CHAPTER 5. HUMAN RESOURCES IN AZERBAIJAN

5.1 Introduction

The purpose of this chapter is to assess the current status of the health workforce in Azerbaijan and to make recommendations to assist the Ministry of Health (MOH) and the districts to improve their institutional capacity for human resource policy and planning.

Accordingly, the chapter includes: (i) a strategic quantitative assessment of the clinical workforce with respect to the current population, health provider network and healthcare strategy; (ii) an assessment of the roles and responsibilities of key institutional stakeholders, such as MOH, MOF, MOE, professional associations and district health offices (this assessment considers human resource development functions within the current policy context of marginal reform, limited decentralization, private practice, urban/rural differentials and expected changes in health financing); (iii) a review of prevailing financial and non-financial incentive schemes for physicians, particularly regarding mobility and practice in remote areas; and (iv) recommendations for new or modified institutional frameworks and opportunities for developing in-service training in health administration and clinical practice.

5.2 Analytical Framework and Sources of Data

The chapter relies heavily on: (i) an understanding of best practices and lessons learned elsewhere, especially in transition countries; (ii) a review of relevant, country-specific literature available in English and official documents and reports produced by government and non-governmental agencies relating to the healthcare reform process in Azerbaijan; (iii) extensive consultation with key stakeholders and visits to districts; and (iv) feedback provided by various stakeholders on a draft version of a report on human resource development (HRD) in Azerbaijan prepared for presentation, discussion and consensus at the health conference sponsored by the Ministry of Health and the World Bank in Baku in December 2004.

5.3 Assessment of the Capacity of Current Healthcare Workforce

The assessment of the current health workforce capacity is based on the following dimensions:

- number of staff vis-à-vis selected international comparators;
- the equity of workforce distribution by population density, and between urban and rural districts;
- the balance between hospital and primary-care staff below the district level; and
- a profile of the workforce in terms of its sub-specializations.
5.3.1 Overall Staffing Numbers

*Azerbaijan is relatively well provided for in terms of physicians, yet total healthcare staffing is not excessive.* In 2002 there were 110,000 health professionals working in the MOH health provider network in Azerbaijan (see Table 5.1). This is not the entire healthcare workforce in the country. There are also a number of other government institutions, such as military hospitals, and the private sector—both of which employ significant numbers of staff. It is estimated that, similar to other CIS countries, these sectors would add an additional 10 percent to MOH staffing figures.

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>26,832</td>
<td>24.4</td>
</tr>
<tr>
<td>Feldsher</td>
<td>9,217</td>
<td>8.4</td>
</tr>
<tr>
<td>Midwife</td>
<td>10,033</td>
<td>9.1</td>
</tr>
<tr>
<td>General nurse</td>
<td>31,367</td>
<td>28.5</td>
</tr>
<tr>
<td>Laboratory assistant</td>
<td>3,431</td>
<td>3.1</td>
</tr>
<tr>
<td>X-ray assistant</td>
<td>453</td>
<td>0.4</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>324</td>
<td>0.3</td>
</tr>
<tr>
<td>Other paramedic</td>
<td>4,600</td>
<td>4.2</td>
</tr>
<tr>
<td>Dentist</td>
<td>2,325</td>
<td>2.1</td>
</tr>
<tr>
<td>Administrative/technical</td>
<td>21,418</td>
<td>19.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>110,000</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: MOH data, 2004.*

There are just over 140 total MOH health staff per 10,000 resident population. This compares with 200 in England, which also has a predominantly public health sector, and is an average spender on health within the OECD.

**Physicians**

There are roughly 29,500 designated physicians in the MOH provider network, a category that includes doctors, dentists, physiotherapists and some managers trained in medical academies. Of this number, close to 27,000 are physicians, or 33 per 10,000 population, a number that represents 24 percent of the total health workforce. Physicians are specialized in some 70 sub-specialties. As Figure 5.1 shows below, MOH staff alone places Azerbaijan in the upper quartile of international comparators for this indicator.
Figure 5.1 Number of Physicians in Selected OECD and CIS Countries, 2004

Note: The figure for England shows an expected number of entering physicians for 2008 that is 15 percent greater than 2003 levels.
Sources: WHO, World Health Report, 2004, save for data for Azerbaijan, England (not the United Kingdom), Serbia and Kyrgyz Republic, where local official data was used.

One issue of comparative analysis is the number of physicians in CIS countries who are not practicing medicine. This number includes staff in management positions, public health institutes and the Sanitary Epidemiological Services (SES). Data for this category of physician is not available for Azerbaijan, however, in other CIS countries, their number amounts to about 10 percent of all physicians in the public system.

Nurses

There are 50,617 staff in nursing functions (e.g., general nurses, feldshers and midwives), just over 60 per 10,000 population. These staff account for 46 percent of the total health workforce. The number of nurses relative to population is low across comparators in Figure 5.2 below, although consistent with most other CIS countries.

Azerbaijan relies heavily on physicians for service provision, with little job differentiation for other health professionals. One characteristic of the healthcare
workforce in transitional societies is the relatively higher reliance on the role of the physician versus the nurse (compared, for example, to most OECD countries). Azerbaijan is not an exception; indeed, is at the low end of the comparator range on this indicator, at only 1.9 nurses for every physician. The low level of nursing resources in clinical care is further exacerbated by the fact that nurses also undertake much of the administrative work on wards and in clinics, work that would be carried out by non-medical support staff in the OECD.

**Paramedical staff.** In the Soviet health system design, nurses undertook much of the therapy and diagnostic staff work (e.g., X-rays and hospital/polyclinic laboratories). This in part explains the low figures for paramedical staff, which account only for 8 percent of the total workforce. Detailed studies of care processes in other CIS countries show a shortage of skills such as remedial therapy (physiotherapy and occupational therapy). There is no reason to believe that this finding does not also apply to Azerbaijan.

**Azerbaijan’s healthcare system needs a requirements model.** Interesting as international comparisons are in themselves, they provide only an indication of appropriate staffing capacity. In order to make a more meaningful assessment of current capacity, a requirements model for Azerbaijan’s healthcare system is urgently needed. A reliable staffing requirements model needs substantially more detailed and complete baseline data on staffing than that which has been available to date. For the time being, the following high-level planning assumptions are proposed as an initial (albeit relatively crude) assessment of requirements:

- as in other CIS countries, rural areas in Azerbaijan represent a major planning component, and require 1 primary-care physician for every 1,200 population;\(^\text{145}\)
- within a balanced health delivery system, the primary-care workforce should constitute one-third of all physicians in the provider network;
- assume 2.75 nurses to every physician in the system (based on the OECD average), a ratio that reflects advanced healthcare practices.

\(^{145}\) This compares with 1 per 1,400 population, a 2008 target planned in the UK.
On this basis, a population of 8.2 million would require:

- 7,000 primary-care physicians;
- 21,000 physicians in total, or 25.6 physicians per 10,000 population (compared to the current total of 27,000 physicians, or 33 per 10,000), a ratio towards the midpoint of the comparator range used in this chapter;
- 58,000 nurses (compared to the current number of 51,000); or
- a total of 79,000 staff (compared to the current total of 78,000).
Figure 5.3 Ratio of Nurses to Physicians in Selected OECD and CIS Countries, 2004

Note: The figure for England shows a planned number of entering staff for 2008 that is 15 percent greater than 2003 levels.
Sources: WHO, World Health Report 2004, save for data for Azerbaijan, England (not the United Kingdom), Serbia and Kyrgyz Republic, where local official data was used.

National aggregate figures are of limited value because they invariably mask major imbalances at each level in the system. In Azerbaijan, these imbalances are geographic and functional—between secondary and primary levels and between specializations within hospital and polyclinic facilities. Each of these imbalances will be considered in turn.

5.3.2 Inadequate and Inequitable Geographic Distribution of the Medical Workforce

There are wide variations in staff-to-population levels within the country, especially in rural districts (see Figures 5.4 and 5.5). Map 5.1 provides a further, more detailed overview of the inequities in geographic distribution of MOH healthcare personnel in Azerbaijan.
Figure 5.4 Geographic Distribution of Physicians in Selected Districts, 2002

Doctors per 10,000 population

![Graph showing distribution of physicians by district in 2002.]

Sources: MOH personnel data, 2002; Health Reform Project Baseline data, 2002.

Figure 5.5 Geographic Distribution of Nurses in Selected Districts, 2002

Nurses per 10,000 population

![Graph showing distribution of nurses by district in 2002.]

Sources: MOH personnel data, 2002; Health Reform Project Baseline data, 2002.
Map 5.1 Distribution of Physicians and Paramedical Staff in Azerbaijan, 2002

Number of physicians by towns and regions in 2002

Number of paramedic staff by towns and regions in 2002
5.3.3 Productivity

Disparities in the mix, numbers and distribution of medical staff do not reflect differential workloads. There is little evidence that disparities in staffing at the district level reflect differential workloads in terms of hospital admissions or occupied beds. Yet there are wide variations in staff-to-workload levels, as Figures 5.6a, 5.6b and 5.7 demonstrate. These variations are not, however, related to population density.

Figure 5.6a Physician Workload in Inpatient Care, 2003

![Graph showing doctors per 1000 admissions]


Figure 5.6b Physician Workload in Inpatient Care, 2003

![Graph showing occupied beds per doctor]

5.3.4 Imbalances between Secondary and Primary Care at the District Level

There is no shortage of secondary-level staff in rural facilities, but their productivity is low. The system has four distinct tiers, as shown in Figure 5.8. The major town hosts the secondary level, comprising the central district (general) hospital with an attached polyclinic and single specialty hospitals or dispensaries (e.g., for psychiatry, TB, etc). These facilities are managed by the MOH directly and staffed with narrow-specialist physicians, theoretically in line with planning norms inherited from the Soviet Union. However, these norms have not undergone a fundamental review since the 1960s. In practice, Soviet norms are far from uniformly applied, although the supply of staff poses few problems at the secondary level. Productivity is variable to low, as evidenced by the first set of rationalization plans put forward by the pilot districts, which proposed significant staffing reductions (up to 50 percent), confirming the widely held view that the secondary sector has excess staff capacity.

Supply of staff is a problem at the primary healthcare level, where productivity is again variable to low. Staffing over-capacity at the hospital level is in marked contrast to the primary level, where staffing levels are a problem. Primary healthcare is delivered by physicians at a village hospital or SUB (in the larger villages), and by Village Doctor Ambulatory facilities (SVA). According to the former Soviet model, SVAs should be staffed by a “three-way specialty mix” of therapists, gynecologists and pediatricians. Physicians thus have a narrow scope of practice, rather than working as more holistic family physicians. According to MOH official norms, physician staffing is based on 1 adult physician (therapist or gynecologist) to 1,700 adult population, and 1 pediatrician to every 700 child population. This yields an average ratio of 1 primary-care physician to

every 1,200 people. Smaller settlements rely on FAPs staffed by midwives and feldshers (or one person serving in both roles).

**Figure 5.8 THE RURAL HEALTH SYSTEM**

Discussions with MOH officials and field visits provided anecdotal evidence of supply problems at this level of the system. The baseline survey conducted by Western World Consultants supports this finding and shows that in both pilot and control districts, physician staffing levels are inadequate or below MOH (i.e., former Soviet), UNICEF and WHO norms at the SUB and RDA levels. These findings point to variable to low productivity and throughput, as measured in patients seen per year.

**Staffing in rural areas is a problem due to lack of incentives for new physicians.** The formal system for addressing the undersupply of doctors does not work. Every quarter, a district submits a report to the MOH identifying which posts are empty. The MOH then allocates specialty physicians to vacancies from a list of new qualifiers distributed by the public-sector medical university. However, most new physicians have no wish or incentive to work in rural districts, hence there is attrition by default. One of the major challenges in staffing policies is thus to strengthen primary-care staffing in rural areas within the context of difficult-to-staff locations. Meeting this challenge requires a combination of the following strategies:

- improving the supply of physicians to rural areas through better incentives;
- moving to a family physician model, with all current physicians (re)trained accordingly; and
- strengthening the feldsher/midwife role in terms of scope of practice (via retraining) and better equipment. (It may prove impossible to supply sufficient numbers of physicians to all parts of the country in the short to medium term.)
5.3.5 Profile of the Healthcare Workforce

There is an over-supply of certain physician specialties at the national level, but with shortages at the local district and sub-district levels. The Soviet model created 71 subspecialties in medicine. Figure 5.9 below shows the distribution of physicians by subspecialization at the national aggregate level in Azerbaijan. The largest sub-groupings are adult physicians (33 percent), surgeons (16 percent), pediatricians (14 percent), gynecologists (6 percent) and dentists (8 percent). There are no designated general practitioners or family physicians. More detailed staffing data is required to definitively assess the balance of specialties against requirements. However, there is an oversupply of pediatricians and surgeons at the national level and in cities, while there is an undersupply of pediatricians and gynecologists in rural districts (according to current norms). Despite these reported supply distortions, 30 percent of current post-graduate physicians are training to specialize in surgery.

Figure 5.9 Distribution of Physicians by Specialization, 2004


The profile of the medical workforce in Azerbaijan still reflects the former Soviet model and is based on narrow specialization. Ambulatory care in towns and cities is delivered by a myriad of narrow specialists. As a result, a holistic primary care approach to patients and families is precluded. Patients are often referred to several physicians before obtaining an accurate diagnosis. Also, specialist physicians are not specialists in the sense of secondary-level physicians that have advanced knowledge and skills in their field. Instead, they practice primary care within a very narrow scope determined by their specialization. Moreover, partly as result of protracted periods of working at the primary
level, these specialists tend to lose many of the skills and the knowledge that they acquired in post-graduate training. It has been found in other CIS countries, for example, that less than half of designated surgeons are competent to operate.

Given that the range of specializations in each polyclinic is planned according to standard central norms, staffing in these facilities is rarely in accordance with the health needs and disease patterns of the local population, and then only by coincidence. Lastly, narrow specialists typically refer patients to hospitals, where physicians admit them for assessment and/or undertake surgery if necessary. This inflates hospital admission rates, since a high proportion of patients admitted could be managed in an ambulatory setting. Also, assessment for surgery by an operating physician takes place after admission, so many surgical admissions do not actually lead to surgical procedures.

_Nurses are relatively skilled in Azerbaijan. In general, however, the role of the nurse is underdeveloped and to some extent crowded out by the excess of physicians, particularly in urban areas._ There are six sub-specialties of nursing. The feldsher, midwife and sanitary feldsher (San-Epid network) train for 2.5 years. General nurses and dental nurses train for 1 year and 9 months. Apart from the FAP level, nurses work under the direction of physicians. In addition, nurses based in polyclinics include visiting or patronage nurses, who monitor newly-born children or house-bound older people.

It is often assumed that nurses in transitional countries have neither the skills nor the knowledge base of their equivalents in the OECD. Detailed functional analysis of the roles of nurses in a number of other CIS countries have, however, revealed that their skills hold up quite well in comparison to, say, British general hospital nurses (advanced practitioners excepted), but that the underlying knowledge base and quality of academic training is less good. Such analyses have demonstrated the ability and willingness of these nurses to extend their skills to more advanced practices, given the appropriate training. Elsewhere in the CIS, the role of the feldsher has the potential to become the fulcrum of rural healthcare delivery, particularly in areas where physicians are in short supply, provided that they are given primary-care training and good basic equipment. In urban areas, however, it is common for the role of the nurse to be downgraded due to the oversupply of physicians. Nurses in these areas have thus fallen behind their OECD equivalents.

5.4 Current Human Resources Management and Policy-making Structures

The key functions of human resource development in healthcare are monitoring staff planning requirements at the national and local levels, setting terms and conditions (e.g., pay and other remuneration levels), and managing education and training. While reforms currently in progress address some of these issues, there is a need for reform and rationalization in most of these functions.
5.4.1 Departmental Functions within the Current System

Responsibility for human resource development is fragmented at both the national and local level. Management of the provider network is fragmented among three agencies. Republican hospitals are managed by the MOH, which allocates their resources in conjunction with the MOF. Central District Hospitals are managed by Chief Physicians, who negotiate their budgets directly with the MOF. Direct management of the rural health network (SVAs and FAPs) was transferred from the District Chief Doctor to local authorities two years ago.

At the central level, responsibility for healthcare workforce development (and the role of national employer) is fragmented across four central government departments: the ministries of finance (MOF), labor (MOL), education (MOE) and health (MOH). The MOF establishes staffing budgets on the basis of annual plans. These budgets are based on uniform line items, which act as a powerful disincentive to reforming current staffing numbers, since any reduction in staffing leads to a proportionate reduction in the budget of a given facility. The MOL administers the labor laws that govern non-financial conditions of service, based on former Soviet manuals still in use today. These conditions include guaranteed employment, fixed retirement ages, paid holidays, etc. The MOE governs the licensing of undergraduate medical training. The MOH leads key strategic health policies and reforms, and functions as an administrative department that works alongside the MOL and MOF on policy changes. The MOH also formally receives and approves the annual staffing plans from district and republican facilities, and collects and stores data on current staffing by means of an annual census.

5.4.2 The Current Budgetary System and its Impact on Staffing

Budgetary framework

Medical staff resist reductions in the number or beds because the budgets of medical facilities are based on this indicator. The number of medical posts is also fixed in relation to bed capacity. Budget proposals, or “prognoses” as they are called in Azerbaijan, are presented to the MOF directly by the districts, and by the MOH for Republican hospitals. Pursuant to the Soviet model, the key driver for the budget of a given facility is the number of beds; hence any reduction in beds would, in principle, lead to a proportionate reduction in its budget. Numbers of medical posts are also fixed according to this procedure.

The over-capacity of hospital beds is reflected in hospital occupancy rates of 25 to 35 percent. Bed reduction and site rationalization would free up resources currently tied up in utilities and other facility maintenance, and would reduce surplus staff. Currently, 60 surgical beds require 4 surgeons, but if those beds are reduced to 15 to reflect occupancy, 3 jobs would be reduced. There is thus inevitable resistance to bed reductions on the part of staff. Medical posts are under-utilized in other parts of the network, particularly in polyclinics, offering further scope for rationalization. At present, however, there is no mechanism or incentive to adjust staffing levels.
Local managers have very little budget discretion in view of strictly controlled budget line items. “Prognoses” are based on strictly controlled budget line items that cover management and treatment. These items are well defined and understood and include salaries (48 percent), drugs, bedding, food, business trips, transport, housekeeping, rent, repairs/maintenance and special cases (e.g., infection control). Under-spending on salaries cannot be transferred to other budgetary items, such as drugs. Likewise, budgets for rent and transport cannot be converted to salary payments. Money allocated to vacant posts within the salary budget can, however, be used to pay up to 1.8 times the standard salary to individual staff for overtime. Extra payments are also made to individuals where the situation is less clear cut. Otherwise, local managers have no discretion in the salary budget. Any reduction in budgeted staff posts simply leads to a reduction in the size of the staff budget (about 50 percent of the total budget of most facilities). This creates a perverse disincentive for reducing surplus staff.

The current budgetary system makes an already inadequate budget appear consistently under-spent, which in turn further reduces the budget. Although formal copayments are in place, budgets are consistently under-spent by up to 20 percent in many districts due to several factors. First, the budget is not adequate and copayments are required from patients to cover the cost of drugs, food, supplies, etc. Historically, the budget was fixed based on the number of beds in a facility. Since bed occupancy is low, the MOF more recently adopted occupied beds as the indicator for fixing budgets. However, utilization of beds is limited because patients are required to pay both formal and informal fees, which many cannot afford. As a result, bed utilization falls below the level assumed in the budget, which the MOF interprets as an under-spend against the budget.

In addition to acting as a perverse incentive to restructuring, the current budgetary system actually produces inevitable formal under-spending of an already inadequate budget. Although it is technically possible to make a special case to the MOF to retain under-spends within a given budget, this occurs only rarely. More commonly, the under-spend is returned to the MOF to be allocated to another state expenditure.

More budget autonomy is needed at the local level. The allocated budget does not cover more than 10 percent of the real costs of healthcare, yet it is nevertheless under-spent. When a district is awarded more money, for example, it is not given autonomy on how to spend it and thus must often return what is not spent to the central ministry. There is clear demonstrable need for more autonomy in budgetary management and staffing at the local level.

5.4.3 Medical Staff Remuneration

Pay levels remain low and medical staff continue to be dependent on OOP payments. Pay levels are determined centrally by the MOH and MOF. Salaries were recently increased by 50 percent from a low base (US$25 per month for a physician in a rural
This adjustment reflects the government's commitment to increase the proportion of GDP spent on healthcare to 1.2 percent, with most additional money allocated to improving salaries. However, since these monies cover only 10 percent of living costs, medical staff will remain heavily dependent on OOP payments from patients. There is some discretion for local managers to pay bonuses of up to 40 percent for productivity, although bonuses are also constrained by the rigidity of overall staff budgets. Otherwise, the scope for local decision-making within the overall framework is limited.

5.4.4 The Self-Management Initiative

**Self-managed units are an exception to the rigid budgeting framework.** They have more autonomy over staffing and budget line items and use a productivity-based pay system. The MOH in 1995 launched a program of self-managed hospitals as a partial escape from the rigid budgeting framework. *Fully self-managed units* are effectively privatized facilities (mostly dental clinics) which charge patients directly for all services. *Partially self-managed units* formalize patient copayments by setting a fee schedule for services in conjunction with the MOH. One of the key innovations of self-managed units is their discretion over physician staffing levels, mostly through a fee-for-service element in their salaries, which can be as high as 100 percent of a salary. Under both models, staff can earn productivity bonuses, which provide an incentive to reduce excess capacity. Also, the management of a health facility has discretion over the distribution of its budget among expenditure line items and can thus redirect spending to refurbishment and/or clinical equipment.

Although self-managed units constitute a very limited scheme to date, the model has a number of components that could be more widely developed: (i) discretion of local managers over the allocation of their overall budgets, which offers an incentive to reduce expenditure on utilities and redirect these monies toward local priorities; (ii) formalization of patient copayments into the mainstream facility budget; (iii) a productivity-based pay system that gives physicians incentives to participate in the formal copayment system and eliminate surplus staffing capacity.

5.4.5 MOH as the Single National Employer of the Healthcare Workforce

*As a medium-term goal, all human resource development and management functions should be unified under the MOH.* Fragmented responsibility inevitably leads to lack of both coordination and systematic management. More difficult or controversial decisions are inevitably passed from ministry to ministry or simply avoided altogether. As a medium-term goal, all human resource development and management functions, except for jurisdiction over undergraduate medical education capacity, should therefore be unified under the MOH.
5.4.6 Current Human Resource Planning Norms

The most substantial gap in current management capacity at both local and national levels lies in the field of requirements planning. Until the 1970s, the MOH in Moscow formally approved staffing against planning norms produced by the Semashko Institute, a function that was later devolved to constituent republics. In common with many other CIS countries, Azerbaijan integrated these norms into its statutory framework for healthcare provision. If staffing levels at local levels had been consistent with these norms in the past, they have drifted substantially since. The Semashko methodology allots staff to a given provider network based on population size and density. Hence in the hospital sector, a given population would "require" a given number of therapy, surgery and pediatric beds. The number of beds drives staffing requirements for physicians and nurses, with about one physician prescribed for every 12 to 40 beds (depending on the specialty).

Populations are not weighted for age, sex, etc. If the norms were consistently applied, there would be an even distribution of beds and staffing to population across the country. However, there are wide variations in staffing among districts vis-à-vis available beds, indicating that the norms have a more symbolic than practical role in staffing decisions (see Figure 5.10).

Figure 5.10 Available Beds per Physician, 2003

![Available beds per doctor chart]


The current, 35-year old staffing norms are rigid in prescription, applied inconsistently, and provide a perverse incentive to restructuring. They are also largely based on outdated criteria. A centralized standard obviously cannot reflect the diversity of local clinical needs across the country. Apart from inconsistency of application, the Semashko norms lead to a number of other problems. Rigid, standardized norms last updated in Moscow in 1969 do not reflect the multiplicity and diversity of health needs at local levels across the CIS. Furthermore, since the number of jobs is attached to the
number of beds, there is inevitable resistance to or, at best, anxiety about, reductions in
the number of beds. Beds, moreover, are not a meaningful workload indicator in a
system with a 30 percent occupancy rate. Lastly, the experience of other countries shows
that shorter lengths of stay and ambulatory workload settings decrease bed levels even as
hospital activity remains stable or even increases. Thus, planning on the basis of bed
levels provides a false picture of the needed level of physicians.

5.5 Medical Education

In a country with a population of 8.2 million people, Azerbaijan currently produces 1,600
medical graduates each year, i.e., 200 per 1 million population. Some 1,150 physicians
are trained at the Azerbaijan Medical University (AMU), the only public-sector medical
school in the country, which is equivalent to about 144 graduates per 1 million
population. Another 240 graduates are dentists or pharmacists, which reduces the public-
sector output to 910 graduates, or 114 per 1 million population.146 A further 450 to 500
places are available in private universities. The private sector is licensed by the MOE
and is expanding rapidly, with no apparent control over numbers of medical graduates. It
is estimated that approximately 100 Azerbaijani citizens are resident and training abroad.
Approximately 45 percent of the students at AMU are “budgeted students,” meaning that
their fees are paid by the healthcare budget (see Table 5.2).

Table 5.2 Overview of Medical Education in Azerbaijan

<table>
<thead>
<tr>
<th>Number of</th>
<th>Financial Conditions</th>
<th>Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years in</td>
<td>Number of</td>
<td></td>
</tr>
<tr>
<td>Under-</td>
<td>graduates per annum</td>
<td></td>
</tr>
<tr>
<td>graduate Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total for 6 faculties</td>
<td>1,150</td>
<td></td>
</tr>
<tr>
<td>1. Medical</td>
<td>6 550</td>
<td>525 free of charge; 625 pay tuition of approximately US$500–1,000 per year.</td>
</tr>
<tr>
<td>2. Pediatrics</td>
<td>6 250</td>
<td></td>
</tr>
<tr>
<td>3. Prophylactic (preventive)</td>
<td>5 80</td>
<td>Exemptions include: • orphans • refugees • families of victims</td>
</tr>
<tr>
<td>4. Laboratory</td>
<td>5 30</td>
<td></td>
</tr>
<tr>
<td>5. Dentistry</td>
<td>5 160</td>
<td></td>
</tr>
<tr>
<td>6. Pharmaceutical</td>
<td>4 80</td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td>6 30</td>
<td>Banks do not give credits or loans to individuals for medical education.</td>
</tr>
<tr>
<td>Military field doctor (feldsher)</td>
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<td></td>
</tr>
<tr>
<td>Nursing School</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

146 This comes close to the country’s target range of 70–100 per 1 million population and will be balanced by population growth in the future.
In comparison with Azerbaijan, England has 5,000 medical training places each year (to be expanded to 6,000) for a population of 50 million, currently equivalent to 100 places per 1 million population. Canada enrolls 1,577 per year (to be expanded to 2,000) for a population of 32 million, equivalent to 49 places per 1 million population. Azerbaijan has historically trained physicians for other parts of the former Soviet Union, such as Siberia. At its peak, AMU trained 1,400 per annum in the public sector. It has an aspiration to train 70–100 per 1 million population, which would be equivalent to 560–800 graduates annually. In recent years, the AMU has been reducing its output by 20–100 places per annum.

5.5.1 Link with the Supply of Physicians

Azerbaijan currently has an oversupply of physicians. As mentioned earlier, the state employs roughly 29,000 physicians. Over a forty-year work span, one could expect 725 jobs to become available each year. This would approximately match the target norm of 100 graduates per 1 million population. Oversupply is exacerbated, however, by the reluctance of older physicians to retire. It is estimated that 20 percent of physicians are eligible for retirement but, due to a small pension, they continue to work. Over 50 percent of physicians are women, many of whom are of childbearing age. During the Soviet era, women could take advantage of their maternity leave entitlement, which extended from 18 months to 3 years. Women today do not use this entitlement and tend to return to work after 2–3 months. Both of these trends reduce the demand for physicians.

There is a deficit of physicians in rural areas. At the moment, the ratio of male-to-female medical graduates is 30/70. Approximately 900 graduates are produced each year, 200 of which change direction and join another industry, such as oil or banking. The remaining 700 choose to become physicians. In theory, there should be sufficient medical vacancies to employ all 700. However, most vacancies are based in rural areas and physicians wish to remain in the cities. As a result, there is a deficit of physicians in rural districts and a surplus in urban areas. This mismatch is one of the key challenges for medical and professional workforce planning in the country.

5.5.2 Funding the Current Education Model

Less than half of students educated free of charge have any conditions placed on their state funding. Up to 2004, undergraduate training was provided in 6 faculties of the AMU, with 45 percent of students educated free of charge and 55 percent subject to charges of US$500–1,000 per year. No conditions are placed on state educational funding. Given the problems of recruitment to rural areas, the following conditions could apply: (i) applicants from areas without sufficient numbers of physicians could be given priority, based on the assumption that they would be more willing to practice in their home localities; (ii) a specified period (for instance, 2 years) of practice in a rural area could be made a condition of state educational funding.
5.5.3  Professional Development and Recognition

The current model. Medical training has traditionally meant entering university at the age of 17, spending six years to receive a medical degree, followed by a one-year internship in a clinic. At this point, an individual is qualified to work as a physician. Every three to five years, physicians are supposed to apply for re-training, but there is currently no sanction for not doing so. (In the new self-managed model of hospital service provision, physicians will be licensed at 3- to 5-year intervals to be allowed to continue to practice.) A system of certification exists that allows physicians to gain recognition based on experience. This system does not involve examinations, but submission of documents, together with a report on the quality of work achieved. The system offers little financial reward and even though it has been temporarily stopped for internal review, it continues to have a certain status.

The system of accreditation is as follows: four years following his or her internship, a physician can apply for the “second” category; after a further three years, a physician can apply for the “first” category; three years beyond this, he or she can apply for the “highest” category. This last category has to be certified three times, i.e., it must be recertified three years and then six years after the original award in order to achieve the highest lifelong category status. According to this model, a physician is fully qualified and experienced at the age of 35 to 40 years.

The AMU’s proposed new model (based on EU standards) should enable the supply of skills to match demand for health services. The model is likely to gain presidential approval for implementation in 2005–2006. The undergraduate training period will remain the same, after which 70 percent of graduates are expected to train for a further two years as “family physicians” working in polyclinics. In addition to the current secondary healthcare role, they will provide primary healthcare. The remaining 30 percent will train for up to 7 years in a specialization and will be required to pass 3 examinations (in language, pathology and a specialty). In theory, numbers of medical school slots will be based on national need and a program of reporting will allow institutions to identify specific specialist requirements. This will enable the supply for skills to match demand, provided that requirements-planning is robust.

Further Potential Developments. According to this new model, prophylactic medicine could become a specialty area within medicine and not require a separate faculty. Likewise, it is conceivable, and more consistent with the western European model, to treat pediatrics as a post-graduate specialization. This would mean that all physicians (assuming that pharmacy and dentistry are split off as separate professions) would have the same basic undergraduate training. It would also deliver a primary-care physician who can practice as a family physician, which in turn would alleviate medical shortages in rural areas.

New teaching methods should be introduced and the link between academic training and practice should be strengthened. The Soviet model of medical education was based largely on academic training with poor links to actual practice. Future reform will need to better integrate the practice of medicine and training via higher-quality and better
supervised placements and a convergence of teaching and practice. Moreover, the content of teaching needs to be reformed to introduce new pedagogical methods such as problem-based learning.

5.5.4 Career Path of Medical Graduates

An oversupply of medical graduates is resulting from the number of students graduating from private universities, where the educational quality is lower and students less qualified. There is a wide perception in Azerbaijan that the university system is producing too many physicians. This perception needs to be considered carefully, however, as the above analysis indicates that the apparent oversupply of physicians is intimately connected to the additional 450 to 500 medical graduates produced by private universities. While private universities are licensed by the MOE and follow the same curriculum as the AMU, the quality of education is lower and students in general are less qualified.

It is a policy issue to link total graduate output to the number of medical jobs available in the system. In the UK, for example, undergraduate training is the first step in a career path for physicians in which the number of graduates is matched to the number of clinical jobs available. The volume of medical educational slots is controlled to ensure that a surplus is not produced. Central control is possible because medical education is entirely provided by universities within the state sector. In this respect, a medical degree is unlike most other vocational degrees, such as accountancy or law, where the number of places is not centrally planned and graduates face competition.

Even if the number of places in undergraduate medical education were reduced to better match the number of available jobs, expansion of the private educational sector would the impact of this reduction. The advantage of surplus graduates is that students can choose to pursue a medical degree, which is highly regarded by employers, and then move on to work in another sector, such as oil or banking. The state gains a general benefit from producing a highly educated workforce (assuming that graduates do not immigrate to other countries).

The disadvantage is that there will be a surplus of graduates searching for medical jobs, so that aspiring physicians will find themselves unable to work due to lack of opportunities. Medical degrees also require a longer time commitment than other degrees, so it could be argued that expensive training would to some extent be wasted. Morale among medical graduates is also likely to be low if only a small proportion can find work as physicians.

5.5.5 Continuous Medical Education

While there is an excess training capacity for new physicians, Azerbaijan faces a huge challenge in retraining its current medical workforce. The retraining agenda includes: (i) further extension of the UNICEF/World Bank program to retrain narrow-specialist physicians (especially those working at the primary-care level) across the scope of family practice, based on assessment of local demand. For the time being, the current ratio of 1
physician per 1,200 population is not an unreasonable parameter for primary-care physicians in a rural area (the nurse-to-physician ratio in primary care would be no more than two); (ii) training specialist physicians for fitness of purpose using modern evidence-based medicine in the specialties they currently practice, thus ensuring that all practicing gynecologists, ophthalmologists, general surgeons, etc., are competent to operate.

5.6 **Recommended Workforce Planning Methodology**

Given current problems with central planning norms, lack of staff planning capacity and the absence of requirements-plans, future healthcare staffing is an unknown and might be an impediment to reform. Azerbaijan should develop its own staff requirements or demand-planning approach with the following aims: (i) planning should occur at both the central MOH level and at local provider and district levels; (ii) the MOH should determine the methodology and set guidelines for achievable minimum and maximum staffing vis-à-vis population and productivity; (iii) local providers should apply the methodology and adapt it to reflect local needs and affordability; (iv) planning should reflect meaningful measures of staffing needed in each part of the provider network; (v) the planning process should be dynamic, both supporting and promoting the overall reform process; (vi) the process should encompass parameters of quality and efficiency.

There is wide support among stakeholders in the Azerbaijan health sector for developing this type of approach within the MOH. Successful models for developing a health workforce planning methodology have been implemented in the CIS and other transition countries, which provide lessons that Azerbaijan can learn from and apply.

5.7 **Key Issues, Options and Recommendations**

**Staffing Capacity**

- The overall size of the health workforce in the MOH provider network is not excessive.
- There is a surplus of physicians, with excess capacity of up to 30 percent at the national aggregate level.
- There are wide geographic variations and inequities in levels of physicians and nursing staff to population which do not reflect productivity rates or even former Soviet planning norms.
- Compared to national averages, medical staffing in rural districts is low, evidence that staffing in cities is substantially higher than average.
- Below the district level, the rural health network is experiencing significant supply problems.
- The profile of the medical workforce in Azerbaijan still reflects the former Soviet model of narrow specialization, with oversupply in some specialties at the national level and shortages in others at local district and sub-district levels.
- The narrow-specialist model precludes good-quality primary care and an adequate supply of physicians to rural areas, a problem that could be alleviated by moving to a family physician model.
- The role of nurse is underdeveloped and to some extent crowded out by the surplus of physicians in urban areas.

**Current Management Capacity**

- Responsibility for human resource development (HRD) is fragmented at both the national and local level.
- As a medium-term goal, all HRD and management functions should be unified under the MOH.
- A rigid, centralized statutory framework severely limits the discretion of local managers to staff their facilities according to local need and service requirements.
- The current budgetary system imposes rigid constraints on local decision-making, acts as a perverse incentive to staffing restructuring, and actually reduces already inadequate budgets.
- The national statutory framework inherited from the former Soviet Union is an impediment to the reform process.
- Current, 35-year old staffing norms are rigid in prescription, applied inconsistently, act as a perverse incentive to restructuring, and are based largely on outdated criteria. Clearly, a centralized standard cannot reflect the diversity of local clinical needs across the country.
- Outside of the limited self-managed sector, there is no incentive to restructure staffing levels in the healthcare system.
- The self-managed sector uses a creative and pragmatic approach to staffing that offers valuable experience and could be extended to other parts of the system. This staffing approach should be made part of an urgently needed strategy to give more autonomy to local managers.

**Medical Education**

- Capacity at the undergraduate level is 30 percent greater than the likely requirements of the healthcare system.
- The Azeri Government may wish to leave undergraduate medical education to the market and simply regulate its quality. However, the numbers of budgeted students is a different matter. There are currently some 500 such places available annually. As a general principle, state funding for medical education should be linked to the demand for new physicians in the system. Unfortunately, the country currently has no demand plan, so it is difficult to assess whether the current number of budgeted students is appropriate.
- The system offers a mechanism to improve the supply of physicians to rural areas, provided conditions are placed on students who receive free education.
Applicants for free state education from areas with physician shortages could be given priority, based on the assumption that they would be willing to practice in their home localities. In fact, the government could establish such a condition as a pre-requisite for approving applications for free state funding.

- Currently proposed reforms of medical education are sound. In addition, the following issues should be taken into account:
  - The post-graduate system currently produces as many physicians as there are current official vacancies. As a general principle, the number of post-graduate specializations should be linked to identified medium- to long-term demand. Once again, as in many other areas, lack of a demand plan is a problem.
  - Undergraduate training should be further unified and consolidated, with undergraduates educated in a single faculty of family medicine, with pediatrics becoming a post-graduate specialization.