Undergraduate medical education in Cyprus: the introduction of two medical schools

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Abstract

Background: Plans are underway to open the first two medical schools in Cyprus, a small island nation in the eastern Mediterranean. Two schools are planned: a private one which will offer graduate-only entry and provide a 4-year course and a state one which will admit school leavers for a 6-year course.

Aim: The article aims to examine some of the arguments that led to this development and how this fits into the health education policy of Cyprus.

Method: Information was gathered through searching PubMed, Google, international and local press using several keywords. The most recent search was in March 2011. Further information was sourced directly from publications and press releases from the relevant universities, institutions and regulatory bodies such as the Cyprus Medical Council and the Cyprus Statistical Service.

Discussion: Key questions discussed include the small size of the country, the size and number of medical schools and the impact on research. Comparisons are drawn with other countries and their experience.

Introduction

Cyprus is an island nation in the eastern Mediterranean. Geographically it is in Asia, but politically it is considered part of Europe and since 2004 has been a member state of the European Union (EU). It covers an area of 9,251 km² and its current population is about 800,000. The country gained its independence from the United Kingdom (UK) in 1960 following an armed struggle and has had a turbulent history since. Following independence, there was sporadic intercommunal fighting between Greek and Turkish Cypriots. In 1974 a failed coup instigated by the Greek military junta prompted a two-stage military invasion by the Turkish army in July and August of the same year.

Despite its turbulent modern history Cyprus has maintained a versatile and thriving economy with high growth rates. The International Monetary Fund (IMF) includes Cyprus as one of the most advanced economies of the world (IMF 2010a) and in 2009 the gross domestic product (GDP) per capita ranked 27th in the world (IMF 2010b).

In terms of health indicators, Cyprus has an enviable profile. It has one of the lowest infant mortality rates in the world (2 per 1,000) and a life expectancy which is higher than most developed countries (males 79 and females 82 years). Cyprus claims the lowest adult mortality rate in females in the world (Rajaratnam et al. 2010). Healthcare is provided through a network of public and private hospitals. Cyprus spends 6.2% of GDP on health (2008 figures) and expenditure is distributed approximately 50/50 between the public and private health sectors (Statistics Service 2010a).

Following independence from the UK, tertiary education was provided by private or state-run colleges and institutes of technology, examples of which included the College of Nursing and the Higher Technical Institute. Students seeking university level education needed to study abroad. The University of Cyprus (UCY) was established in 1989 and admitted its first students in 1992. In 2007 the first private universities were accredited, including the University of Nicosia (UNic), previously called Intercollege. Private and state-controlled universities have since seen tremendous growth and the government has openly pursued a policy of making Cyprus a regional hub for education, medical services and biomedical research.

Practice points

- Plans have been drawn to open the first two medical schools in Cyprus.
- The two planned medical schools will be very different to each other.
- Introduction of undergraduate medical education is part of a coordinated effort by local authorities to make Cyprus a regional hub for education, medical services and biomedical research.
Undergraduate medical education in Cyprus

Table 1. Doctors on the Cyprus Medical Register, by country of undergraduate study (2008).

<table>
<thead>
<tr>
<th></th>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Greece</td>
<td>47.68%</td>
</tr>
<tr>
<td>2</td>
<td>Russia</td>
<td>7.41%</td>
</tr>
<tr>
<td>3</td>
<td>Germany</td>
<td>5.87%</td>
</tr>
<tr>
<td>4</td>
<td>UK</td>
<td>5.20%</td>
</tr>
<tr>
<td>5</td>
<td>Romania</td>
<td>4.71%</td>
</tr>
<tr>
<td>6</td>
<td>Ukraine</td>
<td>4.07%</td>
</tr>
<tr>
<td>7</td>
<td>Hungary</td>
<td>3.88%</td>
</tr>
<tr>
<td>8</td>
<td>Bulgaria</td>
<td>3.21%</td>
</tr>
<tr>
<td>9</td>
<td>Italy</td>
<td>2.64%</td>
</tr>
<tr>
<td>10</td>
<td>Turkey</td>
<td>2.61%</td>
</tr>
</tbody>
</table>

Is Cyprus too small for a medical school?

One of the strongest arguments questioning the need for a local medical school revolves around whether or not Cyprus’ population size warrants it. Assuming that Cyprus requires the same physician density as other developed nations (300 per 100,000 population) (Simoens and Hurst 2006) and that doctors have an average active professional life of 30 years, Cyprus needs 80 doctors to enter the system each year to maintain physician density. That figure fits nicely with UCY’s projected annual intake of 70 students. However, what this scenario disregards is that many will seek a university place abroad regardless of the local option. The present supply seems to be maintaining physician density quite well. Will the introduction of a medical school stem the desire for Cypriots to study medicine abroad? If it does not, then Cyprus may end up expected to require an upfront investment of €50 million with annual running costs of €10 million (equating to €140,000 per doctor trained). With current austerity measures being introduced throughout the public services, some see this investment as unnecessary.

Discussion

The introduction of undergraduate medical education has become a topic of debate especially in view of the considerable costs involved (Ioannou 2010). The UCY medical school, which is most under scrutiny due to its public funding, is expected to require an upfront investment of €50 million with annual running costs of €10 million (equating to €140,000 per doctor trained). With current austerity measures being introduced throughout the public services, some see this investment as unnecessary.

For the purposes of this article, a distinction is made between ‘standard’ medical schools admitting students following secondary education and ‘graduate’ schools admitting students who have already completed a tertiary level degree.

Information Office 2010). It is safe to say that tertiary education has established itself as a major industry within a short period of time. As well as generating considerable revenue for the economy by attracting foreign students it has stabilised the previously increasing trend of Cypriots seeking education abroad (Statistical Service 2010b).

Although degree courses in allied health professions have been provided for several years, no university has opened a medical school yet. Of note is that a professional nursing school has existed on the island since the period of British rule, providing education at tertiary level since 1954. The course was upgraded to a university degree in 2007 with the integration of the nursing school into the newly established state-run Cyprus University of Technology.

The absence of a medical school on the island, however, has meant that all practising doctors completed their undergraduate training abroad. The Cyprus medical register issued by the Cyprus Medical Council reveals the place of undergraduate study of each registered doctor. There are graduates from over 47 different countries. Table 1 shows the top 10 most common places of study (Cyprus Medical Council 2009).

Plans are currently underway to open two new medical schools in Cyprus. The first to admit students will be the (private) UNic, the largest private university on the island, which will be enrolling its first students in September 2011. It will provide a 4-year course through a graduate-only entry. The course has been developed in collaboration with St George’s Medical School, London, and is modelled on its existing graduate entry course. Students will spend an element of their clinical training with a third partner, the Sheba Medical Centre at Tel Hashomer, Israel (University of Nicosia 2011). The medical school will accept about 90 students per year and openly markets itself as a place of study for international students.

UNic will follow a similar curriculum to St George’s. Traditional teaching methods such as lectures, clinical attachments and independent study will be employed, however, particular emphasis will be placed on Problem Based Learning (PBL). Assessment will be continuous, both formative and summative. A variety of examinations will be used such as Objective Structured Clinical Examinations (OSCEs), Direct Observation of Procedural Skills (DOPS), Case Based Discussions (CBD) and written examinations (University of Nicosia 2011).

The public UCY is creating the second medical school. The faculty was established in November 2008 and the first students are due to join in the 2013/14 academic year. It will teach a 6-year standard course with an estimated annual intake of 70 school leavers (non-graduate entry). The creation of this school was part of the current government’s pre-election pledge in the presidential election of 2008. It was advertised as part of a broader aspiration to develop Cyprus as a regional hub for providing medical services and biomedical research. UCY is currently in the process of recruiting faculty members and setting up the basic science departments. The final structure and detailed curriculum have not been announced yet.

Another important question is whether or not a medical school aiming to attract international students following secondary education and ‘graduate’ schools admitting students who have already completed a tertiary level degree.

Will the small size of the medical schools be a problem?

Table 1. Doctors on the Cyprus Medical Register, by country of undergraduate study (2008).
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schools operating in 16 Caribbean countries. There are currently 56 medical
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prolific growth in recent years with a 40% increase in the
by North American investors. This business model has seen a
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majority of students originate from North America. These
despite minuscule populations; however the overwhelming
Netherlands Antilles have well-established medical schools
Luxembourg and Montenegro have yet to establish one.
Each had a medical school for well over 100 years, although
as Malta (intake 100/year) and Iceland (intake 50/year) have
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Further afield, countries such as Grenada and the
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Graduate schools are more likely to take fewer students
than standard medical schools. Since the Flexner report
in 1910, US medical education has followed only the
graduate-entry route. The smallest medical schools such as
Sanford Medical school in South Dakota, have an annual
intake of about 50 graduates. In the UK, such schools have
only appeared recently and usually offer graduate-entry
alongside a standard course. For example the University of
Keele Medical School offers 10 graduate entry places only,
however this is in addition to the 130 standard course places.
The UK’s smallest graduate-only medical school is the newly
formed Swansea medical school with an annual intake of 70
graduates (Swansea Medical School 2011).

The last 25 years have seen this consolidation materialise.
Middlesex Hospital and the Royal Free medical schools were
merged into UCL, Guy’s and St Thomas’ merged to form the
United Medical and Dental Schools and were then incorporated
into King’s College London. St Bartholomew’s and The
Royal London medical schools were incorporated into Queen
Mary University whilst Charing Cross, Westminster and St
Mary’s medical schools were merged with Imperial College
London. Many of the original medical schools had annual
intakes of fewer than 100 students. Now however, the UK
nationwide picture is very different with annual intake ranging
from 130 at Keele University to 380 students at Manchester and
with the majority of medical schools having an intake of over
200. UCY would hence have an intake of about half of that of
the smallest UK standard medical school.

If comparisons are to be drawn with the smaller European
countries with smaller populations than Cyprus such as
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than standard medical schools. Since the Flexner report
in 1910, US medical education has followed only the

worthwhile. A comparison with the UK system reveals that no
medical school offering the standard curriculum has a similarly
low annual intake. In 1968 the Royal Commission (Todd)
report on medical education in London recommended the
creation of larger medical schools by merging the existing ones
into the larger universities. It was deemed that independent
medical schools would be less likely to survive on their own
and combining them would result in considerable cost savings

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The question of whether or not there is an optimal size for a
medical school, be it standard or graduate entry, remains
unanswered in the literature.

Creating uniformity for practising physicians
Table 1 illustrates the diverse places of study of Cyprus’
medical graduates. This assortment of backgrounds can bring a
healthy input of experience from various international health
systems. At the same time however there is no dominant local
system for doctors returning to Cyprus to adapt to. This
diversity can lead to confusion, examples of which include the
lack of a common working language, common referral system
and common speciality structure. If one takes the US as a
comparison, international medical graduates (IMG) make up
approximately 25% of the US physician population (Norcini
et al. 2010). On their entry to the US there is an overwhelming
local graduate population which works in a set way. Irrespective of their background these IMGs need to adapt to
work in the existing US system. The same argument applies to
the British system. This of course is not only due to the
presence of medical schools but the existence of an estab-
lished health system such as the UK’s National Health Service.
Cyprus is in the process of developing a unified national health
system (Samoutis and Paschalides 2011) in which undergrad-
uate medical education could be a vital component.

The case for research
The absence until recently of university-level tertiary education
centres has meant that Cyprus has not had the traditional
infrastructure for productive research and development
(R&D). In the field of biomedical research the only noteworthy

<table>
<thead>
<tr>
<th>Population</th>
<th>Number of Medical Schools</th>
<th>Population per medical school</th>
<th>Graduates per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grenada</td>
<td>110,000</td>
<td>1</td>
<td>110,000</td>
</tr>
<tr>
<td>Iceland</td>
<td>317,630</td>
<td>1</td>
<td>317,630</td>
</tr>
<tr>
<td>Malta</td>
<td>412,970</td>
<td>1</td>
<td>412,970</td>
</tr>
<tr>
<td>Cyprus*</td>
<td>803,147</td>
<td>2</td>
<td>401,574</td>
</tr>
<tr>
<td>Slovenia</td>
<td>2,049,730</td>
<td>2</td>
<td>1,024,865</td>
</tr>
<tr>
<td>Ireland</td>
<td>4,470,700</td>
<td>6</td>
<td>745,117</td>
</tr>
<tr>
<td>Cuba</td>
<td>11,239,363</td>
<td>14</td>
<td>802,812</td>
</tr>
<tr>
<td>Greece</td>
<td>11,305,118</td>
<td>7</td>
<td>1,615,017</td>
</tr>
<tr>
<td>UK</td>
<td>62,041,708</td>
<td>32</td>
<td>1,938,803</td>
</tr>
<tr>
<td>France</td>
<td>64,714,074</td>
<td>31</td>
<td>2,087,551</td>
</tr>
<tr>
<td>Turkey</td>
<td>72,561,312</td>
<td>50</td>
<td>1,451,226</td>
</tr>
<tr>
<td>US</td>
<td>308,745,338</td>
<td>159</td>
<td>1,941,796</td>
</tr>
</tbody>
</table>

*projected
London where an estimated 400,000 1st, 2nd and 3rd generation concentration of Cypriot expatriates, in particular North mostly by research conducted abroad in locations with a high prevalence of certain diseases such as beta thalassaemia Mediterranean nations. However there is an exceptionally most western societies, especially other European able to help improve those figures.

The percentage figure which includes both public and private R&D falls far short of the EU average of 1.8% and is even lower than EU candidate countries Turkey and Croatia (Eurostat 2009). Through the seventh framework programme (FP7) the EU has a stated objective of raising the combined public and private R&D to 3% of GDP (European Communities 2007, Chipman 2009). Institutions can apply for centrally allocated EU R&D funds, so both medical schools would be able to help improve those figures.

The profiles of diseases Cypriots suffer from mirror those of most western societies, especially other European Mediterranean nations. However there is an exceptionally high prevalence of certain diseases such as beta thalassaemia (Kyri et al. 2009). The management of these patients is guided mostly by research conducted abroad in locations with a high concentration of Cypriot expatriates, in particular North London where an estimated 400,000 1st, 2nd and 3rd generation Cypriots live (Yiakoumi 2005). There is a case for prioritising research in areas relevant to local needs and the planned medical schools could be a vehicle for this.

Another perceived benefit of establishing a competitive environment for research would be the drawing of eminent Cypriot researchers from abroad. The absence of such institutions has led to many Cypriots not returning to Cyprus following their studies. Furthermore many Cypriots who have returned were unable to continue work that they had started abroad and hence valuable skills were lost.

A role in postgraduate medical education

Hospital training in a limited number of specialties is offered on postgraduate residency programmes. Examples include general medicine, orthopaedics and anaesthetics. The programmes come under the responsibility and supervision of the Cyprus Ministry of Health which at present works in collaboration with the Greek postgraduate education programme. In some specialties, hospital training can be carried out in full on the island (eg cardiology, paediatrics and urology) whilst others can be only partly completed there (eg, thoracic, plastic and ENT surgery). Trainees currently travel to Greece for their specialty examination and take the same exam as their Greek counterparts.

It is anticipated that UCY Medical School will have a central role in postgraduate medical education. Curricula, examinations and hospital accreditation can then be carried out independently and in full in Cyprus.

Wouldn’t just one medical school suffice?

On the face of it, introducing two medical schools into an environment where there was none could seem adventurous if not risky. However, this should be examined more closely. The two medical schools will be divergent in various ways. UNic is a private university with estimated tuition fees of around €25,000 per academic year. UCY is a state-run university where home students currently have their tuition fees reimbursed in full. UNic openly advertises its medical school as a destination for foreign students estimating that only 10% of the annual intake will come from Cyprus. On the other hand it is anticipated that the majority of students at UCY will be Cypriots. UNic will have a graduate-only entry whilst UCY is geared towards school leavers.

Irrespective of their differences one could argue that introducing two medical schools provides healthy competition. Singapore, another small country, went through the debate of whether or not to create a second medical school on this basis and the consensus was that the introduction of competition between two would be healthy and universally beneficial (Hwang 2005).

Conclusion

In summary, plans are underway for introducing undergraduate medical education in Cyprus. Although very different to each other the two medical schools should help Cyprus develop its provision of medical services. The move should also help Cyprus enhance its current status as an educational hub and help it achieve its goal of becoming a regional centre for medical treatment and biomedical research. However, such a move does not come without risks, the most obvious one being the potential oversupply of medical graduates to a relatively small country. It is therefore inevitable that a proportion of students will have to be attracted from abroad.

Notes on Contributors

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Declaration of interest: The author reports no conflicts of interest. The author alone is responsible for the content and writing of the paper.

References