collaborate on improving the health of the population and health services (2015-2020)
Turpanjian School of Public Health structure

School of Public Health

Master of Public Health Program (MPH)

Center for Health Services Research and Development (CHSR)
Turpanjian SPH’s Impact (2015-2016)

Global: International scientific community

Society: Ministry of Health, Health System, Stakeholders, Population

AUA: Visibility

SPH: MPH Students & Faculty

- About 220 MPH graduates
- Employed 8 students and 21 graduates
- Current grants: $450,000
- 19 articles & 20 abstracts
- 11 technical reports
- 34 scientific presentations
- 9 public health seminars, 7 workshops, 6 international scientific symposiums & conferences
- Health provider trainings – over 600 received CME credits
- Community service
The Health System of Armenia

Recommended reading:


Semashko “System”

• Created by Soviet government in 1918
• All citizens covered: a constitutional right to healthcare for the first time worldwide
• Contributions mainly from state-owned enterprises (budget)
• Commissariat for public health closely working with different workers’ organizations (multidisciplinary approach)
• Centralized, no private sector, free access
• Comprehensive, stronger focus on infectious disease control
• Some OOP contribution for pharmaceuticals
Health system in early 1990

STRENGTHS
- Control of communicable diseases
- High level of financial protection
- Equitable use of health services

WEAKNESSES
- Weak control of non-communicable diseases
- Inefficiencies (allocative, technical)
- Quality problems and poor responsiveness to patient expectations
Health system in 2015/16

STRENGTHS
- Equitable use of certain health services including primary healthcare, obstetric services, and pediatric inpatient care
- Improved efficiencies (allocative, technical)

WEAKNESSES
- Weaker control of communicable diseases
- Low level of financial protection
- Weak control of non-communicable diseases
- Quality problems and poor responsiveness to patient expectations
Non-communicable disease (NCD) control

- Four major NCDs (CVD, cancer, chronic obstructive pulmonary disease, and diabetes) account for the vast majority of disease burden and premature mortality
  - 86.1% of deaths (86% for the WHO European region)
- Performing poorly in addressing non-communicable disease burden
  - CVD Mortality remained the same
  - Mortality from certain malignancies increased
  - Only recently some positive trends (e.g., cervical cancer)
Mortality per 100,000 population

Worldwide ranking: Armenia 1\textsuperscript{st}; US 43\textsuperscript{rd}

General Information 2014/2015

- Pop. 3mln
- GDP per capita US PPP $8,500 (lower-middle-income)
- Life expectancy at birth: 75 years (71/78 m/f)
- 5.2% of GDP on health; 1.8% public (34%) – low compared to the WHO European region
- Direct general tax – 24.5%-36.0% of income (slightly progressive)
- Health spending distribution: 43% inpatient, 39.6% outpatient, ~5% pharmaceuticals, ~5% public health, 14% other
- Slightly over 1/3 of population – Basic Benefit Package + Social Package + VHI
- Defined Basic Benefit Package
Major Health Reforms

• 1994 – Privatization (all pharmacies, most dental offices, other medical centers)
• 1995 – Decentralization
• 1996 – Publicly financed Basic Benefit Package
• 1997/8 – State Health Agency as a strategic purchaser of health services
• 2001 – Optimization: reducing the number of hospital beds and medical personnel
• 2006 - All citizens eligible to receive free primary care (PHC); 2007 – Open enrollment for PHC
• 2011/12 – Co-payment for emergency, gynecological, oncological, and STI treatment services
Basic Benefit Package (BBP)

• Publicly financed BBP
  – All citizens eligible to receive basic primary care
  – Obstetric and post-natal care for all women and new-borns
  – Pediatric hospital care for children <seven years of age, children 7-18y.o. socially vulnerable/special group
  – Emergency medical care
    • Only emergency resuscitation services fully covered by BBP - starting Feb 1, 2011 patients make co-payments for other emergency services, except those who are socially vulnerable or belong to special groups.
  – Medical services for selected conditions, including TB and HIV/AIDS
  – Socially vulnerable and special groups (e.g., people with disability status) eligible to receive additional services
Primary Health Care (PHC) Reforms

- 2000-2005 piloting in Yerevan and Lori
- 2005-2010 more piloting and implementation testing
- Introduction of family medicine
- Renovation, equipment provision, computer provision, trainings, development of special software
- Improving quality of PHC
- Introduction of Open Enrolment 2007 and Pay for Performance (P4P) 2010/11 nationwide scale-up
- 2015/16 - P4P – 27 indicators promoting preventive screenings, focusing on maternal and child care, control of non-communicable diseases and TB
Obstetric Care State Certificate (OCSC) program – July 2008

• High political commitment; Birthing services cost-calculation; Monitoring; High patient satisfaction; Equal access to free quality services; Improved patient-provider relationship;↑ early antenatal care registration and↑ number of antenatal visits in rural areas

Informal Payments for Obstetric Care

<table>
<thead>
<tr>
<th>Year</th>
<th>OCSC Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>91.0%</td>
</tr>
<tr>
<td>July 2008</td>
<td>21.5%</td>
</tr>
<tr>
<td>2009/11</td>
<td></td>
</tr>
</tbody>
</table>
Child Health State Certificate (CHSC) program – January 2011

- High political commitment; Significant increase in budget; Monitoring; High patient satisfaction; Equal access to free quality services; Improved patient-provider relationship

% of those who paid for pediatric inpatient care

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Mid-term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yerevan hospitals</td>
<td>63.9%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Marz hospitals</td>
<td>47.4%</td>
<td>8.9%</td>
</tr>
</tbody>
</table>
Co-payments for BBP Services – 2011/12

• Official co-payments for emergency, gynecological, oncological, and STI treatment services

• To increase formal payments/government revenues
  – Only emergency resuscitation services exempt
  – Socially vulnerable/special groups are exempt
  – Special committee can exempt or give discounts

• More transparent

• Increased prices

• Access suffered among vulnerable groups - reforms compromising equity compromise universal health coverage!

• Informal payments still exist
Social Package – January 2012

• For Government employees
• Voucher for 280USD: ~100USD must be spent on health insurance and ~180USD could be spent on either buying a more generous health plan through commercial private insurers or voluntary health insurance [VHI] for one family member, or other social programs
• 2014 – Organized through the State Health Agency
• Covers mainly catastrophic inpatient care
• 2015 - Annual medical check-up necessary to become eligible
Meghrigian Institute for Preventive Ophthalmology

- A generous gift from Meghrigian family
- Eye screenings to vulnerable groups in Armenia and Artsakh, free eye glasses and treatment to populations in need, provider trainings, & research
- Established Lions Regional Ophthalmic Unit in Sevan
  - Served ~30,000 people and performed ~3,500 surgeries
Improving Nursing Education, Practice & Policy in Armenia

• Comprehensive assessment for the first time in fSU
  – Nursing curriculum assessment (37 participants);
  – Nursing education, practice and policy assessment; and (206)
  – Survey of consumers of nursing services (389 participants)

• Dissemination (in progress)
  – Series of stakeholder meetings, round tables and workshops
  – Coalition building
  – Development of an action plan (RN to BSN program at AUA)
“Entrepreneurs in Health” (EIH project within Turpanjian Rural Development Program)

• To increase access to quality health services in rural areas of Armenia and Artsakh through facilitation of innovation and entrepreneurship in the health care sector

• To help young health professionals to open and operate quality private health practices in rural areas of Armenia

• To introduce Continuous Quality Improvement in health care in rural Armenia.
Maternal and Child Health

- Close collaboration - Ministry of Health and UNICEF
- Assessing livebirth and stillbirth registration and reporting
- Infant and young child and pregnant women nutrition in Armenia
- International evidence on flour fortification and feasibility study
- Introduction of new vaccines in Armenia
- Risk factors for anemia and stunting

- Nutrition conferences with multiple partners
Dynamics of Live Births in Armenia

![Graph showing the dynamics of live births in Armenia from 1990 to 2014. The graph includes data from NIH and NSS, with a notable decrease in live births from the early 1990s to around 2000, followed by a stabilization in the late 2000s.]
• 2014: Stillbirth/IMR ratio = 2/1, while the normal ratio is 1/1
• An increase in stillbirth rates by 70-100% instead of the expected 40% after the definition change.
Stillbirth to ENM ratio is 3/1, while the expected ratio is 1.2/1
Situation in Armenia

- Considerable increase in the official rates of stillbirth, while infant mortality rates (IMR) decreased.
- Since 2010, stillbirth rates exceeded IMR almost two times, while the usual ratio from literature is 1:1.
- Stillbirth rates exceeded early neonatal mortality rates over three times, while the usual ratio is 1.2:1.
- An increase in stillbirth rates by 70-100% instead of the expected 40% after the definition change.

Is there over-registration of stillbirths and under-registration of early neonatal deaths and under-registration of late abortions (<22 weeks)?
Study Objectives

• Desk review of existing legislation on live birth and stillbirth and registration of births and deaths

• Assessment of knowledge of providers on classification of live birth and stillbirth

• Assessment of classification and registration of stillbirths and neonatal deaths in maternities

• Identification of main causes leading to misclassification of newborns and misreporting of stillbirths

• Developing recommendations to improve the current situation
Methods: Design

• Qualitative research with maternity hospital, neonatologists, maternity hospital ob/gyns, women consultation ob/gyns, maternity hospital midwives, pathologists, CSAR body representatives, and policymakers/experts

• 23 in-depth interviews (IDI) and 13 focus group discussions (FGD) in 2016

• Instruments: data extraction form, FGD and IDI guides (7 different guides), demographic and knowledge questionnaire

• Participants: 121 (65 from Yerevan, 32-Vanadzor, 24-Gyumri)
Main Conclusions

• Incomplete shift to new definitions of stillbirths and livebirths
• Lack of capacity to take care of extremely premature babies
• Misreporting a portion of late abortions and early neonatal deaths as stillbirths
• Stillbirth rates increased for two groups of reasons:
  – Inadequate preconception diagnosis, high STI rates, lack of capacities to diagnose birth defects early, inadequate diagnosis of stillbirth causes to prevent its reoccurrence, inadequate knowledge of new definitions among providers, poor nutrition and environment for pregnant women
  – Desire to reduce neonatal mortality rates and do less paperwork, financial motivation to report abortions as stillbirths, especially among hospital heads, fear of doctors to be fired if reporting the cases accurately
Core Recommendations

• Improve technological capacities of neonatal units and knowledge of providers on the new definitions
• Introduce a control mechanisms to prevent misreporting in maternities, especially in one of them
• Eliminate financial incentives for misreporting
• Eliminate the belief that high neonatal mortality is worse indicator for the hospital than high stillbirth rate
• Improve collaboration and information exchange between WCs, hospitals, and pathology departments
• Improve capacities of WCs and pathology departments
• Add to BBP more specific tests to prevent and identify timely reasons leading to stillbirth and neonatal death
Infant and Young Child Nutrition in Armenia 2015: Study Objectives

• Identify perceptions, attitudes and practices among different stakeholders towards the existing practices of child and pregnant woman nutrition in Armenia

• Explore perceived underlying factors for inappropriate nutrition of children & women at personal/family and primary health care (PHC) levels

• Identify ways to overcome the barriers to healthy nutrition during pregnancy and childhood
Methods

- Desk review of relevant documents and literature
- Qualitative study through:
  - 8 in-depth interviews (IDI) with policy makers/experts from MOH, WHO, National Assembly
  - 13 focus group discussions (FGD) with
    - mothers of children under-five (4)
    - PHC pediatricians/FPs (3)
    - PHC Ob/Gyns (2)
    - Maternity hospital staff (2)
    - Rural nurses (2)
- Overall, 99 study participants from Yerevan (33), Shirak (22) and Lori (44)
Nutrition & Care During Pregnancy

Existing practices

• Following a “healthier” diet during pregnancy
• Inconsistent interpretation of “healthier”
  – “During pregnancy, fried potatoes, meat, citrus containing food should be avoided.” [m]
  – “I wouldn’t say there is anything I have not eaten… small amounts of everything.” [m]
  – “I increased the amount of fruit and water.” [m]
• Using vitamins during pregnancy (with or without prescription)
  – Taking Ca supplements (especially in rural areas)
  – Not making pre-pregnancy visits, hence starting folic acid later than recommended
Main problems identified:

• No or insufficient counseling at women’s consultations on correct nutrition during pregnancy

• Lack of unified guidelines on prescription of nutritional supplements during pregnancy & inconsistent practice:
  – “It is the MoH requirement to prescribe folic acid, Iodine Marin and Ca+2 to all women. We prescribe Ca+2 supplements starting from 20-22 weeks of gestation…”
  – “We prescribe calcium pills when there is a need…”

• No or inadequate preparation for breastfeeding during pregnancy
  – “…they should rub their nipples with a towel [during pregnancy] to escape cracks [later-on].”

• Under-developed network of mothers’ schools
Newborn Care & Breastfeeding Initiation

• Conflicting opinions about early post-delivery practices and breastfeeding initiation among different stakeholders (ob/gyns and neonatologists versus mothers and pediatricians)

• Early skin-to-skin contact and breastfeeding initiation in rural areas and common delays in breastfeeding initiation and use of breast milk substitutes in Yerevan maternities
  – “Usually in maternity hospitals the immediate skin-to-skin contact and attachment to the breast are violated.” [k]
  – “… healthcare providers give the children breast milk substitutes to calm them down instead of helping mothers to breastfeed their children.” [k]

• Widespread use of pacifiers and bottles in maternity hospitals
  – “…pacifiers are used to immediately quiet the babies.” [k]
Main problems identified:

• Inadequate support for breastfeeding in maternities
  – “They just gave me my baby and told me to feed him.” [m]
  – “There isn’t enough assistance at the maternities.” [p]
  – “There is no one in maternity hospitals who is interested in breastfeeding.” [m]

• Widespread use of pre-lacteal feeding even against mother’s request
  – “They give it [formula] to make their work easier.” [m]
  – “…This is more common in Yerevan as many of maternities are in close relationship with different pharmaceutical companies and they promote formula.” [k]
Breastfeeding & Supplemental Feeding

Existing practices

• Common knowledge on the best infant feeding practice
  – “Exclusive breastfeeding until 6 months old… It is desirable to continue breastfeeding until 2 years old.”[^n]

• Widespread introduction of water from the first months of life.
  – “In all seasons, I suggest giving water, if the baby needs it, he will drink. …It may be winter outside, but 34°C inside the house… of course water will be necessary.”[^p]
  – “Mine won’t drink regular water… I have to make it sweet to make her drink.”[^m]

• Common practice of earlier introduction of liquids and solid food (from ~4 months)

• Breastfeeding on demand is common
Breastfeeding & Supplemental Feeding

**Main problems identified:**

- Very short duration of exclusive breastfeeding due to early introduction of water
- Inadequate support for correct positioning and attachment to the breast
  - “I just told the doctor about my cracks and was prescribed the medication for it… they didn’t even see the cracks.”[m]
  - “[It is necessary to] explain how to correctly position the baby from the beginning, so issues will not rise later on.”[m]
- Switching to mixed/artificial feeding mainly because of perceived insufficiency of own milk
- Giving cow milk as breast milk substitute in rural areas because of economic/cultural reasons
  - “Both from cultural and financial point of view, cow’s milk is more acceptable among people.”[p]
Complementary Feeding

Existing practices

• The age of solid food introduction ranges from 3 to 10 months (mainly, 5-6 months)
  – “From 5 months of age, mothers may begin to give some food from the family table after consulting with us.” [p]
  – “I introduced already prepared porridges in my child’s diet from 4 months of age, but not much…” [m]

• First solids are usually fruit and vegetable puree and/or cereal porridges – introduced gradually

• Meat is introduced at varying times, mainly between 6-10 months of age, starting with beef and/or broth

• Rural mothers rely on family traditions more, while urban mothers – on internet or doctor’s advice in deciding what solid food to choose
Complementary Feeding

Main problems identified:

• Inconsistent practices of complementary feeding
  – “…we don’t have guidelines about complementary food. If you collect 10 different pediatricians from different districts and ask them about complementary food management they all will respond differently.” [k]

• Tendency to introduce complementary food earlier than at 6 months of age
  – “The doctor told me not to give anything until 4-5 months, but I have, because my milk wasn’t enough and my baby was hungry.” [m]

• Inadequate knowledge on iron-rich food
  – “I gave a bit of grated apple, then a lot of banana. I decided that these were good sources of iron…” [m]
**Existing practices**

- Pediatricians recommend 4-5 meals a day – not taking into account the snacks.
- Parents report 3-4 meals a day (3 of which are often fed at kindergarten) with small snacks in between.
  - “…she eats three times [in kindergarten] and one time she eats at home. So she has 4 main meals.”
- Parents of children attending kindergarten heavily rely on kindergarten food, although often being unsure about the specifics of it.
  - “The food quality, its nutrient content, safety, and the mode of preparation are very important in preschool facilities.”
Main problems identified:

• Few parents stress the importance of keeping children’s food diverse

• Lower then recommended frequency of meals especially among those attending kindergarten

• Kindergarten food quality/preparation should be better controlled

• Providers do not provide advice to parents on feeding of toddlers and preschool children

• Some parents use products of inadequate quality to feed children

  – “Mostly it is inadequate quality and frequency of meals, lack of diversity, giving children low quality sausages, bacon, chips, and cola.” [k]
Child Growth Monitoring

Existing practices

• Growth monitoring is universally conducted during infancy
• Not all five growth charts are completed equally well
  – “They don’t complete the BMI-for-age chart; they don’t have proper counseling skills.”[^1]
• Not always providers interpret correctly growth curves
  – “Sometimes HC providers complete the growth charts but cannot interpret properly or make right recommendations.”[^1]
• After infancy, both the coverage and regularity of child growth monitoring decreases, especially in rural areas
  – “I have to confess we don’t do it as detailed as with younger children.”[^2]
• There are no guidelines for PHC providers to treat growth problems
Child Growth Monitoring

Main problems identified:

• Providers are overloaded with paperwork, which does not allow them to complete growth charts properly
  – “…during the last 10 years the paperwork became more and providers have no time to complete all required papers.” [k]

• Providers underestimate the importance of completing growth charts, especially for older children
  – “Whenever they [children] have health issues we bring them [to the doctor]. But even in this case we have to request weighting. Otherwise, they don’t weight them.” [m]

• Parents do not bring 1-5 year old children to PHC facilities for growth monitoring
  – “…parents do not realize the importance of these measurements, the same is true for some healthcare practitioners.” [k]

• There is shortage of equipment for older children’s growth monitoring
**Existing practices**

- Pediatricians & urban mothers agreed anemia screening at 9 months of age has 100% coverage
  - "The coverage of anemia screening is very high as it is also included in the bonus system." [k]
- Rural mothers reported their children were not screened for anemia, thanked for informing them and stated that they would require the test in the future
- Perceived rate of anemia among pregnant women is low
  - "...presently we don't have serious anemia [among women]. ... the percentage of mothers with anemia is very low, because we manage to carry out preventive work before they give birth." [k]
- Both children & pregnant women receive iron supplements only for treatment purposes
  - "Anemia screening is done and in case when the results are positive the physicians try to correct it by diet but also they prescribe iron." [k]
Main problems identified:

• Lack of cause-specific tests at the PHC level to identify the causes of low hemoglobin/anemia
  – “If the laboratory would be able to measure ferritin, we would save on medication costs and not harm the child [prescribing Fe].”[^p]

• Low awareness of population about anemia and flour fortification project, especially in rural areas

• Key informants were for, while FGD participants against the flour fortification project
  – “…it will be better to ensure intake through meal that contains iron and folate.”[^p]

• The main concerns were possible overdose and use of low-quality fortifiers with potential side effects
  – “Armenians mainly eat more bread and in this case we can have overdose.”[^p]
Parental Counseling

• Lack of sufficient counseling of mothers
  – *HC providers [in women consultations] never give any recommendations regarding nutrition.* [m]
  – *I have a problem with doctors, they will not speak. You take the child to the doctor, they check the weight, height, head, heart and that is it. There is no conversation, no explanation, nothing.* [m]

• Main reasons: being overloaded with patient flow/paperwork and lacking the needed skills
  – *HC providers are more involved in paper work instead of counseling patients.* [k]
  – *…due to these routine paper work they lost their abilities and skills to counsel.* [k]
Reasons for Non-Compliance

- Inability to follow the prescription/advice mainly due to financial reasons
  - “Cow’s milk is more often used because of financial reasons. …parents begin with the recommended mixture, but switch to cow’s milk due to financial issues.” [p]

- Lack of understanding why the prescriptions are made
  - “If they prescribe something and you ask, they tell you. But you have to ask… They won’t explain themselves.” [m]
  - “They do not explain why, but just tell you to take it. If they DID explain, we would probably follow the prescriptions better.” [m]

- Conflicting advice from different sources: physician, older family members, neighbors, internet
Knowledge Level

• Lack of knowledge on nutritional needs of pregnant women among both providers and women
  – “…healthcare providers don’t have basic knowledge to give sufficient recommendations [to pregnant women].” [k]

• Diversity in practice because of low awareness
  – “…healthcare providers prescribe supplements to mothers that they do not need, for example, iodine…” [k]

• Low awareness about practical aspects of breast feeding and complementary feeding
  – “…we didn’t know it at first [correct attachment to breast], but then learned from our mothers and mother in-laws.” [m]
  – “My child is allergic and his body would not take cow’s milk. I thought that if you give it early then the organism will begin to accept, but that is not how it is.” [m]
Participant’s Recommendations

• Provide either financial or nutritional aid to pregnant women and children from vulnerable families

• Discourage adverse practices and promote breastfeeding support practices at the maternity hospitals

• Develop and implement uniform standards and guidelines on child and pregnant women nutrition

• Increase both knowledge and motivation of healthcare providers to provide appropriate nutrition counseling to pregnant women and mothers
Future Directions

- Improvement of nursing profession in Armenia
  - New academic programs at undergraduate level
- Tobacco Control
- Tuberculosis Control
- Public Health in Artsakh
- Preventive Ophthalmology
- Entrepreneurs in Health
- Maternal and Child Health
- Quality of Care and Patient Safety
- More research and publications
Thank you!

MPH Alumni Employment Status - %

- Employed: 81.6%
- Studying: 3.8%
- Job seeking: 4.3%
- Self-employed: 2.2%
- Other (child care, pensioner, etc.): 0%