Chapter Five

Practical Recommendations and conclusions, and Determining the Possible Strategic Choices for Some Major Issues Related to Higher Health Education

INTRODUCTION

There is no doubt that the undergraduate health education sector is facing many challenges that result from several factors. The most important factors are the increasing demand on the undergraduate health education, poor outcomes in terms of size and quality, shortage in teaching hospitals and training locations, weak financing, and other critical factors that raise the level of pressures on its internal and external efficiency.

The Analysis of experts to the existing situation was presented in chapter 1, where the most important issues that need more though study and investigation were specified. These issues were:

1. The size of health education outcomes and the admission capacity of health colleges,
2. Training sites,
3. Financing Undergraduate Health education, and
4. Internal efficiency of health education.

This chapter will be devoted to these critical factors in terms of diagnosing the current situation and studying the possible strategic choices, their applicability and suggesting the appropriate recommendations.

The Executive Recommendations were presented at the end of this chapter through suggested program of several stages to safely and confidently achieve objectives in a practical and well-studied way.

I. The size of Health Education Outcomes and Admission Capacity

Human Resources are the foundation of the health system**.** The contribution of the health workers is one of the most essential components of a health system's ability to effectively provide quality care and to ensure equitable access to that care throughout the entire population. Availing enough qualified human resources for heath in terms of quality and quantity remains a continuous challenge in both developed and developing countries. The scarcity of qualified heath personnel is being highlighted as on of the biggest obstacles to achieving the Millennium Development Goals (MDGs) for improving the heath and well being of the global population. WHO estimates that at least 2 360 000 health service providers and 1 890 000 management support workers, or a total of 4 250 000 health workers, are needed to fill the gap. Without prompt action, the shortage will worsen.

Health workers are inequitably distributed throughout the world, with severe imbalances between developed and developing countries. This global workforce shortage is made even worse by imbalances within countries. In general, there is a lack of adequate staff in rural areas compared to cities.

Current Situation:

The issue of the harmonization and agreement between higher education system outcomes and the requirements of economic and social development, and the job market needs are the most prominent issues of development in the Kingdom of Saudi Arabia. The issue of jobs' saudization is a national issue not only in the health sector, but also in all other sectors. The low percentage of the national workforce in the medical and nursing systems adds special dimensions since it has a direct effect on the efficiency of health care provision to citizens. Efficient health care provision requires the knowledge of language,

social values and customs which allows a minimum prerequisite for communication between the physician and the nurse from one side, and the service receiver from the other side. Therefore, emphasis should be on increasing the number of national workforce, particularly in the medical and the nursing systems. The development process in the Kingdom during the last two decades lead to wide expansion in health services demonstrated in the increase in health facilities and their distribution allover the Kingdom. This was accompanied by a parallel increase in demand for qualified health workers, and since the health education system in the Kingdom was not prepared to comply with these requirements, these workers were recruited from abroad. Despite the progress in the development of human resources in the health sector, the achieved addition did not satisfy the required needs for the management and operation of the health care system. This fact reflects the lack of coordination in terms of strategic planning between the Ministry of Health and the Ministry of Higher education.

On the other hand, the continuing growth of the number of high school graduates lead to a parallel increase in the demand to join health colleges[1] beyond the admission capacity of these colleges. As an example, during the last five years, the health colleges at King Saud University admitted about one third of the applicants. It is expected in the near future that the demand on undergraduate health education will increase dramatically due to many factors such as the high percentage of youths in population that will be graduated from the general education system. Another important factor is the economic factor represented by the direct proportionality between the level of education and the availability of high-pay work opportunities.

[1] We mean by health colleges: those colleges that confer the Bachelor degree in Medicine, Dentistry, Pharmacy, Applied Medical Sciences and Nursing.

It was evident from the results in chapter 2 that health education outcomes are currently unable to satisfy the needs of the health sector job market, as well as the health education institutions are unable to meet this increase in demand.

International Experiences:

Many countries responded to the challenge of the shortage of heath personnel through various strategies.

1. Increase Intake of students to existing institutions.

The Netherlands Government decided to increase the intake of students in all heath professions educational institutions including Medicine by 50-90%. The Government avail budget to all these institutions in proportion to the increase on intake. In other words if a medical school increase the intake by 50% the college budget will increase by 50%. This increase has been done without compromising quality of education. e.g., Maastricht University maintained its innovative problem-based program despite the fact of increases the intake by 50%. Similar approach has been done in most of west European countries.

2. Opening new medical schools

Many countries in North America and West Europe decided to start new medical schools in particular in under-serviced areas. For instance, new medical College was opened recently in North Ontario following 35 years after the next newest one. In Norway, Finland new medical schools were opened in the northern part of the country which is under-served. In developing countries many new medical schools were opened particularly in our region including Pakistan, Sudan, UAE, Bahrain etc. Strong evidence are accumulating that these new medical schools contributed well to increasing heath

professionals. Moreover in particular the Scandinavian countries, it contributes to solving the problem of maldistribution of heath personnel by availing heath personnel who are trained and able to work in rural areas.

Perhaps the Japanese experience reflects the size of dependence on opening new colleges to satisfy the increasing demand of the job market. The higher education in Japan Experienced two expansion plans, one between 1976 till 1986 and the second up to the beginning of the ensuing decade. The following statistic reflect the extent of expansion in opening universities

- 1960 : 245 universities
- 1975 : 420 universities
- 1980 : 446 universities (93 national, 34 public and 319 private)
- 1995 : 565 universities (98 national, 52 public and 415 private)
- 2004 : 709 universities (87 national, 80 public and 542 private)

3. Encouragement of private sector to invest in heath professions education:

The percentage of higher education institutions affiliated with the private sector in many of the world counties is in excess of 50% of the total higher education institution. In Northern America and Japan private sector historically played a major role in higher education including heath. For instance renowned university such as Harvard is private. However on the other hands there are many private universities were established without proper planning and follow up through strict regulation. This limitations compromise the quality of education, example are the private universities in India, Pakistan and some universities in North America.

Private universities to play a useful role should be established within clear national policies, with close follow up under strict criteria of quality indicators in addition to

encouraging non-profit educational institutions lead by organization or a group of individuals.

Strategic Choices:

The study of the present-day situation makes it imperative to the Ministry of Higher Education to enhance the admission capacity of the undergraduate health education system without negatively affecting the performance and efficiency of this system. This should be one of the priorities of the Ministry since it achieves the goal of "Strategic development of the workforce in the health sector"[1].

The feasible choices in this respect are:

1. Expanding the inauguration of new undergraduate health colleges.
2. Increasing the admission capacity of the already existing colleges.
3. Giving more opportunities for the private sector to contribute to health education.

The First Choice:

Expanding the inauguration of new undergraduate health colleges

All experts who participated in the analysis of the undergraduate health education present-day situation agreed upon that the random inauguration of the undergraduate health colleges in the last few years is one of the points of weakness that health education is suffering from. The new colleges are still surrounded by risks and threats especially in regard to financial resources and to the fierce competition on the same faculty market, with each other from one side and with other non-educational health sectors from the other side. Therefore, the Ministry of Higher Education has to support these colleges to enhance their internal and external efficiency. Consequently, the inauguration of new colleges will

[1] The Strategy of Development of Workforce in the Health Sector, pp. 11.

increase the load of the Ministry of Higher Education and threaten the internal and external efficiency of undergraduate health education.

Thus it is advisable that the Ministry of Higher Education should concentrate in the next five years on supporting the newly opened colleges, while studying the expansion in inauguration of new colleges in later stages based on well-planned strategies.

The Second Choice:

Increasing the admission capacity of the existing colleges

The existing health colleges are suffering from several problems due to the increase in admission in the last few years. The experts who participated in the study agreed that this affected the internal efficiency and one of the weak points of the health education system[1]. The existing health colleges in the last few years of imbalance between the infrastructure and the number of faculty from one side, and the number of students from the other side, especially with the faculty drain out, are complaining from the pressures of increasing admission. This will negatively affect the internal and external efficiency and increasing the admission capacity should be attained through enhancing human and financial resources, supporting the infrastructure and development and improvement of administrative and academic environment.

The Third Choice:

Giving more opportunities for the private sector to contribute to health education.

The inability of governmental health education to meet the needs of the job market from one side and the rising demands resulting from the increasing numbers of high school graduates from the other side, it is imperative that the private sector should effectively venture into the undergraduate health education as in many countries of the world, and this

[1] Refer to Chapter 1.

is in compliance with the directions of the Ministry of Economics and Planning in the 8th Development Plan[1]. Therefore, the Ministry of Higher Education should concentrate on developing and supporting the role of the private sector in education, and should consider it as a partner and complementary for governmental education. But this is sometimes a risky choice depending on the ability of the Ministry to control the quality and the outcome efficiency of these institutions. The Royal approval for establishing the National Commission for Academic Accreditation and Assessment on 1424 H/2003 G is probably one of the supporting elements for the adoption this choice. One of its tasks is to setting the rules, standards and conditions of academic accreditation, in addition to the assessment of educational programs for the sake of developing them, and the adoption of disciplines suitable for the job market. Therefore, it is necessary for the adoption of this choice is to embrace the commission and pave the way for imposing its rules on all colleges. This also includes setting the criteria for study plans, admission, teaching tools, faculty training and infrastructure. The commission also should adhere to the reevaluation of colleges periodically and freeze the admission in noncompliant colleges.

Enhancing Choices for Admission:

There are a number of choices that cannot be considered as strategic solutions for problems under study, but they could support the admission system of undergraduate health education. These include:

1. **Increasing Missions Abroad**:

   The missions to universities and institutions abroad may contribute to increasing the admission capacity of undergraduate health education provided that these missions should be to advanced countries.

[1] The 8th Development Plan, Ministry of Economics and Planning, Kingdom of Saudi Arabia, pp. 444.

Since a missionary student costs three fold a student enrolled in governmental higher education institutions, it is advisable to concentrate on missions for postgraduate studies to support the transfer of rare specialties to the Kingdom, and to strengthen the scientific ties between the Kingdom and other countries well- developed in the health field. Regarding the mission abroad for the Bachelor degree, it is recommended to be domestic to non-free health colleges. A study pointed out that a scholarship missionary student to one of the private higher education institutions costs the government half the cost incurred for a student in the governmental institutions. This also will constitute a form of support financially and morally to the private sector.

2. **Colleges for Basic Medical Sciences**:

The health colleges, particularly the new ones, are suffering from the shortage in faculty members in basic medical specialties such as anatomy and physiology, etc. One of the solutions to abolish this problem and to prevent duplication is the establishment of colleges to teach basic medical sciences in major cities (Riyadh, Jeddah and the Eastern province). These colleges will receive students from allover the Kingdom, then go back to join their respective colleges after completing the basic science requirements where these colleges emphasize the clinical training only. This solution seems suitable especially with the expansion in inauguration of new health colleges. Although this idea may greatly help in increasing the admission capacity of health colleges, it needs to be scrutinized prior to implementation.

3. **University for Health Sciences**:

One of the problems of health colleges is that these colleges are within universities encompassing a wide spectrum of disciplines. The bylaws and regulations are applied

to all of these colleges without considering the privacy of some of these colleges. Generally, the decision makers in these universities do not belong to health specialties. Also the budgets devoted for universities by the government include the budgets of health colleges and university hospitals which are in need for large budgets, but budget allocation within the university may not take this privacy into consideration.

The establishment of universities devoted to health education may contribute to solving many of the problems the health colleges are suffering from, and would strengthen the internal efficiency and raise admission capacity. This idea needs to be thoroughly studied prior to implementation following a trial period in one of the major cities such as Riyadh. In case this project was adopted, the idea of establishing a college for teaching basic medical sciences mentioned in paragraph 2 would be necessary.

Enhancing Choices to Satisfy Job Market Needs:

There are many thoughts about shortening the period of training and the preparation of health practitioners for the job market that should be carefully studied. These include:

1. Shortening of the period of studying medicine and strengthening postgraduate programs.
2. Multiple points for starting the study in health colleges. In the presence of a track (pathways) for high school students, it is possible to devote another track for Bachelor degree holders through a special program with less years of study as the case in North America. This option was applied in the College of Medicine, University of King Saud Bin Abdulaziz, affiliated with the National Guard in Riyadh. Consequently, the health colleges can attract mature students with Bachelor degrees in specialties not needed anymore by the job market. This idea was discussed for medicine and dentistry in chapter four.

Recommendations:

To enhance the admission capacity of undergraduate health education system while avoiding negative impact on the performance and efficiency of this system, it is recommended to adopt the following strategies:

1. Supporting the newly established colleges financially and administratively and furnishing them with the necessary infrastructure to enable them produce more graduates.
2. Supporting the existing health colleges through modifying the admitted number of students to render the (student : teacher) ratio compliant with the international standards, in addition enhancing the financial and human resources, support the infrastructure and developing and improving the administrative and academic environment to increase the admission capacity. It is important to pay attention that the increase in admission capacity should not compromise the efficiency and performance of these colleges.
3. The expansion in the inauguration of health colleges through a well designed plan that specifies the time and location to achieve balance between regions of the Kingdom, the specialty of the college and the sponsor (Ministry of Higher Education or private sector). Standards and criteria should be set prior to inauguration of any new health college (governmental or private) to guarantee success.
4. Giving the private sector the chance to open more health colleges within the framework of the previously mentioned expansion plan and academic conditions and criteria.
5. The independence of the National Commission for Assessment and Academic Accreditation in practicing its jurisdictions for setting the rules of accreditation and

assessment and imposing them on all health colleges either governmental or private, and suspending the admission in noncompliant colleges. Chapters 3 and 4 of this study covered a great part of assessment and accreditation criteria.

6. The Bachelor degree should the minimum requirement of qualification in the nursing profession. The priority should be given to establish new nursing colleges. In addition, those who have less than the Bachelor degree in nursing should be allowed to pursue their education towards the Bachelor degree (Bridging).
7. Enhancing scholarship missionary programs in health related disciplines to universities and colleges locally and abroad. The missions abroad should be for postgraduate education and the local missions are for the Bachelor degree to private health colleges.
8. Studying all ideas previously mentioned in "enhancing choices for admission and satisfying the job market needs" paragraphs.

II. Training Sites

Current Situation:

The presence of the appropriate practical training is critical for health colleges. A quick look at health colleges affiliated with the ministry of Higher Education reveals that universities that have teaching hospitals are: King Saud University, King Abdulaziz University and King Faisal University in Dammam. Whereas the health colleges in Umm Al-Qura University, King Khalid University, Jazan University, King Faisal University in Al-Ihsa'a, Al-Qaseem University, Taibah University and Al-Taif university depend on the Ministry of Health hospitals or other governmental sectors hospitals such as the Ministry of Defense and Aviation, and Security Forces hospitals for training their students. It worth mentioning that universities that have their own hospitals are still sending their students -in certain occasions for certain purposes- for training in health institutions affiliated with various ministries. It is not a secret for all that the Ministry of Health hospitals are not fully qualified for students' training and they do not have student services. In addition, the health institutions affiliated with the Ministry of Health are resenting students' training and considering it as an extra burden over their regular duties of providing health care. Also the Ministry of Health currently has many intermediate health colleges and institutes, and a college of medicine which lead to filling all training sites in their hospitals.

It worth mentioning that the experts participating in the analysis of the present-day situation considered that the lack of coordination between various health sectors in the field of health training and education is one of the points of weakness in the health education system.

International Experiences:

1. University teaching hospitals:

Majority of medical schools all over the world established their own teaching hospitals as main training sites for their students. However there are many limitations for training in the teaching hospitals.

1. The problems seen in the teaching hospital represent low percentage of the prevailing heath problems in the community at large. This will limit student's training to few heath problems.
2. Changing heath problems to chronic diseases and mental heath problems are mainly seen and can dealt properly at the primary heath care level.
3. The fast move towards short hospital stay and one day care avail less patients to student training.
4. The kind of heath problems which are mainly at ate stage or very sick patients are not suitable for student training.

Therefore many institutions thought of alternative training.

2. Community-based education:

CBE consists of learning activities that utilizes the community extensively including primary and secondary heath care institutions, community heath organizations, and the community at large as learning environment in which not only students, but also teachers, members of the community and representative of other sectors are also involved in the educational experience (WHO 1978).

Many heath professions education all over the world are actively involved in CBE by availing large portion of their curriculum for students to be trained in the community. Example:

Institution	Percentage of time for student training in the community
Harvard University USA	60
Primary Care Curriculum New Mexico Albuquerque USA	50
University Sains Malaysia	20
Community-oriented Primary Care University of North Carolina USA	15
University of New Castle Medical School Australia	15
Faculty of Heath Sciences Linkoping University Sweden	15

Evidence are accumulating that training student in the community resulted in major impact on the quality of training by a availing heath professionals who are well prepared to choose a relevant general specialty which is required by the heath system and pore prepared to work in under serviced areas in addition it brings many advantages to the participating institutions in local and international recognition in addition to strong partnership with the heath system and the community.

Britain: An additional budget was allocated to each health institution for the cooperation with health colleges in students' training.

Britain and United States: Providing financial and moral incentives to health professionals affiliated with hospitals in case they participated in training students, and

in return, the faculty is given an additional reward when providing therapeutic services in hospitals.

3. **Rural heath training:**

   To respond to the problem of the severe shortage of heath professionals in rural areas many countries responded to this by training students in rural areas. For instance in Australia the Australian medical council asked each medical school to establish a rural school. Each student should spend at least six month in this rural site. The government avail a budget of 5m Australian dollars to each medical school to establish its rural school. Some Canadian and North America universities started a rural residency training courses.

Strategic Choices:

The study of the present-day situation makes it imperative to the Ministry of Health to attempt providing suitable opportunities and training sites for health colleges.

The available choices in this field are:

1. Building a university hospital to each university that has health colleges.
2. Making use of Ministry of Health hospitals.

The First Choice: Building a university hospital to each university that has health colleges:

No doubt that one of the most advantages of this choice is the complete domination on the educational hospitals and surmounting all obstacles that hinder the educational process except that the financial and operational requirements for this choice make it difficult to pursue as a strategic solution for the current problem of health education. Nevertheless this

choice still feasible on the long run and the feasibility study for spending on these projects is necessary.

Purchasing some suitable private hospitals to be utilized as teaching university hospitals for new colleges can be achieved. This solution has the advantage of being a quick solution, though it can be costly since there are in most of the intermediate and large-sized cities private hospitals suitable for such purpose even temporarily until proper university hospitals are built by the Ministry. In case of future colleges, a hospital should be established as soon as the college is approved to make it ready for students upon reaching the clinical stage.

Pointing out the administrative and operational loads for the university hospitals will consume time and effort of the faculty. It is possible to get rid of the administrative and operational loads through vesting this responsibility to hospital-operating firms provided that the first mission of these hospitals is the support of educational process in all university health college, and its administrative council should include the deans of health colleges in the university.

Second Choice: Making use of Ministry of Health hospitals:

The utilization of Ministry of Health hospitals primarily and the hospitals of other governmental health sectors that provide health services, such as the Ministry of Defense and Aviation, Ministry of Interior and the National Guard, seems more practical than establishing new university hospitals and less expensive. But the Ministry of Health will not be enthusiastic to this option since it will add more burdens. Also these hospitals are not equipped to train students since they do not have students' services as well as the difficulties facing the process of coordination.

The strategic solution for this particular problem is the establishment of a higher authority to organize the health education process and let's dub this authority the name "The National Commission for Health Education". The commission should encompass health education-related ministers and should be directly affiliated with the royal court to make its decisions powerful and mandatory. The main task of the commission is to lay down the appropriate regulations and bylaws in order to establish strong institutional ties between health sectors (governmental and private) from one side and undergraduate health education institutions on the other side for the common use of facilities and qualified personnel. One of the solutions that the commission should adopt is the coordination with the Ministry of Finance to allocate an additional budget for each health institution for the cooperation in education as the case in Britain. The determination of country's needs of health specialties can be entrusted to this commission so that it has the power to force undergraduate health education institutions in the country to open the most needed specialties or terminate not needed specialties. The tasks of academic accreditation and assessment can also be attributed to the commission.

If we combine the idea of utilizing Ministry of Health hospitals with the idea of establishing colleges for teaching basic medical sciences (discussed in the previous section) then the obstacles facing the inauguration of new colleges of medicine will diminish.

Recommendations:

For making appropriate training opportunities and outlets available to health colleges, it is recommended to adopt the following strategies:

1. Establishing the National Commission for Health Education to coordinate health education between concerned parties in order to create institutional relationship

between the Ministry of Higher Education and various health sectors for the full utilization of their hospitals in the educational process.

2. Allocating an additional budget to each health institution for their cooperation in education and training. This budget is decided by the National Commission for Health Education.
3. The stage-wise establishment of university hospitals.
4. Entrusting the administrative and operational tasks for university hospitals to hospital-operating firms provided that the priority mission of these hospitals is the support of the educational process in all university health college, and its administrative council should include the deans of health colleges in the university.

III. Financing Higher Health education

Despite the fact that there is a track devoted to university funding in the AAFAQ project, we will briefly review some aspects that haunt those who are in charge of health education. Saudi universities depend primarily on the subsidies of governmental funding. The experts participating in this study agreed upon considering the governmental support for health colleges is one of the gaps that should be bridged in the future. Currently, the governmental funds may not go hand in hand, on both the qualitative and the quantitative levels, with the philosophy of health education, especially for new health colleges. This might affect the commitments of these colleges towards their set objectives.

Article 53 of the Higher Education and Universities Council regulations states that the revenues of each university should be as follows:

a. The funds allocated to the university in the governmental budget.
b. Donations, grants, wills and endowments.
c. Property revenues and their resulting deals.
d. Any revenues resulting from conducting research projects, studies or scientific services for others.

From this, it is evident that the government does not favor that the governmental support becomes the only source of funding for the universities. However, the other resources allowed by regulations do not currently constitute a generous income that helps universities fulfilling their commitments, especially towards the intrinsically expensive health education.

The increasing interest to join health colleges and the rise in expenditure on their students represent a heavy burden on the country's budget. Therefore, there is an urgent need to find

new funding resources for undergraduate health education to contribute to its promotion and efficiency, and to decrease the burden on the country's budget.

In this respect, it worth mentioning that the current financial and administrative systems are too complex and the experts participated in this study agreed upon considering "the centrality of decision making" and "inflexibility of financial articles" constitute a gap that should be bridged in the future.

The study of the current situation makes it imperative to the Ministry of Higher Education to seek ways to increase funding for health colleges. The available choices in this respect are:

1. Increasing governmental funding.
2. Self-driven funding.
3. Societal funding.

Governmental Funding:

The governmental funding for universities is still the main income in the Kingdom of Saudi Arabia which is the case in most Asian and European countries. The economic flourishing the kingdom is enjoying is considered one of the biggest opportunities for developing higher education and since the decision maker represented by the Minister of Higher Education is convinced of designing a future plan for the development of higher education in general and health education in particular. Therefore, it is necessary to support the project financially especially in its first stages. It is also necessary to reiterate the importance of revising the financial and administrative regulations to make them flexible and decentralized to assist and support the educational process.

Still to mention that the governmental funding largely depends on oil revenues that were and still susceptible to oil market fluctuation, which in turn makes the financing of education susceptible to similar fluctuations.

Self-driven Funding:

Self-driven funding is probably one of the important tributaries for governmental funding to cover the commitments of health colleges, however it may not be the main or the alternative source since the government assumes the responsibility of providing free education and health care. The development of health colleges in the next 25 years greatly depends on their ability to augmenting their own resources. Of the ideas in this regard is imposing some reasonable fees on students and beneficiaries of diploma programs, training and continuing education programs, also imposing some fees for services provided by health colleges' facilities such as hospitals, dental clinics and laboratories as well as the provision of health services to those who are covered by health insurance, etc, in addition to investing productive activities based on ideas and innovations of health colleges' faculties in medical fields, and drug discoveries and biotechnology with high returns and commercial revenue, etc.

Societal Funding:

The societal funding might not be the main source of funding for health colleges, but it may be one of the important tributaries for governmental funding. Of the ideas in this respect is the mutual exchange of expertise with the private sector, the contribution of the private sector in funding scientific research centers, programs, installations and health equipments for moral rewards. Adopting the concept of educational grants and scholarships in universities sponsored by individuals or society institutions. Establishing

national funds to support health education. The coordination with the Ministry of Endowments for the utilization of available endowment facilities, or accepting endowments from rich donors.

Recommendations:

1. Increasing the governmental funding to cover the budgets of health colleges, especially in the first stages of plan execution, and preparing an appropriate system that ensures the fast and effective handling.
2. Establishing a modern administrative and financial system that depends on flexibility and decentralization to assist and support the educational process such as expanding the jurisdictions of health colleges and educational hospitals administratively and financially.
3. Exploring opportunities to find other financial resources for governmental educational institutions, and setting bylaws that give the universities the opportunity to search for various funding resources to cover their commitments.

IV. Internal Efficiency

The competence of faculty, the level of study plans and programs and the efficacy of administrative system for universities and health colleges are considered of the most factors that influence the internal efficiency of health colleges. Also the overburdening of the health colleges above their standard capacity is considered one of the direct causes for the reduction in efficiency.

Chapters 1,3 and 4 covered important aspects of probing the current situation, international trends and possible choices for the development of internal efficiency of health colleges. Here are some recommendations in this respect:

Recommendations:

1. The health colleges should monitor the performance of graduates subsequent to their graduation, their scientific level and professional qualification, and the points of strength and weakness to benefit from them in rectifying and developing curricula and study plans.
2. Amending regulations and bylaws controlling faculty affairs including incentives and salaries to make health education institutions attractive to distinguished cadres and leaderships, and to motivate development and innovation while considering the privacy of health colleges[1].
3. Increasing the number of faculty members of both sexes to achieve a ratio of (teacher : student) comparable to that of the international standards.

[1] Experts participating in the analysis of the present-day situation have considered poor salaries and incentives for faculty is one of the major points of weakness in the undergraduate health education system. They also considered that the outward flow of faculty is one of the major risks that threaten health education. (Refer to the SWOT analysis in chapter 1).

4. Emphasizing the quality assurance of faculty through the provision of ways for competencies and knowledge development, and subjecting them to perpetual assessment and follow-up. (Refer to the recommendations in chapter 3 and 4)
5. Furnishing an academic environment supportive of distinction, creativity and innovation for faculty, and setting the necessary basis for this within the framework of academic accreditation criteria.
6. Furnishing an educational and training environment supportive and encouraging to students of both sexes, while considering the special needs of female students and their social circumstances. (Refer to the recommendations in chapters 1 and 3).
7. Updating the infrastructure of the existing undergraduate health institutions to keep pace with developments in information and communication technologies and employing them in the administration of undergraduate health institutions and academic programs in terms of syllabus and teaching methods and assessment. (Refer to the recommendations in chapters 1 and 3).
8. Taking into partnership the student and the society and taking into consideration their needs in health education process and related activities. (Refer to the recommendations in chapters 1, 3 and 4).
9. Providing the appropriate work conditions for female faculty to enable them reconcile between their profession and their family commitments in order to minimize attrition. The Ministry of Civil Services should review the bylaws dealing with the woman's work in the health field to enable her between her attune work and family duties.

Executive Recommendations

The study team recommended the implementation of the future plan for the undergraduate health education through a program of several stages to safely and confidently achieve objectives in a practical and well-studied way. The first and second stages are major stages in the implementation. The stages are as follows:

The First stage (Basic pivots in the implementation of the future plan):

Its duration is three years and includes:

1. Establishing a deputyship in the Ministry of Higher Education to manage and execute the strategic plan, with executive administrations affiliated to this deputyship and one of them is specialized in health education affairs. Each university (governmental or private) should establish a coordination office with this deputyship for follow-up to report the progress, development and obstacles facing these universities.
2. The National Commission for Academic Accreditation and Assessment should determine the criteria and standards related to study plans, admission capacity, educational environment, qualifying and training of faculty and the infrastructure. (Refer to recommendations in chapters 1,3 and 4).
3. Establishing the National Commission for Health Education which should be directly linked to the royal court. (Refer to recommendations suggested in this chapter).
4. Establishing a unified and integrated system of information in the National Commission for Health Education, and establishing a network that connects all university or non-university health sectors and facilities in order to make information available quickly, accurately and easy to exchange, as well as

furnishing a comprehensive and integrated information database. This could be one of the tasks of the Ministry of Higher education.

5. The National Commission for Health Education sets appropriate regulations and bylaws to establish a strong institutional connection between health sectors (governmental and private) from one side and undergraduate health education institutions on the other side to make use of facilities and qualified competencies in both sides.
6. Amending regulations and bylaws that control faculty affairs including incentives and salaries to make the health education institutions more attractive to distinguished cadres and leaderships, and to motivate development and creativity while taking into consideration the privacy of health colleges.
7. Establishing a modern administrative and financial system that depends on flexibility and decentralization to assist and support the educational process.
8. Increasing the governmental funding to cover the budgets of this stage and the next stage, and preparing the appropriate organization that insures fast and effective handling.
9. Supporting the recently emerging colleges financially and administratively, and building their necessary infrastructure.
10. Devising a detailed plan for expansion in the inauguration of health colleges that specify the time and location to achieve the balance between regions of the kingdom, the college specialty and who is responsible for its establishment (the Ministry of Higher Education or the private sector). Also setting the measures and conditions that insure the success of any health college prior to its inauguration provided that no governmental colleges should be inaugurated within the first and second stages.

The second Stage (Developing Educational Environment and Study Plans):

The duration is five years. Some of the items of this stage can be started prior to the end of the first stage. This stage includes:

1. The National Commission for Academic Accreditation and Assessment imposes its conditions on all health colleges, governmental and private. The health colleges in this stage should be committed to revising health education programs and study plans according to the criteria approved by the commission. The commission should periodically reassess health colleges at the end of this stage and should suspend admission to colleges that do not comply with set criteria.
2. Furnishing an academic environment supportive of distinction, creativity and innovation for faculty as well as establishing the necessary basis for this within the criteria of academic accreditation. (Refer to recommendations in chapters 1 and 3).
3. Furnishing an educational and training environment supportive and encouraging to students of both sexes, while considering the special needs of female students and their social circumstances. (Refer to the recommendations in chapters 1 and 3).
4. Updating the infrastructure of the existing undergraduate health institutions to keep pace with developments in information and communication technologies and employing them in the administration of undergraduate health institutions and academic programs in terms of syllabus and teaching methods and assessment. (Refer to the recommendations in chapters 1, 3 and 4).
5. Taking into partnership the student and the society and taking into consideration their needs in health education process and related activities. (Refer to the recommendations in chapters 1, 3 and 4).

6. Emphasizing the quality assurance of faculty, and subjecting them to perpetual assessment. (Refer to the recommendations in chapters 1, 3 and 4).
7. Establishing a health education unit in each health college where the task of this unit is taking care of health education in terms of development, revision and research.
8. Increasing the number of faculty members of both sexes to achieve a ratio of (teacher : student) comparable to that of the international standards.
9. Modifying the numbers admitted to colleges according to suggested criteria. (Refer to the suggestions in chapters 3).
10. Setting the necessary bylaws to encourage scientific research activities, and increasing its support and raising its level.
11. Finding other financial resources to governmental health institutions, and setting bylaws that regulate this issue.
12. Giving the private sector the opportunity to inaugurate more health colleges within the framework of the expansion plan that was devised in the first stage.

The Subsequent Stage(s)

These include:

1. The expansion in the establishment of new colleges according to the suggested plan.
2. The universities and the National Commission for Academic Accreditation and Assessment assume monitoring the latest developments of successful health education in the experiences of other countries.

3. Keeping pace with information and communication technologies and employing them in the administration of undergraduate health education institutions and academic programs.
4. Expanding and diversification of nongovernmental financial resources for educational institutions.
5. Following up the job market need in the governmental and private sectors, pinpointing the country's needs of health specialties and handling in the universities resources accordingly. This task can be entrusted to the National Commission for Health education in coordination with Health Services council and other related authorities where governmental and private health education institutions are forced to create the specialties most needed by the market and to terminate or reduce the specialties in which self sufficiency was achieved.
6. The Ministry of Higher education should continue the necessary steps to place the Saudi universities on the leading front of international universities in health education.

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