American University of Beirut

Medicine Strategic Plan

Draft

August 2007

Deep Roots, Endless Skies
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Process

The Medicine strategic planning process was launched in response to the University-wide strategic planning initiative.

The State of the University address by President John Waterbury in February 2004 was used as a ‘launching pad’ to introduce and develop the strategic planning process for Medicine. The strategic planning steering committee for Medicine, appointed by the Vice President for Medical Affairs and Dean for the Medical Center, started meeting as of June 2005. Upon his request, 5 year plans were collected from the 18 academic departments and from various hospital departments. Relevant data were collected between January and June 2006. Meetings were scheduled regularly and the WebCT was used as a tool for communication and reference. Because of the complexity of Medicine, several additional sub-committees were formed to address different functions of the medical school and medical center. There were 23 strategic planning groups with 189 members/106 individuals that looked into the three major areas of importance: Research, Education, and Patient Care.

Members of the different groups which included physicians, nurses, basic scientists, researchers, and non-academic leaders worked together to come up with innovative and practical ways to chart the future of education, research, and patient care at the Faculty of Medicine and the Medical Center. The process started with self assessment in a way that makes the Faculty of Medicine and the Medical Center remain engaged in self assessment and introduce the necessary changes that will keep the Faculty of Medicine and the Medical Center on target with their mission, vision and goals.

This draft integrates the various reports and inputs from the various committees. The financial analysis presents the additional expenditures needed and defines the revenue streams that would support the plan. This section is being refined with input from MedLink, a costing software installed in 2006. The sections on Governance, Devolution and Development are not included in this draft.

It is assumed that AUB will continue supporting Medicine’s Capital needs by:

- funding Medicine’s annual capital budget at a level no less than its depreciation and amortization expense (“renewal & replacement”)
- providing funds from FM/AUBMC restricted endowment income and its share from the university endowment income
- providing Medicine’s share of ASHA/USAID contributions
- funding through gifts, grants, and philanthropy
- funding through targeted donations realized through the support of the Development Office
- funding through: a) bank loans for revenue generating equipment (such as for an MRI), b) through lease/purchase agreements with vendors, or c) revenue sharing agreements with vendors
Major Categories

- Education
- Research
- Patient Care

<table>
<thead>
<tr>
<th>Major functions analyzed</th>
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<tbody>
<tr>
<td>Education</td>
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<td>Research</td>
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<td>Accreditation</td>
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<tr>
<td>Best Practices in Clinical Medicine</td>
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<td>People Excellence</td>
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<td>Enabling Facilities</td>
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<tr>
<td>State-of-the-Art Technologies</td>
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<td>Best Client Services</td>
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<td>Marketing</td>
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</table>
Strategic Planning reports were received from the following committees and sub-committees:

- **Education sub-committees**
  - Medical Education
  - Post Graduate Clinical Training Program
  - School of Nursing
  - Saab Medical Library
- **Research sub-committee**
- **Patient Care sub-committees and individual entities**
  - Clinical Services (Laboratory, Radiology, Radiation Oncology)
  - Critical Care
  - Emergency Service
  - Environmental Health and Risk Management
  - External Programs / Development and Marketing
  - Facilities Planning and Plant Maintenance
  - General Services ( Dietary, Laundry)
  - Human Resources
  - Information Technology
  - Material Management / Purchasing
  - Multidisciplinary Programs
  - Nursing Services
  - Operating Rooms
  - Outpatient Services
  - Pharmacy
  - University Health Services

In addition, Five Year Plans were obtained from the following clinical and academic departments:

**Clinical Departments**
- Anesthesiology
- Dermatology
- Diagnostic Radiology
- ENT-Otolaryngology
- Family Medicine
- Internal Medicine
- Laboratory Medicine and Pathology
- Obstetrics and Gynecology
- Ophthalmology
- Pediatrics
- Psychiatry
- Radiation Oncology
- Surgery

**Basic Science Departments**
- Biochemistry
- Human Morphology
- Microbiology
- Pharmacology
- Physiology
Medicine’s Strategic Goals - Summary

1. Strengthen the professional, graduate, and post-graduate medical education and training programs

2. Ensure scientific excellence and innovation in research

3. Admit students with diverse skills and potentials from all undergraduate Faculties and disciplines and with diverse social and geographic backgrounds to graduate people with multiple potentials and careers

4. Establish a proper balanced mix of primary, secondary, tertiary and quaternary medical care

5. Continue to be accredited by local governmental and international accreditation agencies

6. Excel in providing patient-focused, disease-specific, outcome-oriented, and friendly medical care

7. Provide the workload, infrastructure and facility required to recruit and retain physicians, nurses, and administrative staff committed to excellence

8. Provide good facilities and create an optimal environment of health care and services for patients, physicians, students and staff

9. Achieve financial sustainability through growth, best practices, and other operational improvements

10. Continue to be a leader provider of services in Lebanon and the region by transferring and marketing new technologies that make a difference to patients and other institutions
1 – Education
EDUCATION

1. Education at the Faculty of Medicine
   This section summarizes the reports of the following sub-committees:
   • Medical Education
   • Post-Graduate Clinical Training Program
   • School of Nursing
   • Saab Medical Library (SML)

1.1 Education Mission
   To provide students and trainees with an excellent base of knowledge and skills that integrates basic, clinical, and social sciences in health care education, and to promote high professional standards, enthusiasm for life-long learning and research, and commitment to humanistic and ethical care.

1.2 Major Accomplishments in Education

1.2.1 Education towards the Medical Degree
   • Developed and tested a structured admissions interview to assess the non-cognitive, personal qualities of medical school applicants
   • Mapped the curriculum to identify areas of repetition and redundancy
   • Introduced Problem-Based Learning (PBL) and Evidence-Based Medicine (EBM) into the curriculum
   • Developed a new expanded course in medical ethics in Year 3
   • Hired a medical ethicist to help develop a longitudinal medical ethics curriculum
   • Adopted new online evaluation forms for students to assess courses and instructors
   • Adopted policies for examination, grades, and academic integrity
   • Increased the number of enrolled students from 279 in 1998-1999 to 312 in 2006-2007 (females increased from 21% up to 45%)
   • Increased financial aid allocations and bank loans to students
   • Appointed Assistant Dean for Medical Education and established a Medical Education Unit
   • Organized workshop series for faculty on curriculum development, evaluations, and student assessment
   • Developed live and web-based tutorials and increased e-resources to accommodate PhD programs in Saab Medical library (SML) which became a Hybrid Library (virtual and traditional library)
   • Launched a joint MD-PhD program with the Medical University of South Carolina (MUSC)
   • Established a taskforce to develop a system for recognition, reward and compensation of faculty for their educational contributions
1.2.2 Education towards Post-Graduate Medical training and specialization

- Appointed Assistant Dean for Graduate Medical Education
- Established the Graduate Medical Education Committee (GMEC)
- Drafted policies and procedures that comply with ACGME standards
- Assisted departments in establishing residency committees and residency related policies
- Established and streamlined an electronic evaluation system for all postgraduate residency programs
- Established a taskforce of program directors to write competency based curricula for residency programs
- Established affiliations with other hospitals, notably Rafic Hariri University Hospital, Ain-Wa-Zein, and Makassed, to augment the postgraduate training opportunities.

1.2.3 School of Nursing (SoN)

- Revised the Registered Nurse-Bachelor of Science (RN-BSN) and BSN curriculum
- Launched the Masters of Science (MSN) program with two tracks: adult care and nursing administration
- Registered the revised BSN and new MSN programs at the Department of Education of the State of New York
- Achieved accreditation for BSN and new MSN programs by CCNE (June 2007)
- Revised the SoN organizational structure and its By-Laws
- Developed new site for SoN building. Partial funding was received from ASHA
- Started SoN fundraising and marketing strategy in Lebanon and internationally
- Joined the Association of Arab Nursing Faculties as associate member
- Active recruitment campaign for PhD-prepared faculty and visiting professors
- Increased scholarly activities by the faculty
- Held the centennial international scientific conference, public lectures, workshops, and commemoration ceremony in 2005
- SoN is helping develop the Al Mana’a College of Health Sciences in Saudi Arabia
- Signed Memorandum of Understanding with Dubai Health Care City
- Signed Statement of Intent with Johns Hopkins University SoN in 2005

1.3 Education Vision

To nurture an environment of excellence for the medical and nursing education and training programs at the FM, in order to provide students and trainees with the means to become highly knowledgeable, skilled, well-cultured, and ethical health care professionals.
1.4 Education Goals

1.4.1 Education towards the Medical Degree

Goal 1: Review student admission requirements with the aim of maintaining the high quality of entering students, assuring a vibrant diversity of educational, social and geographic backgrounds and talents, and accepting applicants with the desirable personal attributes for a career in medicine.

Students currently admitted to AUB-FM have high academic standards and achievement. These students are, in general, active in social and academic areas, and are involved in international committees on medical education, research, and social and exchange programs. The pre-medical requirements for entry into the medical school comply with the requirements of the Education Department of the State of New York and are designed to cover a minimal amount of credits that can allow students with a diverse educational background to apply. However, students in Lebanon enter the sophomore year of college undergraduate programs, and hence, the premedical curriculum is cramped into 3 years instead of 4, as in the US, and very few students from backgrounds other than biology and chemistry do apply.

The two specific objectives with regard to the admission to medical school are:

• Review the pre-medical requirements such that students are able to pursue a broad undergraduate education in the field of their choice, thus ensuring diversity of background and talents for medical applicants. It is hoped that this will translate into diverse career choices in the future.
• Modify the admission process to the medical school to ensure that both cognitive achievement and personal qualities and attributes of students are considered in the final selection process.

Goal 2: Review and restructure the medical education curriculum

The current curriculum, despite introduction of some innovations over the past few years, has not undergone a systematic re-examination for many years. Presently, there are several points of weaknesses in the curriculum when judged by the more recently accepted trends in medical education.

Areas of Weakness / Current Challenges / Basis for Improvements

• More emphasis on didactic, teacher-centered and information-gathering as opposed to active, student-centered and problem-solving approaches to learning. The result is that students are relatively deficient in skills required for life-long self-learning and critical thinking.
• Inadequate integration of the material taught in the first and second preclinical years leading to significant, poorly structured repetition and redundancy
• Inadequate integration of the basic with the clinical sciences throughout the 4 years of medical school
• Inadequate faculty training in some methods of teaching and assessment required for implementation of a progressive curriculum
• The diminishing number of funded beds at AUBMC that admit patients for care and clinical studies, and the shorter length of stay of patients have compromised the load of in-patient teaching cases in the clinical years
• Lack of a universal system for documenting, compensating and rewarding the educational contributions of faculty by monetary or non-monetary rewards
• Deficient teaching in ethics and professionalism
• Limited space for student small group learning and socializing

Specific Objectives of Curricular Restructuring
1. To re-address the learning objectives and outcomes for the preclinical and clinical years and formulate clear learning outcomes
2. To place more emphasis on active student learning as opposed to passive lecture-dominated formats (more case discussions, problem-based learning, independent learning)
3. To strengthen multidisciplinary and interdepartmental teaching rather than purely department- and discipline-based courses
4. To provide the student with early exposure to clinical medicine in the preclinical years
5. To place greater emphasis on developing the ethical, social and humanistic aspects of the practice of medicine (e.g., introduce courses in ethics, history of medicine, humanities, and arts)
6. To provide alternatives for clinical education to offset the impact of dwindling patient exposure and short hospital stays (e.g. relying on standardized patients, simulations, or use of the animal care facility for surgical training)
7. To explore alternative venues for basic science teaching (e.g. virtual microscopes and simulations) and clinical teaching (e.g. rotations in community hospitals and satellite facilities)
8. To provide experience in research in the basic or clinical sciences prior to graduation
9. To emphasize the development and teaching of skills, behaviors and attitudes relevant to medical practice (in addition to knowledge)
10. To develop and improve existing student assessment modalities to include the areas of knowledge, skills, attitudes and behavior (e.g., question formulations, observed structured clinical examinations, clinical performance assessment, formative evaluation, assessment of professionalism), and implement methods for their evaluation (establish validity, reliability of exams, and discriminating ability of questions…).
Restructuring Process
The process to revise the curriculum will be a stepwise approach beginning with a review of the current curriculum that will include input from faculty, students and administrators. Taskforces are created to address different aspects of the education process, such as content and type of curriculum to be adopted, student evaluation, teacher evaluation, needed resources, use of simulations or software where necessary, information technology, etc. A steering committee will design the new curriculum based on taskforce input and course design committees will set the specific course/rotation objectives and learning outcomes.

Space and Student Number Considerations
To accommodate the changing needs of education at the Faculty of Medicine requires optimal space and facilities. Space in the Diana Tamari Sabbagh (DTS) Building will be reconfigured to accommodate the new medical (and graduate) curriculum. It is envisioned that more teaching will be occurring in small groups and less emphasis placed on large lecture-based classes. Space for student lounges and study areas is limited and needs to be expanded to allow for a better educational and social experience. Classrooms and conference rooms will be fitted with comprehensive audiovisual equipment, state-of-the-art information technology and effective climate control. Computer laboratories will be developed in Saab Medical Library to serve as examination rooms and for student use.

The report of the Academic Reviewers (1999) and the financial analysis over the past years indicate that the optimal number of students to achieve maximal educational and financial efficiency at the Faculty of Medicine is 384 (96 student per class). The DTS Building was designed to accommodate up to 96 students per class, or a total of 192 students in the 1st and 2nd years.

The Faculty of Medicine has gradually increased the number of students entering the medical program from 75 to 85 students over the last 7 years, while maintaining their quality as evidenced by MCAT, standard scores and the number of distinction and high distinction students admitted. It is hoped that further increases, together with the revision of the pre-medical curriculum and the admissions policy, will achieve better diversity. (For example: there are 40 Saudi students taking special English and completing freshman to enter into the pre-med program at AUB. The first 6 may be ready to enter medicine in 3 years).

The current (2006-07) number of students in the MD program of the Faculty of Medicine is 320, the expected targets with time to reach capacity of 384 students are shown in Figure 1.1 - a.
**Targets in Education**

<table>
<thead>
<tr>
<th>Year (2003-2004)</th>
<th>Target (5 Years)</th>
<th>Target (10 Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD Program</td>
<td>300</td>
<td>352</td>
</tr>
<tr>
<td>Graduate Basic Science Program</td>
<td>50</td>
<td>70</td>
</tr>
</tbody>
</table>

(Regional mix / diversity)

Geographic and Social

- Post Graduate Trainees (no planned changes with time)

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<tbody>
<tr>
<td>Residents</td>
<td>235</td>
</tr>
<tr>
<td>Fellows</td>
<td>36</td>
</tr>
</tbody>
</table>

**Workload Considerations**

During the 3rd and 4th years of medical school, i.e. the clinical years, approximately half of the students at any point in time rotate in the Inpatient Services while the other half rotate in the Outpatient Services. Within the inpatient services, half of these students rotate on the private services, while the other part rotate on the non-private “ward” services. Analysis of bed capacity needed to provide the students with the required clinical portfolio and patient exposure is presented below. The distribution of students in the various services is shown in *(Figure 1.1 - b Determinants of Teaching Bed Capacity)*

**-The Inpatient Rotations:**

The desired workload per student is one new patient every-other-day throughout the non-private, “ward” rotations, which determines the current need for an overall 325 open beds, 107 for “ward” patients as demonstrated below:

1. One new patient, every-other-day during the “ward” rotations for 40 students (50% of 80 students rotating in the inpatient services) require 7,300 admissions to the ward service per year.
2. The current average length-of-stay for ”ward” patients is 5.4 days, and hence the total number of ward beds required is 107.

The ratio of private to ward beds currently needed for service mix, academic and financial sustainability is 2:1, making the total number of required open beds 321; this further provides the 40 students rotating on the private service (which currently admits around 12,500 patients per year) with the opportunity to care for almost one new patient per day during these rotations.
As we move to the target of 96 students, the desired number of ward patients will occupy 128 beds; and the total number of occupied private beds will be around 256, bringing the hospital total occupied beds to 384, which, at 90% occupancy, would require a 425-bed hospital. This is the capacity of the current hospital.

Analysis of patient admissions per physician at AUBMC over the last 7 years revealed that on an average each physician admits around 96 patients per year. Each physician therefore can fill one bed a year at the current physician’s mix and length of stay. Hence AUBMC needs to increase the number of physicians from 232 at present to around 425 as it reaches its target in 10 years. AUBMC currently cares for around 10% of the relevant patient pool in the greater Beirut area, and should tap on more, in addition to improving referrals from other parts of Lebanon and the region.

- The Outpatient and Emergency Department Rotations:
The annual workload of patient exposure per student is on the basis of one new patient per student per day, based on 190 working days\(^1\).
For the current number of students rotating in outpatient services (80 per year), 80 students x 190 effective working days = 15,200 new patients
At a ratio of new to follow-up visits of 1:2, this would result in **45,600 visits**
We currently satisfy this load.

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\(^1\) 190 days per year: as students are entitled to 2 months elective, one month vacation, and outpatient services are closed on holidays and weekends, whereas the Emergency Department is open all year round.
For the target number of students (96 per year),
96 students x 190 working days = 18,240 new patients
At a ratio of new to follow-up visits of 1:2, this would result in **54,750 visits**

The Master Plan recommended restructuring the Outpatient Department and moving it to the ground floor of Phase II building (for Medicine, Pediatrics, Surgery and Obstetrics); this will facilitate circulation and consolidate the services.

**Goal 3: Support and expand the Medical Education Unit** which will oversee the implementation of this plan - a necessary condition for success, with the long-term objective of establishing the unit as a center of excellence in medical education and as a resource for medical schools in Lebanon and the region.

The unit will be the custodian of the education program and as such it will have the responsibility of ensuring that the program conforms to contemporary concepts of learning, is supported by technological expertise, and undergoes periodic evaluation of objectives, content, teaching methods, student and teacher performance, and outcomes. The VP/Dean of the Faculty of Medicine and a biostatistician established the education unit in 2001. Currently the unit is run by the Associate Dean for Academic Affairs working closely with the Assistant Deans for Medical Education, Graduate Medical Education, and Student Affairs. Four administrative assistants support the work of this unit. The unit developed criteria for assessment of research output and for measuring % efforts spent by each faculty member in teaching, research, clinical service, and administration. A file for each faculty member is prepared to include the entire portfolio. The unit prepares the academic files of faculty members recommended for promotion. Further development of the unit will require recruitment of faculty with special interests in medical education and who will need training in the development and implementation of the medical curriculum, courses, evaluations, and assessments, and can engage in research in medical education.

**1.4.2 Education towards Post-Graduate Medical Training and Specialization**

The primary goal of the Post-Graduate Medical Education program is to improve the quality of house-staff training in the different specialties, including the ambulatory setting, and to comply with ACGME guidelines.

Many postgraduate training programs have been in existence since the late 1940’s and early 1950’s. They have graduated a large number of trained physicians and specialists who significantly improved the standard of practice of medicine in Lebanon and certain parts of the region. A significant number of these graduates chose their careers in the USA, and their successes gave the Faculty of Medicine at
AUB tremendous visibility within the best medical centers. These trainers provided a major pool of highly credentialed and specialized physicians who helped the AUBMC to staff itself even in the most difficult of times. More importantly, their track record enhanced the opportunity for graduates of the FM to compete successfully for residency and fellowship positions in the US and, to a much lesser extent, in Canada and Europe.

The residency and fellowship programs at AUBMC will assume a prime importance during the coming two to three decades. The region is in a phase of dynamic exponential growth; e.g., Saudi Arabia needs around 20,000-25,000 physicians but currently has only 5,000-6,000. The 60-year experience in post-graduate training at AUBMC puts it at an advantage for training of academic physicians for the region, and much more importantly, for helping the emerging schools of medicine and hospitals develop effective training programs.

Nevertheless, a number of weaknesses have been identified in our post-graduate training programs.

**Areas of Weakness / Current Challenges / Basis for Improvements**

- The clinical material for housestaff training purposes at AUBMC (especially in the surgical specialities) is generally becoming limited (as NSSF and MOH patient admissions decrease) and there is increasing reliance on private patients for such training
- Limited financial resources to care for indigent patients
- Inadequate support and ancillary services (phlebotomy, clerical, etc.) have lead to increased nonessential workload and paperwork on the house-staff
- Little protected time for faculty to concentrate on house-staff education and research
- Limited diversity in the residents nationalities

**Specific Objectives for the Post-Graduate Training Program**

1. To develop a database of each resident’s activities in each department and in the Dean’s Office. This also will help in measuring cost and quality of education
2. To comply with ACGME standards and obtain accreditation
3. To enhance off-site satellites and affiliations with institutions in the community that provide wide range of care for the indigent population
4. To recruit regional candidates into the programs
5. To enhance education in ambulatory setting (OPD revival)
6. To establish rewards that encourage faculty to engage in educational activities and improve teaching skills
7. To improve continuous medical education programs
1.4.3 Education in the School of Nursing

The strategic plan for the School of Nursing is presented elsewhere but the highlights of the school’s strategic goals can be summarized as follows:

1. Establish strong partnerships and effective collaborations with other providers of health care and education in Medicine, Nursing Services, and the Faculty of Health Sciences
2. Continue consultancy role in the region
3. Develop SoN research strategy with emphasis on programmatic research
4. Increase the potential for extramural funding
5. Recruit highly qualified national and international students
6. Raise funds for student scholarships and endowments
7. Introduce innovation in curricular offerings such as new MSN tracks, accelerated and bridging programs, clinical internships, electives, and on-line courses
8. Review regularly nursing curricula and bring them in line with national and international developments
9. Develop effective partnerships with US and European institutions
10. Recruit PhD-prepared and research-active faculty
11. Prepare to develop a PhD program in 10 years and define the required criteria that need to be fulfilled prior to its establishment
12. Achieve the status of a Faculty once the requirements are met (e.g., number of PhD-prepared faculty recruited, research output, number and quality of students enrolled, etc…)

1.4.4 The Graduate Programs in Basic Medical Sciences

Goal: Establish a PhD program that will surpass the current MS program in the basic medical sciences.

Achieving the above objectives is dependent to a large degree on strengthening the research endeavor of the faculty through the recruitment and retention of a highly credentialed cadre of faculty and established investigators who have mentored PhD students before and will be able to successfully compete for extramural funding. This will pave the way for establishing PhD and MD-PhD programs. Another requirement is the development of the physical and administrative infrastructure needed to support the research programs of these faculty members. Programmatic requirements also include establishing a visiting scholars/seminars program so as to give the PhD student adequate exposure, choice, and breadth. (See the general plan for establishing the PhD program under the section on “Research” within the Medicine Strategic Plan).
1.4 **Education Goals (Medicine)**

1.4.1 Review student admission requirements and maintain the high quality of entering students as well as assure a vibrant diversity of education background and talent

1.4.2 Review and restructure the medical education curriculum

1.4.3 Support and expand the Medical Education Unit

1.4.4 Establish a PhD program to replace or extend the current MS program in the basic medical sciences

1.4.5 Enhance and support residents’ education and training and obtain accreditation

1.4.6 Achieve and maintain accreditation for Nursing

1.4.7 Enhance the education programs for Nursing

1.4.8 Support marketing and fund raising for Nursing

1.4.9 Increase electronic accessibility of the Saab Medical Library (SML) and expand its role in education and research

1.5 **Education Initiatives**

1.5.1 Expand the Medical Education Unit with personnel and infrastructure in order to restructure the curriculum with the aim of enhancing critical thinking, professionalism, and self-learning skills

1.5.2 Provide opportunities for clinical and basic research to students and residents

1.5.3 Reconfigure space in DTS and SML to accommodate 10 new Discussion and PBL rooms

1.5.4 Expand the Medical Ethics course and program

1.5.5 Introduce innovative tools (simulations, web-based programs, plastination unit, virtual microscope) to supplement traditional teaching formats

1.5.6 Provide the venues and settings for the most effective and efficient clinical training for students

1.5.7 Enhance teaching and rotations in affiliated and satellite institutions

1.5.8 Introduce Professional Master Degrees in: Pharmacy, Orthodontics, Audiology, and Nutrition (up to five students per year for each discipline)

1.5.9 Automate the Exam Hall

1.5.10 Support the MD/PhD program with Medical University of South Carolina (MUSC)

1.5.11 Seek accreditation for post-graduate medical education from the American Council of Graduate Medical Education (ACGME)

1.5.12 Comply with ACGME standards even if accreditation is not successful

1.5.13 Establish rewards that encourage faculty to improve teaching skills

1.5.14 Achieve and maintain accreditation for Nursing by the Commission on Collegiate Nursing Education (CCNE)

1.5.15 Recruit PhD-prepared nursing faculty

1.5.16 Market the School of Nursing (SoN)
2 - Research
RESEARCH

2. Research

2.1 Research Mission

To advance the frontiers of research and expand the knowledge foundation of basic and clinical medicine that can better complement the teaching, healthcare, and public service missions of the Faculty of Medicine and AUBMC at the national, regional and international levels.

The strengths of the Faculty of Medicine in the area of research include the quality of the faculty and trainees, the well-equipped core research facilities, the establishment of the regulatory infrastructure and administration, the availability of intramural start-up funds, and the potential of the core facilities to become financially self-supporting. The availability of well-trained human power at affordable cost is a great asset. There are, however, some obstacles that have hindered progress such as the cost of research items/services and the time needed to obtain supplies that are significantly more than in the US. Although extramural funding increased steadily over the years, opportunities for large extramural grants and philanthropy remains limited (Figure 2.1). There is currently no PhD program that would attract high quality and motivated students and post-doctoral fellows. The small size of the five Basic Science Departments has lead to a slowed recruitment of new faculty with a strong track record in research and has also lead to shifting priorities, focusing more on curricular, didactic teaching rather than other essential activities of which research is paramount.

Figure 2.1 – Intramural and Extramural Research funds

<table>
<thead>
<tr>
<th>Year</th>
<th>Intramural</th>
<th>Extramural</th>
<th>Total</th>
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<td>1998-1999*</td>
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<td>1999-2000</td>
<td>342,622</td>
<td>153,219</td>
<td>495,841</td>
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<td>2000-2001</td>
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<tr>
<td>2001-2002</td>
<td>405,212</td>
<td>591,327</td>
<td>996,539</td>
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<tr>
<td>2002-2003</td>
<td>563,832</td>
<td>836,056</td>
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<td>2003-2004</td>
<td>522,234</td>
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<td>1,205,053</td>
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<tr>
<td>2004-2005</td>
<td>360,601</td>
<td>713,165</td>
<td>1,073,766</td>
</tr>
<tr>
<td>2005-2006</td>
<td>337,939</td>
<td>1,347,577</td>
<td>1,685,516**</td>
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*1998: a significant portion of the Core Facility became operational
**The previous report March 2007 showed $2,368,677 which included $1,039,100 that was transferred by Dr. Zaloua on his departure to LAU
2.2 Major Accomplishments in the Area of Research (1994-current)

- Created the regulatory and administrative infrastructure (Research Committee, Institutional Review Board, Environmental Safety Committee, Institutional Animal Care and Use Committee, and the Clinical Research Unit)
- Appointed Assistant Dean for Research and a team of established investigators in key leadership and administrative positions
- Secured a reliable source of intramural funds from the Medical Practice Plan
- Established and equipped the Core Laboratory Facilities. (*Figure 2.2*)

**Figure 2.2 The Core Laboratory Facility: 10-year Progress**

<table>
<thead>
<tr>
<th>Core Facility</th>
<th>1995-2000</th>
<th>2000-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Biology</td>
<td>Established</td>
<td>Significant expansion + automated sequencer + phospho-imager</td>
</tr>
<tr>
<td>Protein Chemistry</td>
<td>Established</td>
<td>Significant expansion + sophisticated separation equipment</td>
</tr>
<tr>
<td>Analytical Chemistry</td>
<td>Established</td>
<td>ICPMS + extraction equipment</td>
</tr>
<tr>
<td>Computational Biology &amp; Bioinformatics</td>
<td>Workshops conducted</td>
<td>Established</td>
</tr>
<tr>
<td>Patch Clamp</td>
<td>Upgraded to patch clamp from micropuncture</td>
<td>Maintained</td>
</tr>
<tr>
<td>Biological Imaging</td>
<td>Established: Confocal Microscopy and Video Imaging</td>
<td>Maintained</td>
</tr>
<tr>
<td>Tissue Culture</td>
<td>Established</td>
<td>Significant expansion + P3 facility under construction</td>
</tr>
<tr>
<td>Animal Care Facility</td>
<td>Plans for upgrading</td>
<td>Renovated and re-equipped to become compliant with AAALAC requirements</td>
</tr>
<tr>
<td>Clinical Research Unit</td>
<td></td>
<td>Established (Department of Internal Medicine)</td>
</tr>
<tr>
<td>Institutional Review Board (IRB)</td>
<td>Established</td>
<td>Expanded role of the IRB to process proposals from all over the University</td>
</tr>
<tr>
<td>Institutional Animal Care and Use Committee (IACUC)</td>
<td>Established</td>
<td>Became independent from IRB. Reviewed applications and monitored activities in the Animal Care and Use Facility</td>
</tr>
<tr>
<td>Bio-Safety Committee</td>
<td>Established</td>
<td>Maintained</td>
</tr>
<tr>
<td>Radiation Safety Committee</td>
<td>Workshops conducted</td>
<td>Established</td>
</tr>
</tbody>
</table>
• Achieved a significant improvement in quantity and quality of publications as judged by higher impact factor (Figure 2.3-a and -b) and citation index

Figure 2.3-a -- Journal Publications

Number of Publications from the Faculty of Medicine
from 1996-2006

Figure 2.3-a indicates the number of journal articles published by members of the Faculty of Medicine (excluding book chapters and books) that appeared from 1996-2006. The number of publications is shown above each bar and the caption below the graph shows the number of faculty members for each year and the publication per faculty member. Note that the Research Core Facility was established between 1995 and 1998.
Figure 2.3-b --Publications as a function of journal Impact Factor

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>19 (30)</td>
<td>38 (25)</td>
<td>36 (20)</td>
<td>45 (28)</td>
<td>25 (12)</td>
<td>34 (14)</td>
</tr>
<tr>
<td>0-2</td>
<td>29 (47)</td>
<td>79 (54)</td>
<td>86 (49)</td>
<td>57 (36)</td>
<td>111 (54)</td>
<td>125 (51)</td>
</tr>
<tr>
<td>2-4</td>
<td>12 (18)</td>
<td>27 (18)</td>
<td>33 (18)</td>
<td>37 (23)</td>
<td>51 (25)</td>
<td>58 (24)</td>
</tr>
<tr>
<td>&gt;4</td>
<td>3 (5)</td>
<td>5 (3)</td>
<td>21 (12)</td>
<td>20 (13)</td>
<td>18 (9)</td>
<td>28 (11)</td>
</tr>
<tr>
<td>Total**</td>
<td><strong>63</strong></td>
<td><strong>149</strong></td>
<td><strong>176</strong></td>
<td><strong>159</strong></td>
<td><strong>205</strong></td>
<td><strong>245</strong></td>
</tr>
</tbody>
</table>

* 1996: Pre-Core establishment
** Published by members of the Faculty of Medicine on work conducted totally or partly at AUB

Figure 2.3-b indicates the number and proportion of publications (% between brackets) from the Faculty of Medicine as a function of the journal Impact Factor from 2001 to 2006. Baseline year is 1996, which covers the work done prior to the establishment of the Core Laboratory Facilities. The ‘Impact Factor’ is a measure established by the Institute for Scientific Information (ISI) to denote the level of the Journals in which the article is published.

- Started building successfully a critical mass of investigators who can become PhD mentors (at least 10 are already on the faculty at present (2006-2007) out of 15-20 targeted researchers)
- Established measurable objective targets for research output and for promotion criteria
- Improved the quality and research output of the faculty being promoted in rank, particularly from Associate Professor to Professor, while the average rate of promotion remained fairly constant over the years (65%)

2.3 Research Vision

To ensure an environment of excellence in biomedical research and training that will complement the missions of education and patient care, and to grow into a regionally and internationally recognized center for basic and translational/clinical research.
2.4 Research Goals

The research goals of the Faculty of Medicine are to provide the opportunity for faculty members to achieve personal academic growth and ensure their participation in the advancement of biomedical sciences and to advance their careers and meet promotion requirements. Equally important is the need to provide the opportunity for students to be involved in original research, whether basic or translational/clinical.

The principal steps needed to achieve the research goals of the Faculty of Medicine will be to recruit highly credentialed faculty who will be able to successfully compete for extramural funding and pave the way for establishing PhD and MD-PhD programs in basic medical sciences. These faculty members should have mentored PhD students, maintained a steady quantitative and qualitative publication records and sustained their research through competitive funding. In addition to the 10 current faculty members already recruited, that can serve as PhD mentors, the Faculty of Medicine needs to recruit 10 more in five years (6 new and 4 replacement).

Consolidation of the Basic Science Departments into one department will greatly facilitate the attainment of these goals. The current Masters degree graduate program in basic medical sciences (46 students enrolled in 2006-2007) will need to be initially strengthened but it may need to be phased out over several years and be replaced by a stronger PhD program in biomedical sciences, which aims at attracting higher quality graduate students who demonstrate long-term commitment in the research enterprise of the Faculty of Medicine.

Any planning will need to capitalize on significant local research opportunities, such as the high prevalence of consanguinity and other population peculiarities that can lend themselves to targeted research. Promoting multidisciplinary research programs that build on current areas of interest and expertise is an important goal. Strong collaborations need to be fostered between clinical and basic investigators, and between the FM and other Faculties of the University. The sub-committee on research recommended the development of incubator projects in the following 4 areas: Genetically inherited diseases and gene therapy; regenerative medicine and embryonic stem cell research; natural and synthesized novel drugs; and biomechanical and biomedical engineering.

Establishing a new Clinical Research Center (CRC) is a major research goal for the Faculty of Medicine. This requires establishing a Clinical Research Office (CRO) which will be instrumental in promoting participation in cooperative clinical trials. There exists an active Clinical Research Unit (CRU) in the Department of Internal Medicine that supports investigator-initiated clinical studies. In 2006, there were 21 active studies in the unit involving 15 faculty members from the Departments of Internal Medicine, Surgery, and Dermatology. Approximately 1500 study visits were conducted in the CRU in 2006. The total budget of the studies conducted in the CRU (2005-2006) was approximately $380,000. A director trained in the US was recruited
in 2006 to head the CRU with the aim of transitioning it into an Institutional Clinical Research Center (CRC). Funding is being sought to establish support groups for statistics, programming, medical writing, centralized research database, and a research training unit. Marketing of medical research at AUB will be a major goal once there has been a sufficient build-up of critical resources and infrastructure. Bilateral exchange programs need to be created to allow visiting professors to come to AUB and expose researchers and trainees to the latest scientific discoveries, and for research-oriented faculty to visit other institutions to acquire specific expertise and maintain collaborative ties.
## 2.4 Goals

2.4.1 Provide the appropriate environment and resources for faculty members to conduct high quality research

2.4.2 Provide the appropriate environment and resources for students to be involved in original research, whether basic or translational/clinical

2.4.3 Establish PhD and MD-PhD programs in basic medical sciences

## 2.5 Initiatives

<table>
<thead>
<tr>
<th>Reference Research Appendix</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5.1 Provide the adequate facilities (laboratories and offices) including furniture and equipment</td>
</tr>
<tr>
<td>2.5.2 Ensure timely purchase and availability of research supplies and other essential items</td>
</tr>
<tr>
<td>2.5.3 Hire and train laboratory assistants and technicians for the core facilities</td>
</tr>
<tr>
<td>2.5.4 Establish an institutional Clinical Research Center (CRC) with its Clinical Trials Office (CRO)</td>
</tr>
<tr>
<td>2.5.5 Merge administrative and research activities in the medical basic sciences into one department</td>
</tr>
<tr>
<td>2.5.6 Encourage institutional multidisciplinary and interdisciplinary research programs</td>
</tr>
<tr>
<td>2.5.7 Support faculty research network website</td>
</tr>
<tr>
<td>2.5.8 Co-sponsor faculty research leaves and graduate internships in biomedical research</td>
</tr>
<tr>
<td>2.5.9 Provide seed money for the 4 incubator projects (see above)</td>
</tr>
<tr>
<td>2.5.10 Update Saab Medical Library (SML) collection of e-journals</td>
</tr>
<tr>
<td>2.5.11 Recruit 10 credentialed faculty to be PhD mentors (6 new and 4 replacement) in five years</td>
</tr>
<tr>
<td>2.5.12 Introduce a program of visiting scholars to give seminars and provide other support for the PhD program (6, one every other month)</td>
</tr>
<tr>
<td>2.5.13 Create mechanisms to fund and initially support the PhD program (working towards phasing out the MS program and fully implementing a 5-year PhD program starting with 6 students per year with a target of 12 per year)</td>
</tr>
<tr>
<td>2.5.14 Support Ph.D. tuition and student stipends</td>
</tr>
<tr>
<td>2.5.15 Support the cost of PhD students’ research expenditure</td>
</tr>
<tr>
<td>2.5.16 Renovate conference rooms and study areas for the PhD students</td>
</tr>
</tbody>
</table>
3 – Patient Care
PATIENT CARE

3. Patient Care

This report includes summaries of the work of the Strategic Planning sub-committees (listed on page 5) in addition to the 5-year plans obtained from the academic departments of the Faculty of Medicine (listed on page 5).

3.1 Mission of AUBMC

To maintain in a financially sustainable manner a leadership role in consistently providing excellent, accessible, multidisciplinary, and comprehensive health services to the people of Lebanon and the region while continuing and enhancing its tradition as a distinguished academic and research medical center.

The Patient Care sub-committees emphasized the following priorities from the mission statement:

- Maintain AUBMC as the provider of highest quality care in Lebanon and the region
- Be a leader in transferring state-of-the-art protocols in medical care and the latest technology to the region
- Excel in providing patient focused, disease-specific, outcome oriented, and friendly medical practice and care
- Encourage continuing medical education, participation in conferences, and in-service training and staff development programs for individuals to remain skilled and continue to be credentialed
- Continue to identify, recruit, and retain highly qualified professionals and employees
- Provide career opportunities for our graduates and trainees
- Achieve financially sustainable results through growth, best practices, and other operational improvements

3.2 Vision of AUBMC

To become a leading accredited academic, research, training, and patient care medical center integrated with the Faculty of Medicine for greater efficiency and for the benefit of patients, students, faculty, and staff.
The Patient Care sub-committees also emphasized the following principles from the vision of Medicine:

- Develop stakeholder participation (physician, management and insurers) in a strategy of sustainable growth
- Progress towards a balanced operating position via sustainable revenue growth and expense reduction
- Maintain the center’s excellence as a teaching facility while enhancing its competitiveness in the health care market
- Maintain and enhance the quality and mix of services being provided to the community and region
- Operate inpatient and outpatient services more efficiently by optimization and coordinated planning
- Create a learning environment that will promote staff mobility and promotion within the institution
- Improve and maximize flexibility in the assignment of resources such that the facility can better react to changing opportunities, economic and financial conditions.

The following Patient Care functions have been taken separately in the subsequent pages, and for each function there are a Mission, Major Accomplishments, Vision, Goals and Initiatives that are reported.

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<th>Patient Care Functions</th>
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</thead>
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<td>Ambulatory Care</td>
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<tr>
<td>Clinical Services</td>
</tr>
<tr>
<td>Surgical Suites</td>
</tr>
<tr>
<td>Nursing Services</td>
</tr>
<tr>
<td>Multidisciplinary Programs</td>
</tr>
<tr>
<td>Supporting Services</td>
</tr>
<tr>
<td>Facilities and Safety</td>
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<tr>
<td>Administrative Services</td>
</tr>
<tr>
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</tr>
<tr>
<td>External Program</td>
</tr>
<tr>
<td>Development and Marketing</td>
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<td>Accreditation</td>
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## Patient Care Functions

Sub-index

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<th>Page</th>
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<td>Medical Practice Plan (MPP)</td>
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<td>2.2</td>
<td>Primary Care and Family Medicine</td>
<td>42</td>
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<td>2.3</td>
<td>Emergency Department</td>
<td>45</td>
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<td>2.4</td>
<td>Critical Care</td>
<td>47</td>
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<td>Clinical Services</td>
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<td>Pathology and Laboratory Medicine</td>
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<td>Diagnostic Radiology</td>
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<td>Radiation Oncology</td>
<td>61</td>
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<td>4</td>
<td>Surgical Operating Suites</td>
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<td>4.1</td>
<td>Operating Rooms</td>
<td>63</td>
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<td>4.2</td>
<td>Central Sterilization</td>
<td>68</td>
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<td>6</td>
<td>Multidisciplinary Programs</td>
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<td>Multidisciplinary Programs</td>
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<td>7</td>
<td>Supporting</td>
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<td>7.1</td>
<td>Dietary</td>
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<td>7.2</td>
<td>Housekeeping</td>
<td>84</td>
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<tr>
<td>7.3</td>
<td>Laundry</td>
<td>86</td>
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<tr>
<td>7.4</td>
<td>Medical Records</td>
<td>89</td>
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<td>7.5</td>
<td>Pharmacy</td>
<td>91</td>
</tr>
<tr>
<td>8</td>
<td>Facilities and Safety</td>
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<td>8.1</td>
<td>Facilities Planning / Plant Engineering</td>
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<td>8.2</td>
<td>Medical Engineering</td>
<td>99</td>
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<td>8.3</td>
<td>Environmental Health, Safety and Risk Management</td>
<td>103</td>
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<td>Administrative Services</td>
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<td>9.1</td>
<td>Human Resources</td>
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<tr>
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<td>Purchasing</td>
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<td>Material Management</td>
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<td>Computing and Network Services</td>
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<td>10</td>
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<td>External Programs</td>
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<td>13.1</td>
<td>Accreditation</td>
<td>146</td>
</tr>
</tbody>
</table>
The new Medical Practice Plan was proposed as the locomotive that will drive the growth of the Faculty of Medicine and Medical Center. It is the centrepiece of the AUBMC recovery plan and future sustainability.

It was established to:
- attract and retain qualified physicians,
- indemnify equitably all faculty members,
- form group practices to improve medical care, physicians’ skills, and de-emphasize monetary competition,
- encourage physicians to assume ownership of the medical practice, and bear its costs
- link clinical growth to revenue generation, and thus diminish AUB’s liabilities for salaries, fringe benefits and professional fee receivables
- support the academic mission of the Faculty of Medicine

Mission
To organize clinical practice making it accessible and desirable to all stakeholders. The MPP is designed to serve the teaching of medicine and the conduct of medical research and improve the quality of patient care by protecting and promoting the endeavors of the Faculty of Medicine and the Medical center in the realms of teaching, research, professional training, and ethical patient focused care.

Major Accomplishments
- Implemented the new MPP for clinical departments as of October 1, 2002, and for service departments as of October 1, 2003
- Gave ownership of the outpatient facilities to full-time physicians who assumed, through the plan, to pay its costs
- Recruited around 66 new physicians without increasing salaries and benefits paid by the University
- Contributed around 50% of the university share for both pension plans (plan A and B) and for education benefits
- Decreased the contribution of the university’s for salaries and benefits by $2.1 million upon full implementation
- Incentivised physicians, whereby total collected professional fees increased from $16,721,876 in 2000 to $22,738,924 in 2006 by an average of 5.4% per annum
- Supported, since 2002, the operation of FM / AUBMC by $ US 6,934,323; ($3,502,030 to FM, $3,432,293 to AUBMC) Figure 1.1.1
- Achieved significant workload growth in private clinic visits, utilization of services and admissions as is seen in various sections of this report
- Restructured salary scales and achieved equity between all faculty
Once the MPP was established, a set of rules and regulations, policies and procedures, and income distribution plan were drawn and approved by the University and Board of Trustees.

**Two major funds were established:**

1. The Medical Dean Development Fund (MDDF), which receives 10% of the professional fee collected from clinical departments, and 25% of the professional fee collected from service departments.

2. The Department Operating Fund (DOF) which receives 2% of the collected professional fees of both clinical and service departments.

The remaining moneys were distributed according to the MPP Policies and Procedures as well as the MPP income distribution chart.


Salaries in 2000-2001 for all departments (clinical practice and service) amounted to ~$6 million, all paid for by the University. Salaries increased from 2000-2001 to 2006-2007 by 64%, whereas the contribution by the university deceased by 27%. The difference was generated by the MPP.

Benefits in 2000-2001 were ~$1.7 million all paid by the University. At present, the university pays ~$1.2 million of its share and MPP pays the balance ~1.3 million.

Upon implementation of the new MPP, contributions of the University to the Salaries/Teaching and Administration of faculty in clinical practice departments decreased by $2.1 million. The balance was paid for by the MPP. The MDDF initially paid for the recruitment of around 66 new physicians, who then gradually generated their own income and supported the MDDF.

The total sum of payments for salaries and benefits that were made by the University in the past and now by MPP as of 2002-2003 to date, amounted to $27.8 million as shown in Figure 1.1.1.

In addition to cost reductions to the University in salaries and benefits, a total of $9.4 million were made by the MPP as follows: the MPP contributed in supporting the operation of the FM/AUBMC by ~$6.9 million, Research by ~$1.5 million, faculty development and conference travel by $2 million as of 2002-2003, as in Figure 1.1.2.
Vision

To grow physicians’ outpatient practice through incentives which will lead to further recruitment and building of critical masses and group practices in various disciplines of Medicine that will translate into increased utilization of the hospital and all the center’s services – achieving also growth in research and teaching faculty.

1.1.1 Goals

1.1.1.1 Support the recruitment and retention of qualified physicians to achieve defined targets

1.1.1.2 Motivate and improve productivity

1.1.1.3 Ensure total utilization of all FM/AUBMC diagnostic and therapeutic facilities by all its participants

1.1.1.4 Provide a system to enable faculty to fulfill their commitment to high quality patient care and teaching

1.1.1.5 Establish incentive mechanisms for faculty compensation which enhance the attainment of the FM/AUBMC goals for patient care, teaching and research

1.1.1.6 Establish a methodology of equitable professional income generation, distribution and utilization

1.1.2 Initiatives for MPP

| 1.1.2.1 Define and refine a workload / skill-driven physician recruitment plan | f-Best Client Services |
| 1.1.2.2 Change habits so that only studies done at AUBMC are accepted | f-Best Client Services |
| 1.1.2.3 Establish a budgeting process that supports departments and programs as per outcomes | f-Best Client Services |
| 1.1.2.4 Develop a relative value unit (RVU) effort analysis scale to issue equitable compensation for teaching and administration | f-Best Client Services |
| 1.1.2.5 Define clearly MPP research funding criteria to ensure that young and newly recruited faculty are supported to establish themselves at AUB | f-Best Client Services |

Reference Patient Care Appendices
Figure 1.1.1 Contribution of the University and MPP to Salaries and Benefits of clinical and Services faculty (2000-2007)

<table>
<thead>
<tr>
<th>Contribution of the University and MPP to Salaries and Benefits (2000-2007)-Clinical Departments</th>
<th>MPP Fully Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries/ Teaching &amp; Administration</td>
<td>4,341,039</td>
</tr>
<tr>
<td>MPP on Account</td>
<td>2,564,208</td>
</tr>
<tr>
<td>Floor Income</td>
<td>4,341,039</td>
</tr>
<tr>
<td>Benefits paid by AUB</td>
<td>1,215,491</td>
</tr>
<tr>
<td>Benefits Paid by MPP</td>
<td>Not Applicable</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Contribution of the University and MPP to Salaries and Benefits (2000-2007)-Service Departments</th>
<th>MPP Fully Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries/ Teaching &amp; Administration</td>
<td>1,706,822</td>
</tr>
<tr>
<td>MPP on Account</td>
<td>1,388,061</td>
</tr>
<tr>
<td>Floor Income</td>
<td>1,706,822</td>
</tr>
<tr>
<td>Benefits paid by AUB</td>
<td>477,910</td>
</tr>
<tr>
<td>Benefits Paid by MPP</td>
<td>343,644</td>
</tr>
</tbody>
</table>

Note: Benefits were averaged at a rate of 28% over the years, as the actual percentages are not available, and based on actual percentages as of 2003-2004
Note: Benefits paid by MPP equal to 12.5% on the MPP on Account portion plus aprx 55% of cost of education paid by physicians
### Figure 1.1.2 Revenue and Expenditures for MDDF and DOF Funds

#### REVENUES:

<table>
<thead>
<tr>
<th></th>
<th>MDDF</th>
<th>DOF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REVENUES:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MDDF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical and Service departments</td>
<td>1,550,635</td>
<td>2,917,136</td>
</tr>
<tr>
<td>Service departments (25% of collections)</td>
<td>225,663</td>
<td>613,340</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>586,271</td>
<td>116,831</td>
</tr>
<tr>
<td><strong>DOF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical and service departments</td>
<td>449,593</td>
<td>664,211</td>
</tr>
<tr>
<td>Service Departments (2%) of collections</td>
<td>31,930</td>
<td>28,999</td>
</tr>
<tr>
<td>Donations and Grants</td>
<td>186,271</td>
<td>116,051</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>429,933</td>
<td>79,374</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td><strong>1,550,635</strong></td>
<td><strong>1,065,797</strong></td>
</tr>
</tbody>
</table>

#### EXPENSES:

<table>
<thead>
<tr>
<th></th>
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<th>DOF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MDDF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Salaries (614,429)</td>
<td>(61,223)</td>
<td>(270,947)</td>
</tr>
<tr>
<td>Research Grants (MPP) (309,547)</td>
<td>(360,000)</td>
<td>(190,516)</td>
</tr>
<tr>
<td>Travel (302,971)</td>
<td>(564,483)</td>
<td>(357,210)</td>
</tr>
<tr>
<td>Memberships:</td>
<td>(58,299)</td>
<td>(40,737)</td>
</tr>
<tr>
<td>Lebanese Order of Physicians</td>
<td>(39,437)</td>
<td>(38,601)</td>
</tr>
<tr>
<td>Other Professional Societies</td>
<td>(74,293)</td>
<td>(38,286)</td>
</tr>
<tr>
<td>Support of FMAUBMC:</td>
<td>(36,961)</td>
<td>(1,242,075)</td>
</tr>
<tr>
<td>Capital:</td>
<td>(1,200,000)</td>
<td>(1,600,000)</td>
</tr>
<tr>
<td>Nephrology Lab Setup</td>
<td>(26,156)</td>
<td></td>
</tr>
<tr>
<td><strong>DOF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries:</td>
<td>(666,159)</td>
<td>(816,144)</td>
</tr>
<tr>
<td>Fellows and Residents</td>
<td>(532,927)</td>
<td>(582,088)</td>
</tr>
<tr>
<td>AUBMC Residents</td>
<td>(189,947)</td>
<td>(49,461)</td>
</tr>
<tr>
<td>Research Assistants</td>
<td>(133,232)</td>
<td>(71,453)</td>
</tr>
<tr>
<td>Other:</td>
<td>(50,105)</td>
<td>(77,715)</td>
</tr>
<tr>
<td><strong>Total Salaries paid</strong></td>
<td><strong>666,159</strong></td>
<td><strong>816,144</strong></td>
</tr>
<tr>
<td><strong>Total Salaries committed</strong></td>
<td><strong>666,159</strong></td>
<td><strong>816,144</strong></td>
</tr>
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#### INTERNAL TRANSFERS:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>MDDF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer from DRF 4</td>
<td>353,716</td>
<td>307,641</td>
</tr>
<tr>
<td><strong>DOF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to cover DRF and Pension</td>
<td>(1,316,373)</td>
<td>(1,776,700)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,950,091</strong></td>
<td><strong>2,074,341</strong></td>
</tr>
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</table>

#### BALANCE:

<table>
<thead>
<tr>
<th></th>
<th>MDDF</th>
<th>DOF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MDDF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DOF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MDDF Balance</strong></td>
<td><strong>2,355,071</strong></td>
<td><strong>1,473,093</strong></td>
</tr>
<tr>
<td><strong>DOF Balance</strong></td>
<td><strong>1,473,093</strong></td>
<td><strong>1,473,093</strong></td>
</tr>
</tbody>
</table>
Ambulatory Care is defined in this context as care provided to patients on an outpatient basis in physicians’ private offices (clinics), in general and specialty clinics of the outpatient department, in the emergency department, and as outpatient special procedures (such as endoscopies). Ambulatory diagnostic and therapeutic services, such as laboratory, radiology, are considered separately under ‘clinical services’ where both inpatient and outpatient services are addressed.

The private outpatient workload is the driving force of the Medical Center. It determines Hospital Admission, utilization of operating rooms, other inpatient services, and ambulatory diagnostic and therapeutic services (such as laboratory medicine, radiology, etc.).

A key strategy as of 2000 was to recruit in a planned manner, highly credentialed physicians in various specialties of medicine and with various skills, to build capacities and achieve the patient care, education, research and financial goals of AUBMC.

To reach a target of 300 practicing physicians in 5 years, and an additional 100 in the following 5 years, requires the recruitment of additional 12 physicians per year. (Figure 2.1.1).

**Figure 2.1.1 – Physicians’ Recruitment Plan**

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Targeted</th>
<th>Recruited</th>
<th>Left * (including retired and deceased)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2003</td>
<td>36</td>
<td>34</td>
<td>4 (Non-practicing 7)</td>
</tr>
<tr>
<td>2003-2004</td>
<td>12</td>
<td>7</td>
<td>2 (Non-practicing 2)</td>
</tr>
<tr>
<td>2004-2005</td>
<td>12</td>
<td>4</td>
<td>1 (Non-practicing 1)</td>
</tr>
<tr>
<td>2005-2006</td>
<td>12</td>
<td>9</td>
<td>1 (Non-practicing 2)</td>
</tr>
<tr>
<td>2006-2007</td>
<td>12</td>
<td>12</td>
<td>1 (Non-practicing 3)</td>
</tr>
<tr>
<td>2007-2008</td>
<td>12</td>
<td>(3 identified)</td>
<td></td>
</tr>
<tr>
<td>2008-2009</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-2010</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010-2011</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2012</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* an average of 1.28 practicing physicians have left per year, in the last 7 years.
Recruitment approximately at this rate was made possible by the introduction of a Medical Practice Plan (MPP) which allowed for adding 66 new physicians from 2000 to 2007, without increasing the total salaries and benefits paid out by the university. In fact, that amount dropped, because of the Medical Practice Plan (MPP), by an annualized sum of about $2.3 million (Figure 2.1.2).

Needless to say, recruitment as per plan is driven by workloads and controlled by the need of the recruited physicians to make their money within 2-3 years. The Master Plan defined the needed space expansions to accommodate the growth (see figure 2.1.2).

Figure 2.1.2 – Academic Salaries and Benefits in $ vs Faculty Recruitment

![Figure 2.1.2 – Academic Salaries and Benefits in $ vs Faculty Recruitment](image)

Figure 2.1.2 indicates the sum of salaries and benefits plotted over time (in years). The numbers indicate the new faculty members recruited in that year. The effect of the Medical Practice Plan (MPP) has been sustained since 2001-2002; 66 new recruits joined AUBMC from 2001-2002 to 2006-2007, however, the total salaries did not increase.

The facility had to be expanded to support this recruitment rate. MGT of America with the Medicine’s Administration worked out projections and feasibility. The required total number of examining offices was projected to increase from 44 in 2001-2002 to 269 in 2010. Because of traffic considerations and crowdedness, it was recommended by MGT of America not to exceed 220 exam rooms in the vicinity of AUBMC; additional clinics would have to be in distant satellites. To reach the 220 outpatient exam rooms within AUBMC vicinity, a plan was made to build the:
a) Abu-Khater Medical Arts facility  
b) Outpatient Clinics for family medicine, cancer and psychiatry in Building 56 and  
c) Restructure the outpatient clinics in phase I building of AUBMC. *(Figure 2.1.3)*  

**Figure 2.1.3 – Current and Planned Private Clinics at AUBMC**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Private Physician Offices (Clinics)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Clinics</td>
<td>Current</td>
<td>Projected</td>
</tr>
<tr>
<td>Building 23 (Old OPD)</td>
<td>73*</td>
<td>Current Clinics 49 including current Family Medicine in Dalehome</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>28</td>
</tr>
<tr>
<td>AUBMC Phase I Total</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Multidisciplinary Clinics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s Health (7th floor)</td>
<td>10</td>
<td>Combined Private and OPD OB/GYN Volume</td>
</tr>
<tr>
<td>Cardiovascular (5th floor)</td>
<td>10</td>
<td>Based on specialist volume July 99 to May 00</td>
</tr>
<tr>
<td>Eye/ENT (6th floor)</td>
<td>10</td>
<td>Combined Private and OPD EYE and ENT Volume</td>
</tr>
<tr>
<td>Neuroscience (4th floor)</td>
<td>10</td>
<td>Based on specialist volume July 99 to May 00</td>
</tr>
<tr>
<td>Cancer (Bldg 56)</td>
<td>10</td>
<td>As shown in Erga drawings</td>
</tr>
<tr>
<td>Total by 2005</td>
<td>85</td>
<td>123</td>
</tr>
<tr>
<td>Total Required by 2005</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>Required by 2010</td>
<td>269</td>
<td>220 within AUBMC vicinity 15</td>
</tr>
</tbody>
</table>

* 45 will be ready by December 2006, and 28 postponed until Olayan School of Business (OSB) is built

As the plan started to be implemented, the outpatient private workloads started increasing  
from 78,000 in 1998-1999 visits/year to almost 140,000 visits in 2006-2007, as shown in  
**Figure 2.1.4** below.

**Figure 2.1.4 – AUBMC actual private clinics visits (color in blue), with projections made  
by MGT (in green), and the Medicine Budget office (burgundy red), from 1996 to 2020.**
Three factors attenuated slightly the rate of growth between 2004 and 2006:

   a) the assassination of prime minister Hariri and others
   b) The Israeli war July-August 2006
   c) Delay in facility renovation and construction

All three delayed the planned recruitment of physicians as shown in figure 2.1.1 page 36

Mission

The mission of the ambulatory care service at AUBMC is to provide one point outstanding outpatient medical services for the people of the country and the region. This will include ‘state of the art’ ambulatory services and facilities.

Major Accomplishments

- Renovated and restructured the private clinics on 3rd and 4th floor of phase I AUBMC building to comply with JCIA requirements.
- Established a private clinic governing body, the Private Clinics Committee (PCC), to monitor the operation of the clinics for best outcomes, both clinically and financially.
- Established staff development and training programs to deliver courteous patient handling
- Developed means to increase the awareness of physicians for the costs of patient care and means of its containment and empowered them with responsibility and accountability for running the ambulatory service
- Developed and automated the scheduling process
- Built the Abu-Khater Medical Arts facility (operational as of mid July 2007), and the outpatient cancer and psychiatry facilities in building 56 (expected to be functional by December 2007)
- Established a total plan through MGT of America and Master Planners to restructure and grow the ambulatory service facilities (see figure 2.1.3)
- Recruited a Director of Projects in the VP/Dean’s Office to work with the stakeholders and FPDU on developing implementation plans and strategies
All Ambulatory facilities will adopt best practices in compliance with JCI accreditation guidelines, that include:

- patient focused, disease specific and outcome oriented practice
- adequate staffing by an optimal mix of highly credentialed physicians with exceptional experience and training in their specialties
- appropriate staffing with nurses, clinical assistants and others that are needed to operate the private clinics in an efficient and friendly manner
- proper equipping with the necessary diagnostic and therapeutic devices and furnishing
- convenient access and pleasant to utilize
- Multidisciplinary centers of excellence with group practice

**Vision**

To provide the necessary environment and facility to recruit physicians that attract an optimal workload and mix of patients which results through growth and best practices with financial sustainability, enhancement of skills, teaching, and research

---

<table>
<thead>
<tr>
<th><strong>2.1.1 Goals</strong></th>
<th><strong>Reference Patient Care Appendices</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1.1 Provide comprehensive patient focused ambulatory care to patients of Lebanon and the Region</td>
<td>f-Best Services</td>
</tr>
<tr>
<td>2.1.1.2 Provide for “one-stop patient care” in a friendly environment</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.1.1.3 Ensure the best environment of care and service for patients, physicians and staff</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.1.1.4 Plan increasing ambulatory care capacity as per actual workload growth, physician recruitment and projections</td>
<td></td>
</tr>
<tr>
<td>2.1.1.5 Give prominence through proper marketing to a unique setup of patient-friendly ambulatory care within an academic medical center</td>
<td></td>
</tr>
<tr>
<td>2.1.1.6 Develop multidisciplinary patient focused group practices</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>2.1.2 Initiatives</strong></th>
<th><strong>Reference Patient Care Appendices</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.2.1 Establish a call center for the efficient scheduling of patients and follow-up</td>
<td>f-Best Services</td>
</tr>
<tr>
<td>2.1.2.2 Establish an on going training program for the support staff on service excellence and handling of patients</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.1.2.3 Develop the governance structure for the ambulatory care services</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.1.2.4 Complete the necessary policies and procedures</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>2.1.2.5 Ensure that the planned parking for the ambulatory care center is ready at time of its opening</td>
<td>d-Enabling Facilities</td>
</tr>
<tr>
<td>2.1.2.6 Plan on facility growth as a function of physicians recruitment and workload growth</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>ID</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2.1.2.7</td>
<td>Pursue the active implementation of the Master Patient Index with a unified chart number</td>
</tr>
<tr>
<td>2.1.2.8</td>
<td>Initiate programs for teaching of students, fellows and residents</td>
</tr>
<tr>
<td>2.1.2.9</td>
<td>Start plans to establish satellites in Tripoli (in progress), Saida, Zahle, among others in Lebanon</td>
</tr>
<tr>
<td>2.1.2.10</td>
<td>Extend Ambulatory Care to areas in the Region</td>
</tr>
</tbody>
</table>
2.2 PRIMARY CARE and FAMILY MEDICINE

**Mission**
The mission of the Primary Care and Family Medicine at AUBMC is to promote and achieve excellent outcome and community-oriented primary health care at the local, national and regional levels through education, research, and by building networks of services and a health maintenance organization.

**Major Accomplishments**

**A. Regional**
- Became a regional training center for Family Medicine and Primary Care
- Played a major role in ensuring compliance with the guidelines of the American Board and the Arab Board
- Provided faculty development training programs by governmental and world organizations such as WHO for faculty members in primary care and family medicine in the region
- Coordinated and administered the American Board of Family Practice in-training Examination (ABFP-ISE) as a part of the AUB PROGRAM 9201

**B. Satellite Clinics:**
- Established the Badaro Family Medicine Center in east Beirut to expand our community health care outreach and strengthen the training program for family medicine physicians

**C. Database/File Maker**
- Established a database that covers all activities of Family Medicine practice management over the past 10 years, including vaccination records of employees and dependents. This database is updated on yearly basis. The available data is attracting yearly a good number of researchers with AUB and AUBMC
- Applied international guidelines for sick leave approvals, which lead to a great decrease in the sick leave rates

**D. Primary Care Group**
- Established a primary care physicians group practice successfully in operation since 2003. This practice incorporates physicians from other clinical departments
- Developed protocols for patient care with specific quality indicators
- Introduced the ‘Elements of a Redesign of the University Health Insurance Plan’ and ‘Redesign of the University Employee, Student and Dependents Health Service Delivery’
Vision
To be the leader at AUBMC in primary care delivery, education and research. It strives for best practices in comprehensive and continuous primary health care utilizing the psychosocial model. The Department serves students, residents, fellows, health professionals, AUB community and people of Lebanon and the region. It plans to develop from the HIP model, a ‘Health Maintenance Organization (HMO)’, co-administered by private third party payers.

2.2.1 Goals
2.2.1.1 Continue to implement the Information Technology concept in the defined operational procedures and guidelines of care
2.2.1.2 Ensure that the quality and quantity of research will increase, and promote collaborative research in order to enhance the productivity of the department
2.2.1.3 Support the outreach clinics as a valuable training site for our residents to become highly qualified family practitioners. The status of the outreach clinics will be addressed during these next five years to ensure sustainability of existing clinics, attend to previously neglected ones, and create new ones.
2.2.1.4 Create a positive and collaborative working environment with the aim of improving quality of care, patient satisfaction, and achieving growth.
2.2.1.5 Adapt the new facility for the merger of the University Health Services (UHS) and Family Medicine into one premise and a single operational unit
2.2.1.6 Improve the quality of recruited residents by making the training program in Family Medicine and Primary Care more attractive to those candidates with high potential of achievement
2.2.1.7 Work at increasing patient load to enable the Department to grow
2.2.1.8 Educate and promote the art and science of Family Medicine to students, faculty, and members of the AUB community
2.2.1.9 Be the number 1 care provider and gate keeper for HIP and plan to develop an HMO that extend its services beyond AUB
2.2.1.10 Develop Evidence Based Practice (EBP) decision support
2.2.1.11 Build a patient centered culture

2.2.2 Initiatives for Primary Care and Family Medicine

2.2.2.1 Facilitate Clinical Research by creating a research environment and providing technical training to all concerned members of the Department
2.2.2.2 Improve sustainability of existing outreach programs, with particular attention to the clinic at the Agricultural and Research Educational Center (AREC)
2.2.2.3 Enhance privacy, confidentiality and patient focused care with excellent outcomes
2.2.2.4 Improve image of the Department of Family Medicine by improving the quality of care and its academic program to attract promising faculty and residents
2.2.2.5 Increase the involvement in the Community Health programs

Reference Patient Care Appendices
Research
f-Best Services
f-Best services
b-Best Practices in clinical Medicine
f-Best Services
2.2.2.6 Improve the Med IV curriculum through problem based learning, introduction of ethics and insistence on evidence based decision, and encourage elective rotations in other departments

2.2.2.7 Earmark satellite clinics for training residents and students

2.2.2.8 Create, contract or affiliate a network ambulatory clinics

2.2.2.9 Establish the ‘Integrated Practice’ model or association at AUBMC with physicians formed in groups and contracting outside employers and insurance for care

2.2.2.10 Diversify the Health Insurance Plan (HIP) to allow it to offer different products at different costs and subsequently include non AUB population in the plan

2.2.2.11 Introduce the concept of ‘Clinical Transformation’ by focusing on care as being safe, timely, effective, efficient, equitable and patient centered

2.2.2.12 Support systematic patient feedback by ongoing routine ‘satisfaction’ and feedback surveys and target improvements based on practice feedback

2.2.2.13 Provide transparency through performance data disclosure and in pricing and billing

2.2.2.14 Develop a health information system by developing disease registries

2.2.2.15 Implement health promotion reminders/alerts to physicians and patients

2.2.2.16 Implement the electronic health record with on demand access to lab and imaging results

2.2.2.17 Implement electronic prescribing

2.2.2.18 Develop AUBMC-wide evidence-based ambulatory care practice guidelines

2.2.2.19 Integrate guidelines with registries and electronic records for reminders, compliance and patient safety follow-up

2.2.2.20 Provide for medical records accessibility for all ambulatory providers

2.2.2.21 Develop group practices to foster expertise and abort internal competition

2.2.2.22 Create a one-stop service throughout ambulatory service access points: remove need for patients to re-register, re-tell their history, pay at more than one location, move around the center for diverse services

2.2.2.23 Develop standards and policies for network of clinics affiliated with AUBMC

2.2.2.24 Identify established practices, standards and capabilities for partnership with clinics network
2.3 EMERGENCY DEPARTMENT

Mission

• Provide comprehensive and efficient emergency medical care which meets patient expectations
• Support the education and research missions of the AUB Faculty of Medicine

Major Accomplishment

• Completed the construction and renovation of a new Emergency Department (ED) (total 1,400 m²) that became operational in February 2006
• Received 40,284 visits in 2005-2006 compared to 37,007 in 2000-2001, with thirty to thirty five percent are admitted to the hospital (Figure 2.3.1).

Figure 2.3.1 – Admissions from Emergency Department

<table>
<thead>
<tr>
<th>Year</th>
<th>ED Visits</th>
<th>From ED</th>
<th>Private</th>
<th>Ward</th>
<th>Hosp Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (06-07)</td>
<td>40,091</td>
<td>7,023</td>
<td>4,141</td>
<td>2,883</td>
<td>21,910</td>
</tr>
<tr>
<td>Total (05-06)*</td>
<td>40,284</td>
<td>6,981</td>
<td>4,094</td>
<td>2,887</td>
<td>21,375</td>
</tr>
<tr>
<td>Total (04-05)</td>
<td>41,110</td>
<td>6,671</td>
<td>4,048</td>
<td>2,623</td>
<td>20,774</td>
</tr>
<tr>
<td>Total (03-04)</td>
<td>40,268</td>
<td>7,002</td>
<td>4,299</td>
<td>2,703</td>
<td>20,269</td>
</tr>
<tr>
<td>Total (02-03)</td>
<td>39,502</td>
<td>7,126</td>
<td>4,160</td>
<td>2,967</td>
<td>18,890</td>
</tr>
<tr>
<td>Total (01-02)</td>
<td>36,441</td>
<td>6,095</td>
<td>3,996</td>
<td>2,099</td>
<td>17,605</td>
</tr>
<tr>
<td>Total (00-01)</td>
<td>37,007</td>
<td>6,207</td>
<td>4,019</td>
<td>2,188</td>
<td>17,356</td>
</tr>
</tbody>
</table>

* July-August 2006 war prevented people from reaching ED due to blocked transportation.

• Maintained the Emergency Unit at AUBMC as the most currently reliable referral center for major mass-casualty, polytrauma and all complicated medical and surgical Emergencies in Lebanon
• Provided stabilization, initial work-up, and treatment for more around 30% of all AUBMC admissions
• Completed specialized training in triage principles by all the emergency nurses at AUBMC, including scoring as per the “Emergency Severity Index (ESI)"
• Established the first Emergency Medicine Department (ED) in Lebanon at the FM/AUBMC and appointed its Chair.
Vision

• Provide comprehensive and efficient 24/7 emergency medical care through screening, triage, diagnosis and treatment
• Create the necessary environment for student education, post graduate training, and the development of future emergency physicians and nurses
• Assume a primary role in the establishment of national and regional pre-hospital and inter-facility standards for emergency medical services
• Foster an outstanding local, national and international reputation

2.3.1 Goals
2.3.1.1 Provide comprehensive and efficient emergency medical care which meets patient expectations
2.3.1.2 Foster an outstanding local, national and international reputation
2.3.1.3 Support the education and research missions of the AUB Faculty of Medicine
2.3.1.4 Promote the establishment and implementation of regional and national pre-hospital and inter-facility standards for emergency medical services

2.3.2 Initiatives for Emergency Room

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Reference Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3.2.1 Provide 24/7 Emergency Physician Specialists</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.3.2.2 Reduce fragmentation and disruptions in the flow of ED patient care</td>
<td>f-Best services</td>
</tr>
<tr>
<td>2.3.2.3 Reduce the task load and burden on providers</td>
<td>f-Best Services</td>
</tr>
<tr>
<td>2.3.2.4 Provide proper, qualified and consistent gate keeping for the institution</td>
<td>f-Best Services</td>
</tr>
<tr>
<td>2.3.2.5 Optimize the use of human resources and space</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.3.2.6 Establish an Emergency Medicine residency program</td>
<td>Education</td>
</tr>
<tr>
<td>2.3.2.7 Establish the KPIs for the various programs needed for proper measurement and documentation</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>2.3.2.8 Identify and introduce the needed or better equipment, supplies</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>2.3.2.9 Address best practices and identify poor work habits, sources of fatigue, complacency and unprofessionalism among residents and faculty</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>2.3.2.10 Provide proper administrative space, furniture and equipment</td>
<td>d-Enabling Facilities</td>
</tr>
</tbody>
</table>
2.4 CRITICAL CARE

**Mission**
- To provide the state-of-the-art quality and most compassionate care to critically ill patients in Lebanon and the region.
- To strive to maintain our leadership role in patient care, education and research.
- To optimize the utilization of our resources to fulfill the critical care needs of our patients and their families in an environment that respects and values culture and diversity.

**Major Accomplishments**

**Worked closely with Chief of Staff to complete the requirements for JCIA accreditation**

- **Newborn services**
  - Developed and implemented new data forms in compliance with JCI guidelines.
  - Handled infection control issues.
  - Enhanced the quality of care.
  - Maintained and developed new policies.
  - Assessed the physical setup.
  - Revised the patient classification system.
  - Implemented family centered care.

- **ICU/RCU Nursing**
  - Improved the infection control reports.
  - Improved the nursing quality indicators.
  - Developed clinical procedures and quality reports.
  - Modification of staffing (increase in number of staff/shift) for better patient care.
  - Certification of staff for BLS and ACLS.
  - Continuing education for staff.

- **Inhalation Therapy**
  - Introduced new technologies.
  - Enhanced the quality of care.
  - Participated in clinical research.

The current 83 critical care beds were established at AUBMC as per available space and resources. The required number of beds in the coming 5-10 years is 108 as projected from the expected workloads, as well as change in concepts of critical care, established by the American Association of Critical Care; for example, the coronary care unit (CCU) has transformed from receiving mainly acute infarcts to receiving, in addition, patients undergoing percutaneous coronary interventions (high turnover patients) and patients with heart failure. Furthermore, the addition of more intensive care unit (ICU) beds will lead to a reduced need of respiratory care unit (RCU) beds.
These beds, however, would be distributed as shown in figure 2.4.1. The target numbers would be achieved in stages and as the actual workload increases and the staffing, particularly trained nurses, becomes available.

‘MGT of America’ and the Master Plan have earmarked the location for the new facilities.

**Figure 2.4.1 Distribution of critical beds**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Current Beds</th>
<th>Future Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Surgical ICUs</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Pediatric Intensive Care Unit (PICU)</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Intermediate Adult Care Unit</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Intermediate Pediatric Care Unit</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Respiratory Care Unit (RCU)</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Post Cardiac Surgery Care Unit</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Coronary Care Unit (CCU)</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Neonatal Intensive Care Unit (NICU) and the Intermediate NICU</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Neuro Intensive Care Unit (Neuro ICU)</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>83</strong></td>
<td><strong>108</strong></td>
</tr>
</tbody>
</table>

**Vision**

- Leading in the provision of outstanding care to patients and their families in the context of an academic medical center through knowledge and teamwork.
- Promoting a multidisciplinary approach in providing patient care with other hospital departments and services.
- Providing state-of-the-art training in critical care for physicians, nurses and health care personnel to meet the unique needs in this field for Lebanon and the region.

**2.4.1 Goals**

2.4.1.1 Provide targeted intensive care in the setting of Adult Intensive Care, Pediatrics Intensive Care (with their intermediate units), Respiratory Care unit, Post Cardiac Surgery unit, Coronary Care Unit, Neonatal ICU and Nuro-ICU

2.4.1.2 Provide the necessary capacity and mix of beds in an environment of safety and comfort for very sick patients and for the staff working in the units

2.4.1.3 Determine the total number of critical care beds and the required mix of the current and anticipated increase in workloads at the Medical Center

2.4.1.4 Applying the latest evidence-based knowledge in critical care medicine

2.4.1.5 Advancing and sharing knowledge gained through research to provide optimal patient outcome

2.4.1.6 Collaborating with community healthcare settings in the coordination of care and family education
<table>
<thead>
<tr>
<th>2.4.2</th>
<th><strong>Initiatives for Critical Care</strong></th>
<th><strong>Reference Patient Care Appendices</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4.2.1</td>
<td>Plan the physical setup and environment</td>
<td>d-Enabling Facilities</td>
</tr>
<tr>
<td>2.4.2.2</td>
<td>Integrate of the latest in information technology along with staff training about this technology</td>
<td>e-State-of-the-art technologies</td>
</tr>
<tr>
<td>2.4.2.3</td>
<td>Establish satellite pharmacy with clinical pharmacist for all units</td>
<td>b-Best Practices in Clinical Medicine</td>
</tr>
<tr>
<td>2.4.2.4</td>
<td>Initiate quality indicators and close follow-up of those indicators</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>2.4.2.5</td>
<td>Write all clinical guidelines including guidelines for futility of care and palliative care</td>
<td></td>
</tr>
<tr>
<td>2.4.2.6</td>
<td>Improve staff continuing medical education</td>
<td></td>
</tr>
<tr>
<td>2.4.2.7</td>
<td>Outreach to the community locally and regionally</td>
<td>b-Best Practices in Clinical Medicine</td>
</tr>
<tr>
<td>2.4.2.8</td>
<td>Support growth of training residency and fellowship programs</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>2.4.2.9</td>
<td>Initiate research program especially translational research</td>
<td>f-Best Services Education</td>
</tr>
<tr>
<td>2.4.2.10</td>
<td>Recruit faculty as per planned outline</td>
<td>Research</td>
</tr>
<tr>
<td>2.4.2.11</td>
<td>Recruit nurses</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c-People Excellence</td>
</tr>
</tbody>
</table>
3 CLINICAL SERVICES

3.1 PATHOLOGY and LABORATORY MEDICINE

For the last few years, the Department of Pathology and Laboratory Medicine at the American University of Beirut Medical Center has strived for the highest international quality standard, and has been successful in becoming among the finest in the region. However, despite this good track record, it is now challenged to become academically, technically and financially more competitive. As a result, there is an urgent need to develop a comprehensive operational strategy, one that will inevitably require new ways of doing business.

There is a need to drastically re-structure the laboratory to meet current standards of quality and efficiency, aggressively seek new growth opportunities, and significantly change laboratory service delivery strategies; this is driven by the search for reduced costs, increased profit, and competition for scarce capital. Contemplating the changes detailed in this report will be hopefully capitalized via increased revenue, significant labor savings, and decrease in human error.

The Department will continue to pursue excellence in its services and seek accreditation by leading international bodies. With the familiarity of the Department faculty and staff with the College of American Pathologists (CAP) standards, this is projected to be sustained over the coming 5 year period. The projected natural growth in the diverse services of the Department will be supported by the necessary human resources and state-of-the-art equipment; however, special effort will be placed on the following:

**Automation and integration:** The growth of the laboratory services over the past few years entails serious consideration of expanding automation within the laboratory, particularly if we are to seek an aggressive marketing plan. We want to maximize the efficiency of the operation, minimize redundancy, and hasten service delivery without compromising quality. The anticipated growth in Emergency services (ED, ICU, CCU, NICU) and the limitations on HR would strongly justify the review of the organization of the services and the establishment of a core lab service that consolidates the critical laboratory tests.

**Growth of market share:** It is time to show return on the investments spent on building the strengths of the department over the last few years like accreditation and staff development, the high qualifications of existing faculty, and the introduction of specialized testing. Increasing our market share and further enhancing the image of the department as a reference laboratory is the next logical and necessary step to operate at maximal technological, human resources and intellectual capacity.
**Motivated able workforce:** Develop a database to give access to strategic information and establish an environment of openness, where employees can share ideas, and work to their full potential, while establishing a system of accountability. We want to be recognized for our up-to-date practices and staff, by spreading and sharing knowledge in the region. Currently, the department is in a good position to conduct local and regional workshops on various aspects of management in clinical laboratories.

**Expansion of research potential:** The image of the department as a reference laboratory is not fully achieved unless we enhance our research potential. The department has already acquired several essentials for this purpose, namely in molecular lab, stem cell lab, tissue bank, and neuromuscular lab.

**Accreditation of training in pathology and laboratory medicine:** With the accreditation of the laboratory services and the institutional effort to strengthen and consolidate graduate medical education, it is imperative to seek accreditation for the training program in Pathology and Laboratory Medicine. While the primary effort is to seek accreditation by the American Council of Graduate Medical Education (ACGME), there should be consideration for accreditation by other agencies if that effort is hindered by the prevailing restrictions of ACGME.

**Enhancing education and promoting new tools:** With the availability of interactive digital imaging, it is imperative to introduce this technology into all of the departmental teaching, with special emphasis on medical students’ education and also promote its utilization for postgraduate education. Virtual microscopy has proven to be an effective tool in teaching and is gradually replacing traditional light microscopy.

**Mission**

To provide diagnostic services, teaching and research in a high quality, accessible, acceptable, and prompt manner to the people of Lebanon and the region while continuing and maintaining its role as a reference laboratory.

**Major Accomplishments**

- Achieved accreditation of the Department services by the College of American Pathologists
- Established a comprehensive Quality Assurance Program and participation in the Clinical and Laboratory Standards Institute (CLSI).
- Established a Molecular Diagnostic Laboratory
- Established a Neuromuscular Pathology Laboratory
- Established Stem Cell Laboratory
- Established Tissue Procurement Program in Pathology
- Established Bone & Musculoskeletal Tissue Bank
- Instituted a Laboratory Information System with features of order entry, easy acquisition of results, enhanced reporting, monitoring QA indicators, etc..
- Expanded the diagnostic menu in all units of the lab.
- Nominated for the Clinical Microbiology as a WHO Regional Human
Brucellosis Reference Laboratory

- Expanded the services of the Environment Core Laboratory and preparing it for ISO 17025 accreditation. The expansion covers testing for Food and Agri-food products (including bacteriological, nutritional labeling, pesticides residues, heavy metals, colorants: Sudan I, II, III and IV, preservatives and aflatoxins)
- Improved the Postgraduate Medical Education in the Department and participated in the American Society of Clinical Pathology Residency-In-Training-Exam (RISE)
- Enhanced Research activities within the Department
- Relocated and expanded the Laboratory ambulatory sample collection unit to the ground floor of AUBMC for the convenience and comfort of the patients.
- Introduced supply management and cost accounting of laboratory tests
- Achieved growth of the Laboratory services as detailed below

**Growth of the Laboratory Services 2000-2007**
Parallel to the increase in outpatient and inpatient workloads driven by the Medical Practice Plan (MPP), overall private laboratory procedures grew by 70% in 7 years. A sharp and steady growth seen after the implementation of MPP. *(Figures 3.1.1a-b)*

**Figure 3.1.1.a Laboratory Procedures - Private**
Figure 3.1.1b Laboratory Procedures (Private and Ward) by Service

Linear regression (thin red line) shows that in all procedures except serology, there is full recovery from the 2005-2006 dip caused by the war of July-August, 2006.
In Laboratory Medicine, the net revenue increased from $11,858,171 to $15,316,866, with a net income per FTE increased from $100,281 to about $117,822 (15%) from 2000-01 to 2006. The overall patient care net revenue at AUBMC increased from $54,326,014 to $83,493,519 as the forecast from 2000-06 (65%). The net revenue per FTE increased from $35,134 / year to $47,957 / year for the same period.
<table>
<thead>
<tr>
<th>Vision</th>
<th>To pursue excellence in Departmental services and seek accreditation by leading international bodies.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1.1 Goals</strong></td>
<td></td>
</tr>
<tr>
<td>3.1.1.2 Enhance automation and integration to increase capacity and efficiency</td>
<td>3.1.2.1 Reduce all lab tests turn-around-time (TAT) to less than 30 minutes</td>
</tr>
<tr>
<td>3.1.1.3 Increase market share</td>
<td>3.1.2.2 Eliminate STATs (once TAT &lt; 30 minutes)</td>
</tr>
<tr>
<td>3.1.1.4 Develop a motivated able force</td>
<td>3.1.2.3 Initiate point-of care testing</td>
</tr>
<tr>
<td>3.1.1.5 Expand research potential</td>
<td>3.1.2.4 Consolidate procedures by technology, not discipline</td>
</tr>
<tr>
<td>3.1.1.6 Achieve accreditation of training</td>
<td>3.1.2.5 Consolidate pre-analytical testing</td>
</tr>
<tr>
<td>3.1.1.7 Enhance education</td>
<td>3.1.2.6 Keep unscheduled downtime to a minimum</td>
</tr>
<tr>
<td>3.1.1.8 Establish collection of satellites</td>
<td>3.1.2.7 Discontinue queues of specimens at analyzers</td>
</tr>
<tr>
<td>3.1.1.9 Develop specialized testing: molecular and neuromuscular</td>
<td>3.1.2.8 Increase efficiency of workflow</td>
</tr>
<tr>
<td>3.1.1.10 Reduce the overall cost of tests, enabling pricing of tests at competitive level. (We want to minimize our expenses without compromising service quality)</td>
<td>3.1.2.9 Permit an increase of lab volume with no additional staff. (We want to use our human, technical, physical and intellectual resources to their maximal capacity)</td>
</tr>
<tr>
<td>3.1.1.11 Create a network serving geographically dispersed patient care programs</td>
<td>3.1.10 Initiate joint ventures and satellite labs</td>
</tr>
<tr>
<td>3.1.1.12 Increase referrals from AUBMC physicians</td>
<td>3.1.11 Create a network serving geographically dispersed patient care programs</td>
</tr>
<tr>
<td>3.1.1.13 Develop specialized testing: molecular and neuromuscular</td>
<td>3.1.12 Increase referrals from AUBMC physicians</td>
</tr>
<tr>
<td>3.1.1.14 Reduce the overall cost of tests, enabling pricing of tests at competitive level. (We want to minimize our expenses without compromising service quality)</td>
<td>3.1.13 Develop specialized testing: molecular and neuromuscular</td>
</tr>
<tr>
<td>3.1.1.15 Improve cost accounting analysis capabilities through technology</td>
<td>3.1.14 Reduce the overall cost of tests, enabling pricing of tests at competitive level. (We want to minimize our expenses without compromising service quality)</td>
</tr>
<tr>
<td></td>
<td>3.1.15 Improve cost accounting analysis capabilities through technology</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>3.1.2.16</th>
<th>Implement career ladder</th>
<th>c-People Excellence</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.2.17</td>
<td>Establish pay-for-performance strategies</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>3.1.2.18</td>
<td>Establish regional links and external workshops</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>3.1.2.19</td>
<td>Establish registry for biochemical genetics</td>
<td>b-Research</td>
</tr>
<tr>
<td>3.1.2.20</td>
<td>Allocate dedicated space for research</td>
<td>b-Research</td>
</tr>
<tr>
<td>3.1.2.21</td>
<td>Collaborate with internal and external researchers</td>
<td>b-Research</td>
</tr>
<tr>
<td>3.1.2.22</td>
<td>Seek more research funding</td>
<td>b-Research</td>
</tr>
<tr>
<td>3.1.2.23</td>
<td>Accreditation of the postgraduate medical education/training program</td>
<td>a-accreditation</td>
</tr>
<tr>
<td>7.1.2.24</td>
<td>Introduce Digital Pathology Information Management system encompassing virtual microscopy</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
</tbody>
</table>
3.2 DIAGNOSTIC RADIOLOGY

The provision of medical imaging services in Lebanon continues to experience an exponential growth with many entrepreneurs injecting large sums of money into stand-alone projects or centers allied to existing hospitals. The tremendous advances in medical imaging equipment have created an incentive for investment in the market in the hope of quick return particularly in areas of cancer detection and health screening. The two most striking examples are Positron Emission Tomography (PET) and 64 Multi-Slice CT scanners (MSCT). The latter was purchased in 2006.

The previous five-year strategy of the Department of Diagnostic Radiology was based on the vision that the AUBMC has to be at the cutting edge of technology to maintain its status locally and regionally. The Department is one of the major revenue generators for the AUBMC.

Careful planning to purchase and install state-of-the-art equipment and technology will contribute significantly to providing the optimal medical care to patients that would be attracted to AUB. The purchase of a 64-slice CT Scan in 2006 enhanced the growth of service (as per figure 3.2.1c).

In contrast, the delay in the purchase of an MRI (due to need to secure funds and space) stunted growth of that service and impacted on other services, such as neurosurgery, orthopedic surgery, and other specialties of neurology, cardiovascular disease and oncology. The MRI service is now open from 8 am to 11 pm including weekends, and yet 2-3 weeks are required for non-emergency appointment; the same is true with our mammography service. Space has been identified for both MRI and Mammography units.

It is important to plan to minimize such delays in the near future since they are financially counter productive, reduce the competitive edge, and result in loss of referrals.

**Mission**

- provide the highest standard of imaging services and consultation in order to meet the needs of patients as determined by the Medical Staff.
- assist colleagues in making diagnosis and management by utilizing radiological techniques.
- provide a state-of-the-art interventional radiology service.
- minimize radiation exposure to patients and workers.
- participate in the education programs for medical students, residents, radiographers and trainees.
Major Accomplishments

Previous plans, as of 1993, included steps for replacement of the remaining old equipment from the 1970s, upgrading the existing MRI and the installation of PET Scanner, Picture Archiving Computer System (PACS) and a Multi-Slice CT scanner MSCT. By the end of 2006 the following were achieved:

• Replacement of the old X-ray equipment in room 2; general and panoramic radiology
• Replacement of the old fluoroscopy equipment in room 3
• Replacement of the old ultrasound equipment
• Upgrading and overhauling the 1.5 T MRI to the highest available level allowing advanced and faster imaging
• Installation of a Radiology Information System (RIS)
• Replacement of some of the old mobile & C-arm equipment
• Installation of a 64- MSCT Computed Radiography unit and a new Digital Radiography unit in the ER


Parallel to the increase in outpatient and inpatient workloads driven by the MPP, overall private radiology procedures grew by 32% in 7 years. A sharp and steady growth is seen after the implementation of MPP. Figures 3.2.1 a-c.

As for the MRI, capacity has been reached; the delay in purchasing the second MRI is due to budget availability and space constraints. Both budget and space issues have now been overcome, expecting the installation of both mammography and MRI units by the 1st quarter of 2008. (figure 3.2.1.b)

Figure 3.2.1.a – Analysis of General Radiology Services including mammography
Figure 3.2.1.b

M.R.I. Procedures Private

![Chart showing M.R.I. procedures over years](image)

Figure 3.2.1.c

C.T. Scan Procedures Private

![Chart showing C.T. scan procedures over years](image)

New CT Scan 64-slice was purchased
### Vision
To maintain a leadership position in imaging and intervention and to update and expand the imaging facilities to keep up with the technical advances, and the expanding of medical requirements. On the academic level the Department will continue to strengthen the residency program and engage in active research in collaboration with colleagues at the AUBMC as well as regional and international institutions.

### 3.2.1 Goals

| 3.2.1.1 | Remain competitive in the face of growing and aggressive competition in the Diagnostic Radiology field |
| 3.2.1.2 | Acquire the necessary equipment to meet the demands of the upcoming multidisciplinary programs |
| 3.2.1.3 | Improve the educational and training programs |

### 3.2.2 Initiatives for Radiology

| 3.2.2.1 | Recruit additional radiologists |
| 3.2.2.2 | Optimize the non-academic staff through a staffing plan |
| 3.2.2.3 | Renovate the areas of reception and reporting |
| 3.2.2.4 | Improve facilities for the residents |
| 3.2.2.5 | Create a breast imaging unit including digital mammography and ultrasound |
| 3.2.2.6 | Install a PACS/RIS system to improve efficiency and communication |
| 3.2.2.7 | Expand PACS Storage |
| 3.2.2.8 | Create a film-less service |
| 3.2.2.9 | Installation of PET/CT |
| 3.2.2.10 | Install a second MRI |

### Reference Patient Care Appendices

- c-People Excellence
- d-enabling facilities
- e-state-of-the-art technologies
### 3.3 RADIATION ONCOLOGY

#### Mission
To provide cancer patients with the best quality radiation treatment, based on latest medical and scientific evidence, using established state-of-the-art technologies. To ensure professional perpetuity through commitment to teaching, research, and professional training in Radiation Oncology, within the aim of developing and maintaining excellence in this area of medical sciences.

#### Major Accomplishments

**Clinical:**
- Established modern radiation therapy and combined modality cancer treatment protocols
- Established state-of-the-art quality assurance programs
- Developed conformal 3D radiation therapy protocols
- Installed high dose rate brachytherapy for gynecologic and thoracic malignancies and intravascular brachytherapy (for in-stent restenosis)
- Established stereotactic radiosurgery

**Teaching:**
- Started a residency and a fellowship program in radiation oncology
- Hosted and contributed to several multidisciplinary cancer management conferences

**Research:**
- Participated in international randomized trial (Head and Neck cancer)
- Developed internal randomized clinical trials (cervical cancer)
- Reviewed several cancer sites treated by radiation therapy (brain tumors, breast and nasopharyngeal cancers)
- Contributed to several laboratory research studies on radiosensitizers (with the Department of Biology)

#### Vision
To become a center of excellence in tertiary cancer management with national leadership standing and regional and international recognition.

#### 3.3.1 Goals

<p>| 3.3.1.1 | Excel in providing effective and safe radiation oncology through the latest available technologies |
| 3.3.1.2 | Update and upgrade the equipment |
| 3.3.1.3 | Maintain excellence in clinical services through the acquisition of state-of-the-art and proven radiation technology |
| 3.3.1.4 | Develop academic and clinical services through the recruitment of qualified physicians |</p>
<table>
<thead>
<tr>
<th>3.3.2</th>
<th><strong>Initiatives</strong></th>
<th><strong>Reference Patient Care Appendices</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.2.1</td>
<td>Plan to acquire a state-of-the-art linear accelerator with IMRT (intensity modulation) and IGRT (image guided) capabilities</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td>3.3.2.2</td>
<td>Upgrade our simulation procedures with the acquisition of a CT simulator</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td>3.3.2.3</td>
<td>Upgrade our information management system</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td>3.3.2.4</td>
<td>Upgrade our treatment planning system and dosimetry</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td>3.3.2.5</td>
<td>Upgrade our brachytherapy and radiosurgery systems</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td>3.3.2.6</td>
<td>Reserve the option to purchase a second linear accelerator within 12-18 months after acquiring the first</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td>3.3.2.7</td>
<td>Consider acquiring a more advanced state of the art radiation equipment instead of a linac like a TOMOTHERAPY or CYBERKNIFE unit depending on the growth and the economic-political stability in the country</td>
<td>e-state-of-the-art technologies</td>
</tr>
<tr>
<td><strong>Faculty development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.2.8</td>
<td>Transfer a senior visiting professor to a regular professor and hire a junior staff member</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>3.3.2.9</td>
<td>Open a residency position every other year (one would be for 2008-2009) to maximum of 3, with the intention to recruit top candidates and help them pursue further training abroad and retain those who qualify for a staff position in our department</td>
<td>b-Research</td>
</tr>
<tr>
<td>3.3.2.10</td>
<td>Merge the academic and clinical services within the multidisciplinary process of the Naef K. Basile Cancer Institute</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td><strong>National and Regional outreach activities</strong></td>
<td></td>
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<tr>
<td>3.3.2.11</td>
<td>Complete our outreach activities and commitment with the Syrian Cancer Society</td>
<td>g-Marketing</td>
</tr>
<tr>
<td>3.3.2.12</td>
<td>Develop an outreach activity with the Tripoli ambulatory cancer center</td>
<td>g-Marketing</td>
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</table>
4 SURGICAL OPERATING SUITES

4.1 OPERATING ROOMS

The Operating Rooms (ORs) have been the lifeline of the Medical Center. Thirty per cent of the net revenue of AUBMC comes from direct net revenues of the ORs. Needless to say, OR generated indirect revenues, such as for laboratory medicine, pathology, and radiology, etc… are also significant. The Operating Rooms are the raison-d’etre of the department of Anesthesia.

The 10 existing ORs were built in 1970 and sustained the Department of Surgery by keeping good surgeons during the civil war period (1975-1991) and recruiting credentialed surgeons as the center started to re-adapt to peacetime after 1991 and as the need arose.

Surgeries performed in the operating rooms have contributed in large measure to the medical center’s reputation as a medical referral center for the region. FM/AUBMC’s surgeons have pioneered medical procedures in the region including open-heart surgery, modern neurosurgery, advanced urologic, orthopedic (limb salvage), and laparoscopic surgery. Around 13,000 operations are performed in the Operating Rooms annually at AUBMC. (figure 4.1.1)

Figure 4.1.1 – Total Number of Operations per Year
The ORs have been functioning at about capacity, and with the increasing workloads to the hospital they are becoming one of the bottlenecks. (figure 4.1.1 and 4.1.2)

Looking at operating room needs consequent to the increasing workload and from projections of OR utilization, MGT of America determined that with the required growth, the medical center would need to increase the number of ORs from the current 10 plus one OR in the department of Obstetrics / Gynecology, to around 14-15 ORs, 4 of which would be within an ambulatory surgery center.

NTDStichler, a known engineering company in the US with a strong medical planning and design unit, was commissioned by AUB in April 2006 to:

- develop and review short and long term conceptual plans for the ORs with the user groups, the AUBMC steering committee, and FPDU
- identify and develop a phased plan of implementation, based on immediate and long term needs and the financial, operational and functional considerations as presented to NTDStichler
- analyze and identify required upgrades of the existing mechanical, plumbing and electrical systems, as well as the interior finishes for the implementation, with the main goal to achieve JCIA accreditation
- Provide a preliminary cost estimate for phase I of implementation

NTDStichler employed a unique interactive approach to planning and design in which the clients became key participants in the design solutions. This process is called esquisse (to sketch aloud). Intensive on-site work sessions with clients were conducted. NTDStichler reworked projections in every discipline of surgery (figure 4.1.2) and made projections.
They confirmed the need for the 14 ORs and developed 8 options that were reviewed by the end users (surgeons, anesthesiologists, nurses and staff), Medicine’s administration and FPDU. The most appropriate and feasible option was chosen. This option recommends the renovation and construction of ORs into generic ORs. NTDStichler, however, also indicated the number of ORs that would be needed for each discipline of surgery. (See proposed map for the ORs below)
The design team examined the existing parameters of the surgical suite, including the public service access, patient flow and the functional and operational relationships to other hospital functions. The new planned ORs will solve the following issues:

- Old finishes that do not comply with current JCI standards for hospitals. Cracks render them prone to infections
- Old, outdated medical equipment
- Decentralized patient preparation areas create staffing and operational inefficiencies and may create patient safety issue
- Duplication of clinical services create space inefficiencies
- Inadequate clinical support areas
- Inadequate physicians and staff lockers and lounges
- Inadequate family space
- Overlap of patient/service and public flows
- Existing suite is landlocked, bordered by exterior walls (3 sides) along the property line and a main public corridor, thus limiting options for growth needs present in its current location

### Mission
To provide a state-of-the-art facility and accommodate the inpatient and ambulatory surgical workloads of the AUBMC, assuring patient friendliness and optimal outcomes

### Major Achievements
- Maintained well the 10 Operating Rooms over the last 30 years
- Renovated and re-equipped a number of ORs to meet the demands of the discipline and workload (such as for neurosurgery)

### Vision
To develop an easily accessible inpatient and ambulatory operating suite with adequate capacity that is equipped with all the necessary resources and ensures privacy and hospitality to patients. The operating suite should be supported by all necessary services to ensure the optimal environment for the patient, surgeons and other professionals.

### 4.1.1 Goals
4.1.1.1 Immediate upgrade of the existing surgery suite to achieve JCIA accreditation
4.1.1.2 Renovate and Expand the ORs as per NTDSchleicher plan
4.1.1.3 Replace the existing Operating Room medical equipment to accommodate the latest surgical technologies and delivery of care
4.1.1.4 Plan to implement the identified best plan to expand the surgery suite and enhance surgical services, specifically the outpatient volumes
4.1.1.5 Plan to implement the identified design option (remodel/expansion) for better patient throughput, and staffing and equipment efficiencies
4.1.1.6 Enhance physicians and staff support services
### Immediate Needs

| 4.1.2.1 | Develop and detail an implementation plan for the NTDStickler selected option to renovate the current ORs and building 4 ORs in the basement of the newly purchased Salloum building | d-Enabling facilities |
| 4.1.2.2 | Separate physically Post Anesthesia Care Unit (PACU) and Recovery Level II services to be compliant with JCIA regulations | d-Enabling facilities |
| 4.1.2.3 | Upgrade Finishes and Mechanical/Plant/Electrical (MPE) systems to be compliant with JCIA | d-Enabling facilities |
| 4.1.2.4 | Upgrade Operating Rooms medical equipment to the appropriate technologies | d-Enabling facilities |
| 4.1.2.5 | Add a second neurosurgery room to accommodate growing needs for this service | d-Enabling facilities |
| 4.1.2.6 | Fix patient flow into the surgery suite to eliminate privacy issues at control desk | d-Enabling facilities |
| 4.1.2.7 | Add clinical support space (as required for JCIA accreditation) and specially soiled utility room and storage space | d-Enabling facilities |
| 4.1.2.8 | Recommend a phased plan of implementation to assure on-going operations of surgical services and accommodate available funds | d-Enabling facilities |

### Long Term Needs

| 4.1.2.9 | Enhance physicians and staff support areas | d-Enabling facilities |
| 4.1.2.10 | Expand surgery suite to accommodate 14 ORs | d-Enabling facilities |
| 4.1.2.11 | Enhance outpatient surgical services to be able to compete with free standing ambulatory facilities | d-Enabling facilities |
| 4.1.2.12 | Expand and enhance prep and recovery services | d-Enabling facilities |
| 4.1.2.13 | Enhance the physical environment for family waiting and access to information | d-Enabling facilities |
| 4.1.2.14 | Implement case cart system within the surgery suite; this would require an expanded Central Sterilization Unit | d-Enabling facilities |
### 4.2 CENTRAL STERILIZATION

#### Mission
To create a safe patient- and staff-environment by meeting highest required standards and applying efficient and optimal quality control

#### Services
The Central Sterilization Unit is a specialized area responsible for collecting decontamination, assembling, packaging, sterilization, storing and distribution of predominantly sterile goods and equipment to different areas in the Medical Center, major among them is the surgical operating suites

#### Vision
Our vision is to be number one in the region in the field of Decontamination and Sterilization, and an internationally renowned unit

We want to be compared with the best sterilization centers in the world

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#### 4.2.1 Goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>4.2.1.1</td>
<td>Centralize all sterilization activities in the department</td>
</tr>
<tr>
<td>4.2.1.2</td>
<td>Implement an efficient and timely collection and distribution process</td>
</tr>
<tr>
<td>4.2.1.3</td>
<td>Develop awareness among departmental staff and the staff at large of the sterilization process</td>
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<tr>
<td>4.2.1.4</td>
<td>Acquire new technology in cleaning and sterilization of instruments and surgical sets</td>
</tr>
</tbody>
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#### 4.2.2 Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2.2.1</td>
<td>Renovate the existing unit to accommodate a new sliding door sterilizer</td>
</tr>
<tr>
<td>4.2.2.2</td>
<td>Implement the proper circulation of staff and material to meet the requirements of infection control and prevent the cross circulation between dirty and clean areas</td>
</tr>
<tr>
<td>4.2.2.3</td>
<td>Replace the current delivery system with a case cart system</td>
</tr>
<tr>
<td>4.2.2.4</td>
<td>Introduce a new tracking system of all sets and instruments</td>
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<tr>
<td>4.2.2.5</td>
<td>Adhere to the policy of not to re-sterilize single use devices until an outside approved re-sterilization outfit exists</td>
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<table>
<thead>
<tr>
<th>Reference</th>
<th>Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>d-Enabling facilities</td>
<td>e-State-of-the-art Technologies</td>
</tr>
<tr>
<td>d-Enabling facilities</td>
<td>e-State-of-the-art Technologies</td>
</tr>
<tr>
<td>e-State-of-the-art Technologies</td>
<td>b-Best Practices in Clinical Medicine</td>
</tr>
</tbody>
</table>
5 NURSING SERVICES

5.1 NURSING SERVICES

Mission

The Nursing Services department is an integral component of the AUBMC dedicated to providing comprehensive, compassionate, and excellent nursing care services to residents of our community and the region. We foster a distinguished positive working environment of life long learning for nurses, students, and other health care providers, focusing on continuous quality initiatives, evidence based practice and research. We are committed to career advancement, recruitment and retention of expert resources, and promotion of state-of-the-art technology and nursing informatics.

Major Achievements

A Leadership Development: Presently, there are approximately 40 Nurse Managers and Nurse Leaders assuming responsibility of nursing units and specialized services. Throughout the past three years, active leadership development took place both formally and informally. A situational leadership workshop was offered, and it will be the model of choice in the department. Nurse Managers are more independent and take full responsibility of the budget.

B Career Advancement Program (CAP): The CAP is a professional development and retention program for the clinical nurses. The program was initiated in 2001 and implemented for 4 consecutive years. The automation of the program is a major turning point in answering the users and administrators needs thus reducing the time of the nurse and the evaluator to complete forms. The registered nurses (RN) and reviewers can now enjoy the multiple and useful features / options of that application; starting with the application, to submission of verifications and reviews, finally the announcement of results.

For the year 2004-2005, the number of nurses who applied was 133 with a passing rate of 55.6%. The automation of CAP is in process. The CAP has served as a retention mechanism.

C Our Professional Practice Model: It is our intention to integrate the nursing process to be patient centered outcome based. In the year 2003-2004 two clinical educators were recruited who were instrumental in achieving the above. In the year 2004-2005 two other clinical educators were introduced. The educators will support the novice nurse to develop professionally and be a resource for the nursing team to cope with the high turnover and reduce error. (Currently the turn over rate is 17% and
the average length of service is less than three years)
The average PCC compliance rate increased from 75.7% (2002-2003) to 82.6% (2003-2004). The core achievements (all JCI standards) were proper identification of patients in administering medications, safe patient environment, prompt response to pain, patient privacy and confidentiality, emotional support, alleviation of patient’s anxiety by providing more information to patients, rounding with physicians, and coordination of care with other health care disciplines. Future emphasis will be on a multidisciplinary approach, interdisciplinary patient education, and plan of care.

D Performance Improvement: The department has selected a number of indicators in accordance with the hospital performance improvement mission and vision. The Nursing Quality Improvement program (NQI) took several initiatives under the leadership of the Associate Nursing Director to coach, train, and educate Nurse Managers and Staff Nurses on Performance Improvement. This included but not limited to one-on-one training, workshops, committees, etc… Nurses are now involved in Performance Improvement activities at the point of service and supervised by the NQI to demonstrate improvement in problem areas.
The department’s performance clinical indicators are: Medication Errors, Chart Review, Patient Falls, Pressure Ulcers, Needle Pricks, and Patient Satisfaction, and RN Satisfaction. In light of Magnet requirements, two additional indicators were selected for 2004-2005: Cardiac Arrest and Catheter Associated Urinary Tract Infection (CAUTI).
As for the Administrative Indicators, the Department has chosen Nursing Hours per Patient Day (NHPPD) with the acuity and skill mix of RNs. The target is to achieve 75% RN skill mix. (In addition a Mock Survey to assess JCI compliance is being conducted at unit level). Visits have been made to hospitals to initiate the process of benchmarking clinical indicators. Another initiative will take place with Johns Hopkins, USA.

E Staff Satisfaction: The department continues to emphasize that staff satisfaction is a priority and a means to improve performance. The environment is heading towards empowerment, shared governance, and reward/recognition for outcome. Nurse Managers and staff nurses served on many committees this year including but not limited to strategic planning, CAP, retreats, and others. Many nurses and nursing leadership were recognized for their good work and sent to workshops or conferences (33 Nursing Leadership staff and 40 Staff Nurses).
The intention is to create a healthy working environment whereby nurses are happy to come to work and are recognized. The perception of Nurses being supported when the workload increases has improved due to the response of Nursing Administration to their concerns when staffing is not optimal.
RN Satisfaction Study was conducted. However during the year 2004-2005 two additional domains were added to the original questionnaires: namely, NM Ability, Leadership & Support (NMALS) and Professional Development and Career Advancement (PDCA) which scored 60.1% & 67% respectively.
The RN Satisfaction scores for the year 02-03 and 04-05 were 3.6 and 3.7 respectively.
The Nursing Administration has made every effort to promote Reward & Recognition in the department. The main goal was to create awareness on the importance of recognizing and rewarding employees to improve their job satisfaction thus leading to patient satisfaction. Sessions were conducted in Arabic and English regarding Reward/Recognition Committee. The nomination criteria were revised and focus was on peer to peer recognition. This led to a tremendous increase in the number and quality of nominations received by the Nursing Reward/Recognition Committee.
Physicians, patients, and others wrote a number of letters acknowledging the good work of the nurses. Every Staff Meeting included Reward/Recognition on the agenda, and Nurse Managers introduced creative ways to reward staff. In the year 2003-2004, the Coronary Care Unit Nurse Manager was selected “Nurse Manager of the Year” by the Lebanese Order of Nurses, and 2 nursing staff received the “President’s Award”.
A new award was introduced called the “Shehadeh Abboud Memorial Nursing Excellence Award for Oncology” with a value of $1,000, in addition to the Karen Bahdarian Award.

Recruitment/Retention: The turnover rate of RNs is 17.46% (2004-2005). The average length of stay of RNs does not exceed 4.85 years (2004-2005). The experienced nurse at AUBMC does not receive any incentive to remain after the University stopped the automatic annual increase of 4%. An incentive plan was prepared and submitted in coordination with AUBMC Human Resources, which is still pending.
In spite of all the difficulties we face, here are some of the initiatives the department took to retain our nurses and attract novice nurses from all over Lebanon, including but not limited to:
- Part-Time employment was also introduced
- Permanent night recruitment began in the year 2004-2005 to relieve nurses during night shifts
- The department offers a bonus of $1,500 for those preceptors who coach the new recruits
- A weekend and shift differential was proposed for the second time in the year 2004-2005. (Awaiting approval)
- Clinical Resources were assigned to nurses to support and reduce the stress
- Additional computers were installed on the Nursing Units for Nurse Managers and Nurses
- Cable TV was introduced at Kerr Hall for the Nurses

Professional Development
- Several nurses including management were sent this year for continuing education (2003-2004) (total of 43 people), both locally and the US. (total cost: $ 39,111)
An Intensive Care Nursery nurse was sent to Duke University to continue her masters as a Clinical Nurse Specialist in Neonatology and Pediatric Intensive Care. Another nurse was sent to the University of Pennsylvania to specialize in Neuro-Intensive Care in preparation for the Neuroscience Program.

Sponsorship for continuing education (Masters degrees) at AUB is being covered 100%.

Staffing: In the year 2003-2004 the total number of BSN graduates was the same as 2002-2003 not meeting the supply needed. As a result, we resorted to outside sources. One of the initiatives taken to create a smooth transition of non-AUB graduates was to begin an affiliation program with the University of St Joseph, School of Nursing. The number of nurses recruited for the year 2004-2005 was 119.

Our entry into practice now is a Bachelor of Science in Nursing and the percentage of BSN RN is 78.96%.

Human Resources:

- Five (5) clinical educators were recruited
- Two (2) clinical Nurse Specialist
- The role of Assistant Nurse Manager was introduced
- The role of care coordinator was introduced
- A nurse business manager was recruited
- A project manager to coordinate the CAP, the new performance appraisals, the job descriptions and now the Magnet

Patient Acuity: Acuity is a tool one uses to reflect the workload. It is one of our administrative indicators and translates to Nursing Hours Per Patient Day (NHPPD); as a result determining the Full Time Equivalent (FTE) needed. The Nurse Managers monitor the NHPPD daily and monthly to determine the appropriate staffing, skill mix, and to control overtime. The overall acuity in the hospital increased from 8.66 (2001-2002) to 9.19 (2004-2005) and the Length Of Stay (LOS) of the patient decreased from 4.44 (2001-2002) to 3.2 (2004-2005). This obviously added to the workload of our nurse at AUBMC, and will require an increase in RN skill mix which we are working to make 75% of the total staff.

Expansion of Units: The Nursing Services supported the expansion in the following areas: 6 North, Pediatric Step Down created, relocation of Normal Nursery on the 7th floor, BMT on the 8th floor, Intermediate Unit, Children Cancer Center Lebanon (CCCL) (IN and Out).

Patient/Physician Satisfaction: In every Medical Center, the vision should always be centered on what our patient wants. The Nursing Services continues to focus on this area and proudly achieved high scores. We are also concerned with the satisfaction of our physicians to facilitate their work. The Patient Satisfaction Team conducted 1620 questionnaires, and achieved an overall of
Staff Development/ Continuing Education: The Department has placed a lot of emphasis on Staff Development (SD). After a rigorous process, the Department became accredited by the American Nurses Credentialing Center (ANCC) as a provider, the first in the Middle East and the second in the world outside the United States. The Staff Development has prepared continuing education programs including but not limited to mentorship, preceptorship, critical care, leadership, oncology, pediatrics, and the orientation program developed to be culturally diverse and includes one for AUB and one for non-AUB. An affiliation took place with the University of St. Joseph for nursing students to practice at AUBMC. This was used as a recruitment initiative. Training was provided for external customers from Kuwait, Jordan, etc. A booklet was created to cover all aspects of the Staff Development. Self Learning packages were created and on-line application began in April 2005. Partnership with Balamand University in Co-providing the critical care course. A residency program was created to facilitate adjustment of new recruits to AUBMC. Competencies were created for all staff including Management. A retreat took place in October 2005 for staff development to plan a strategy for the next 5 years. The emphasis of the meeting was the learning needs of the AUBMC Nurse, and the learning needs at the national and regional level. Focus will be on providing specialty courses in oncology, gerontology, critical care, psychiatry, emergency, leadership, evidence based practice, research and nursing Informatics

Nursing Services Website: By the month of February 2006, the AUBMC Nursing Services website would have been online for a year, linking the department to the nursing and health care community nationwide, throughout the region and internationally. The website can be accessed on www.nursingservice.aub.edu.lb. Since the launching of the website, major events were witnessed in the Nursing Services Department, most importantly is the accreditation by the American Nurses Credentialing Center, through which the website served as a major venue to announce this major achievement to local, regional and international community. In addition the website helped in extending the accredited Nursing Services Staff Development educational offerings to nurses and health care professionals at the national level through the monthly announcements posted on the scrolling news of the website. Moreover, with lots of incoming inquires and increasing communication from the Gulf region, Pakistan, Europe, United states of America and other countries, the role of the website is taking a rather broader perspective from being merely informative to interactive and responsive to peculiar needs.

Private Clinics: Nursing Services has completed the second year of assuming administrative responsibility of the Private Clinics now including all areas except ENT and Psychiatry. In transition to handing it over to the physicians once the new Medical Arts Facility is ready. Doctors and patients are more satisfied. The appointments were automated, the telephone process changed to be user friendly,
and the nursing process introduced. Thus the nurse’s role increased to facilitate the work of the physicians. A new waiting area was created in Internal Medicine with a triage area. The director of projects, at the medical Dean’s office led the renovation of the 4th floor surgical private clinics. Continuous efforts are taking place to involve the nurse more with patient education, plan of care to meet the needs of our physicians.

**P**  
**Retreat & Strategic Planning:** The Nursing Services conducted the second retreat in the Department in April 2005. Representation from leadership and Staff Nurses was present. A number of decisions were taken based on the outcome of the previous year with future recommendations. The Staff Development team with members of the Nursing Administration also conducted a Retreat in August 2004 in line with the mission and vision of the Department. The second staff development retreat will be conducted in October 2005. A Strategic Planning Workshop for Nursing Leadership was held in the year 2004-2005. A departmental strategic plan is being developed by the NEC and Nursing services Strategic Planning Committee. In addition series of workshops titled “Shape the future” were conducted to involve all the RNs and the nursing management team in the strategic Planning Process.

**Q**  
**Performance Appraisals:** new performance appraisals were created according to Job Description for over 100 categories

**R**  
**Research and Evidenced Based Practice:** The Nursing Department is emphasizing on evidence based practice, thus promoting research among nurses. A number of studies initiated by physicians had nursing involvement. Two nurses presented studies in the USA. Several presentation and posters were presented in the School of Nursing Centennial Conference. A research program was created in the year 2004-2005.

**S**  
**Practical Nurse Training Program:** The Number of Practicals enrolled for the year 2004 was 37. Because of the low turnover of Practicals for 2004-2005 (10.95%), the Nursing Administration decided to stop enrollment of a new class for 2005-2006.

**T**  
**Magnet Preparation & Journey to Excellence:** In January 2004, the Nursing Leadership Team agreed to begin the journey of excellence to Magnet. This is the highest award designated to hospitals for Nursing Services in the US. It entails compliance of over 100 standards, and requires creating an environment for the nurses of autonomy, empowerment leading to shared governance. A Magnet Committee was created with Nurse Managers and Staff Nurse representation through an election process. Magnet Champions from each unit were elected. A technical writer will be selected to place all documentation in the correct format. It is a long, tedious, difficult journey, but worth the effort. A Magnet Project Manager was assigned.

**U**  
**Manuals and Policies:** Hospital manuals were created and revised including Critical Care, ICN, Pediatrics, Obstetrics, Kidney Unit, and Operating Room; and a patient education manual was created. The bilingual patient education manual was created to include heart patients, medical/surgical, critical care, pediatrics, oncology, cardiology, neurosurgery, diabetes pulmonary, and geriatrics. It is the first in the Region that is available in bilingual format (Arabic
Bursary: In January 2003-2004 the Bursary Sponsorship stopped, and the money ($350,000) was to be used for incentives for nurses. The reason for stopping the Bursary was because AUB graduates would choose AUBMC as first choice irrespective of the sponsorship.

Shared Governance: We are in the process of creating an environment of shared governance among the staff to promote decision making, empowerment, decentralization at unit level, autonomy, and accountability at the point of service. A serious move towards shared governance by creating Professional Practice Councils that include Clinical, Administrative, Education, and Quality Councils is in process. All members will be RNs elected by their peers including the Chair and Vice Chair, with a senior Advisor. The Nurses will bring forth on a quarterly basis to the Nurse Executive Committee issues related to them. In the last three years there has been significant improvement in Nurses participation in decision making.

Hospital visits
Series of hospital visit were conducted with the following objectives:

- Enhancing collaboration and networking among nursing services at the national level.
- Announcing the accredited status of the Nursing Services Staff Development as a provider of continuing nursing education.
- Exploring opportunities to improve the nursing profession.
- Exchanging experiences and exploring alternatives to common problems.

The visited hospitals were St. Georges Hospital, Beirut Government University Hospital, Nini Hospital, Monla Hospital, Makassed Hospital, Bahman Hospital, Hammoud Hospital.

Others:
- The number of policies reviewed/revised: 14.
- A new unit called Intermediate Unit was opened April 5, 2005 located on 4 North (401-402) with a capacity of 6 beds. Only 3 beds were opened. The department recommended closing the beds in August 2005 due to the nursing shortage.
- One nurse was promoted to Clinical Educator (Hiba Abdel Kader), March 2005.
- The newly renovated Emergency Unit in Phase I opened October 7, 2004. Phase II opened May 14, 05 and Phase III is expected to be completed December 05.
- The disaster Plan was revised after the February 14, 2005 assassination of PM Hariri.
- The annual Nursing retreat was held April 14, 2005 with staff nurses and nursing management participation.
- The AUBMC received the Accreditation as ANCC provider June 3, 2005.
- Six nurses completed their Masters in June, 2005.
- The Nursing Services Department actively participated in the School of Nursing Centennial Conference. Seven from the Nursing staff presented
abstracts. The department invited the speakers to a luncheon.

- Two nurses were sent to Mayo Clinic for training from July 5 to August 19, 2005. All expenses covered by Dr. Thomas Rooke.
- A staff nurse was recruited to monitor all central line catheters as per the Board of Trustees recommendation in July 2005.
- 4 South beds were reduced to 15 beds and the Nurses were sent to 6 North to increase the 6 North beds from 12 to 21, July 2005.
- A critical Care course was offered to nurses organized by AUBMC Nursing Services and Balamand School of Nursing. July 4-8, 2005.
- Magnet workshops were held for champions August 5 & 10, 2005.
- Shaping the future workshop took place for RNs in August, September 05 and will continue till December 05.
- BLS/ACLS training took place September 2005.
- Budget meetings for Nurse Managers were held September 2005.
- A questionnaire for a day care center was distributed.
- Standing Committees were reduced to four: Recruitment/Retention, Documentation, Policies Procedures, Reward/Recognition.
- Opening of Private Clinics on Saturdays (Dermatology) May 21, 2005.
- Purchase of Inpatient Bassil furniture placed on 8 North.
- Ms. Mouro received Humane Doctorate degree from Muhlenberg College May 22, 2005.
- Two Nurses received the President’s Award June 2005. Bahia Taleb and Taline Gulgulian.
- Sponsorship of continuing education reverted to 60/40% based on the request of nurses June 2005.
- Nurses in the Operating Room were promoted from grade 5 to grade 7, to become Surgical Nurse Technologist.
- The Practical Nurses of the Critical Care areas also were promoted from grade 5 to grade 7, to become Advanced Practical Nurses.
- The Floor Clerks were promoted from grade 4 to grade 5.
- An Assistant Nurse Manager position was created, and the first was appointed in the Intensive Care Unit.
- Succession planning began and hope to be complete the proposal by the end of the year.
- **Community activities** are being provided: prenatal classes, pediatric classes.

**Vision**

The Nursing Services at AUBMC establishes and maintains national and regional nursing excellence and leadership in health care delivery that is compliant with national and international standards, thus contributing towards making AUBMC the hospital and employer of choice.

**5.1.1 Goals**

5.1.1.1 Provide and maintain high quality patient care
5.1.1.2 Be a referral center for continuing education and training
5.1.1.3 Seek to achieve international distinction as Magnet designated hospital
5.1.1.4 Develop and expand organizational structure to support nursing initiatives and programs
5.1.1.5 To further enhance the nursing continuous quality improvement program
5.1.1.6 Promote research and evidence based practice
5.1.1.7 Enhance the professional development of the nursing workforce
5.1.1.8 Prepare professionals to assume leadership roles
5.1.1.9 Raise nursing standards through international affiliations, memberships and certifications
5.1.1.10 To enhance and maintain the fiscal sustainability of the Nursing Services Department

5.1.2 **Initiatives**

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<th>Initiative</th>
<th>Reference Patient Care Appendices</th>
</tr>
</thead>
<tbody>
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<td>5.1.2.1 Receive/Develop standards of care according to Evidence Based Practice (EBP)</td>
<td>b-Best Practices in Clinical Medicine</td>
</tr>
<tr>
<td>5.1.2.2 Ensure implementation of approved nursing services standards of care</td>
<td>b-Best Practices in Clinical Medicine</td>
</tr>
<tr>
<td>5.1.2.3 Achieve national and maintain international accreditation of continuing education</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>5.1.2.4 Establish a structured program of Continuing Education to meet the needs and expectations of the market (including identifying learning needs)</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>5.1.2.5 Introduce electronic-learning activities</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>5.1.2.6 Implement the process to achieve ‘Magnet’ designations</td>
<td>a-Accreditation</td>
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<td>5.1.2.7 Develop Nursing Services succession plan</td>
<td>b-Best Practices in clinical Medicine</td>
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<td>5.1.2.8 Plan training to support multidisciplinary and other programs</td>
<td>c-People Excellence</td>
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<td>5.1.2.9 Create and maintain a state of continuous survey readiness for international accreditation</td>
<td>a-Accreditation</td>
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<td>5.1.2.10 Benchmark the selected department and unit based quality indicators</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>5.1.2.11 Create a culture of quality</td>
<td>b-Best Practices in clinical Medicine</td>
</tr>
<tr>
<td>5.1.2.12 Enhance research activities in the Nursing Services Department</td>
<td>Research</td>
</tr>
<tr>
<td>5.1.2.13 Support nursing evidence-based practice activities</td>
<td>b-Best Practices in clinical Medicine</td>
</tr>
<tr>
<td>5.1.2.14 Increase the number of Clinical Educators and Clinical Nurse specialists as required by the Nursing Department’s organizational structure</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>5.1.2.15 Plan for the professional development of nursing</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>5.1.2.16</td>
<td>Establish a succession planning program that will facilitate leadership development</td>
</tr>
<tr>
<td>5.1.2.17</td>
<td>Seek affiliations with international healthcare facilities</td>
</tr>
<tr>
<td>5.1.2.18</td>
<td>Encourage staff to be members in Associations and Organizations</td>
</tr>
<tr>
<td>5.1.2.19</td>
<td>Encourage Certification of nurses in specialty areas</td>
</tr>
<tr>
<td>5.1.2.20</td>
<td>Costing and pricing of educational offerings</td>
</tr>
<tr>
<td>5.1.2.21</td>
<td>Solicit grants and funds for emerging projects and programs, including research</td>
</tr>
<tr>
<td>5.1.2.22</td>
<td>Foster financial accountability at levels</td>
</tr>
</tbody>
</table>
A number of Clinical Programs have grown significantly throughout the history of the Medical Center and in particular over the last 10 years. This led to the establishment of Multidisciplinary Programs that bring various related disciplines of Medicine together in a patient focused and outcome based practice. For example, all clinical services that deal with cancer are being grouped under a Multidisciplinary Cancer Program, which will provide all needed expertise and facilities in a convenient and friendly disease specific and patient focused patient care.

Group practices within these programs will allow physicians to concentrate their practice in specific areas of their expertise and hence improve their skills and ensure optimal readiness of the supporting team in those areas and services. Physicians within a group will complement each other. The Children Cancer Center of Lebanon and the Naef K. Basile adult Cancer Institute are examples. The outpatient facilities for both have been recently custom built for the programs in building 56, across from the main hospital.

In the case of the Musculoskeletal Disorder Center, the clinical services of Orthopedics, Rheumatology and Physical Therapy have grouped together, while for Neuroscience, Adult Neurology, Pediatric Neurology, Neurology, Neurosurgery and Psychiatry have been grouped together. These programs will assume functions that span from preventing, screening, early diagnosis to full work-up, treatment and post-treatment support of patients. In addition they would prepare material and provide education to patients, family and the community.

**Mission**

To deliver optimal multidisciplinary care and promote health for patients in Lebanon and the region. Importantly, the program vows to provide an outstanding academic environment that fosters education, training and research in the basic and clinical multidisciplinary discipline.
Vision

- become a major referral center for patients from Lebanon and the region seeking quality, state-of-the-art medical and surgical care in various disciplines.
- Bring together critical masses of multi-talented individuals, complementing each other and improving the quality and breadth of patient care, teaching, and research.
- increase awareness of disease and prevention measures, and, therefore, improve the health of individuals in Lebanon and the region
- lobby for mandated legislation promoting health and well-being of the Lebanese population

6.1.1 Goals

6.1.1.1 Introduce patient focused multidisciplinary programs and group practices to AUBMC
6.1.1.2 Provide the required workloads to maintain skills of each physician
6.1.1.3 Focus practice of each physician to specific areas of the specialty. This makes it easier to achieve the required load to keep up-to-date, conduct outcome studies and research.
6.1.1.4 Improve efficiency by sharing resources and cutting-edge technology
6.1.1.5 Establish advanced procedures and new services
6.1.1.6 Promote health awareness through specific patient education programs

6.1.2 Initiatives for Multidisciplinary Programs

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.2.1 Consolidate clinical services and establish the minimum necessary critical mass of people that is required to cover a discipline</td>
<td>b-State-of-The-Art-Medicine</td>
</tr>
<tr>
<td>6.1.2.2 Continue the growth of the Medical Practice Plan (MPP) as driven by physicians’ practice to generate funding for programs and recruitment of new faculty</td>
<td>b-State-of-The-Art-Medicine</td>
</tr>
<tr>
<td>6.1.2.3 Achieve growth through expansion of ambulatory services, satellites, and affiliations</td>
<td>b-State-of-The-Art-Medicine</td>
</tr>
<tr>
<td>6.1.2.4 Pursue the establishment of other multidisciplinary programs (listed as future programs)</td>
<td>b-State-of-The-Art-Medicine</td>
</tr>
<tr>
<td>6.1.2.5 Provide services based on set protocols and develop capabilities for evidence–based decision making</td>
<td>b-State-of-The-Art-Medicine</td>
</tr>
<tr>
<td>6.1.2.6 Bring together into one program and facility the orthopedic, rheumatology, podiatry and physical care program</td>
<td>d-enabling facilities</td>
</tr>
<tr>
<td>6.1.2.7 Plan to establish a fully endowed Complex Care Rehabilitation Center (CCRC)</td>
<td>b-State-of-The-Art-Medicine</td>
</tr>
</tbody>
</table>
The Dietary Department serves about 1100 meals per day to patients and cafeteria customers through a central cook-serve conventional food production system. Except for patients on maternity unit, patients mainly receive a non-selective menu. Patient meal service is being developed to offer a selective menu to other patient units as well. In the meantime, patients who have difficulties with their food selection are seen by dietary staff to assist them in obtaining their food preferences. The ultimate aim would be to offer room service where patients can order the meal they want and when they want it.

Nutrition care is provided to patients assessed to be at nutrition risk. Seven therapeutic dietitians are assigned to the various hospital units. Each dietitian has developed own specialty in nutrition support, surgery, renal, pediatrics, cardiology, oncology, transplantation and maternity medicine. In addition, outpatient dietetic service is provided to patients who are referred by medical staff. Outpatients are counseled in a designated clinic within the Dietary Department, as well as in the following Outpatient (OPD) clinics: Diabetic, Pediatric Nutrition, Adolescent and in St Jude Children Cancer Center.

On the education side, the Dietary Department is committed to teaching and runs a Dietetic Internship Program, where eight graduates in nutrition and dietetics are trained over a period of eleven months to become professional dietitians.

In addition, the Dietary Department provides nutrition education to Med IV Students during their Family Medicine rotation. Students learn about nutrition assessment and about hospital diets. Besides these two formal programs, therapeutic dietitians educate medical and hospital staff on nutrition related subjects as requested or as needed.

The Dietary department invited Dr. Romano Gatland, a well established external consultant, who ran the dietary service at MD Anderson for many years, as a consultant to assist in the strategic plan for the dietary department of AUB. The agreed upon tasks were as follows:

A. Conduct a review of the Dietary Department to assist the department in strategic planning
B. Evaluate the existing cook-serve food production system and determine whether a new cook-chill system would be more cost effective
C. Render advice for equipment requirements which fit in with the strategic plan
D. Render advice on facility renovation if the existing cook-serve system were to be retained
E. Assist in introducing innovative services such as patient room service
F. Assess self-operated vs. outsourced hospital food service

G. Assist in developing innovative and creative cafeteria services to increase revenue

The consultant’s report stated “The leadership and activities being performed by the Team at AUBMC is on par with those of premier university teaching hospitals in the United States. The team is current in both management and clinical practices. The level of clinical services was very impressive”. “AUBMC is far superior than both the Clemenceau Medical Center (CMC) and the Rafik Hariri University Hospital (RHUH), although the presentation of food in the former is more appealing.”

The Dietary Service defined its primary goals to be in concert with the Mission of American University Beirut Medical Center Medical Center.

Benchmarks with Hospitals in the US show that in the last 2 years, the **average cost per patient day for meals is $28.64 at AUBMC vs $50.28 in the USA.** Overall proportion of costs of the Dietary Department out of total patient hospital related expenses is 2.67% at AUBMC vs 1.63% benchmark in the US. Substantial savings may be achieved if a more efficient service is developed and cash sales in the cafeteria are increased. The latter are substantially lower at AUBMC when compared to benchmarks in the USA.

Initiatives to improve revenue to cost ratio as part of the department’s listed goals and initiatives.

<table>
<thead>
<tr>
<th>Mission</th>
</tr>
</thead>
<tbody>
<tr>
<td>To effectively offer high quality food and nutrition services, by meeting the needs and expectations of its customers. Effective nutrition intervention and patient education are offered to inpatients and outpatients, while high quality food services are offered to inpatients, staff and visitors. In addition, the Dietary Department is responsible for training graduates through its Dietetic Internship Program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Accomplishments (05-06)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Food safety is now evaluated through the measurement of meat core temperature and indicated 100% compliance.</td>
</tr>
<tr>
<td>• Audits were completed on nursing compliance with initial nutrition screening in terms of timing and accuracy of reporting, and revealed an average of 88.75% compliance on all studied units (pooled together).</td>
</tr>
<tr>
<td>• Dietitian’s compliance with the timeframe criteria of nutrition assessment was measured and showed 88% compliance in March, May and July-05 and 71% in July and August-06.</td>
</tr>
<tr>
<td>• Cafeteria customer satisfaction was conducted and showed an increase to 84.3% in October-05 (was 67% in October-04).</td>
</tr>
</tbody>
</table>
Cafeteria bill indicates the number of calories purchased
The Dietary Department, with the support of the Hospital Administration and HR, established the position of Dietary Quality Coordinator to carry out and implement quality improvement activities.
A computerized Diet Order System was developed by the hospital CNS and was introduced by the Dietary Department to six nursing units to replace the manual reporting of diet orders.

Vision
To remain the leader in the region for providing nutrition and food services according to world-class standards set by organizations such as JCI, ADA and FDA, and strives to make it more cost effective

7.1.1 Goals
7.1.1.1 Maintain a safe, health-driven efficient and financially prudent Dietary Department

7.1.2 Initiatives for Dietary
7.1.2.1 Meet JCIA and MOH accreditation standards

Nutrition Services
Provide effective nutrition care
7.1.2.2 Develop and implement standards of care
7.1.2.3 Develop and measure patient outcomes
7.1.2.4 Develop strong clinical skills through appropriate training and continuing education opportunities
7.1.2.5 Seek certification in advanced and specialized practice
7.1.2.6 Develop a well prepared and motivated clinical workforce
7.1.2.7 Introduce automation where possible
7.1.2.8 Meet the demand for increased out-patient counseling through additional human resources and clinic space
7.1.2.9 Establish out-patient dietician clinics in various hospital services
7.1.2.10 Collect data on significant nutritional interventions, monitor outcome and publish the findings
7.1.2.11 Work with medical staff on developing and implementing new protocols
7.1.2.12 Participate in collaborative research studies

Food Services
7.1.2.13 Provide for “Best in Class” patient meal service by adopting room service for patients
Provide quality food service
7.1.2.14 Build a new kitchen
7.1.2.15 Implement a new program for the preparation, delivery and service of cost effective, nutritious, attractive and temperate meals to patients, visitors and staff
7.1.2.16 Improve opportunities for sequential functions and work centers within the department
7.1.2.17 Improve workflow
7.1.2.18 Expand the cafeteria and remodel with trendy designs
7.1.2.19 Expand dining room, into the patio and Physicians Dining Room
7.1.2.20 Plan to relocate and redesign the Physicians Dining Room
7.1.2.21 Plan to relocate and redesign the Coffee Shop
7.1.2.22 Support Building 56 foodservice
7.1.2.23 Add conference rooms and dietary offices
7.1.2.24 Improve staff competence
7.1.2.25 Introduce innovative services such as patient room service, with 24h service

Maintain an efficient and financially prudent department
7.1.2.26 Improve productivity, control costs and increase revenues
7.1.2.27 Increase cafeteria and guest tray revenues

Education & Training
7.1.2.28 Meet American Diabetician Association (ADA) standards Dietetic Internship
7.1.2.29 Create a center of excellence in the Dietary Department which provides education, training and expertise to counterparts in Lebanon and the region
7.2 HOUSE KEEPING

**Mission**
To provide superior quality Environmental Services that consistently meets the mission and vision of the American University Medical Center (AUBMC) and to improve the quality of daily life of patients and staff alike by ensuring a clean, safe and healthy environment within all patient and public areas.
Housekeeping Department is committed to comply with all accreditation requirements (national and international) and to continually review and improve the quality objectives and the effectiveness of its Quality Management System.

Housekeeping management is outsourced to a known company in Beirut. The total cost is $1,944,731 of which $180,000 is paid for management. The supply cost is $288,000 per year, other material costs ~$100,000, and the work force costs including management is $1,556,731. The supply and material cost is 20%. The overall cost per square meter is around ~$45.3 at AUBMC, while benchmarks in the US are at $50.

Total House Keeping costs are 2.2% percent of Hospital related costs at AUBMC vs 1.67% at benchmarks in the US.

Calculating from both the differential costs of labor, supplies and materials between Lebanon and the USA and from differentials in the proportion of the cost of house keeping from total hospital costs indicated that our cost should be ~$32 per square meter, and hence initiatives should be set towards achieving this goal. A net annual cost benefit of $ 550,000-600,000 may be achieved if goal is reached.

**Major Accomplishments**
- Introduction of automatic dozers for the surface disinfectants (installation of these dozers is in process and will cover all hospital areas)
- New pest control plan
- New On/Off schedule reflecting a new distribution for manpower that meets the need of the different areas
- The monthly prize for the Employee of the Month includes employees who have good saving in supplies’ consumptions
- Additional supportive trainings for housekeeping staff provided by other departments (such as Infection Control program & Safety)

**Vision**
To be an accredited quality service provider assisting AUBMC as a whole in reaching its goals. Achieve benchmark efficiency while maintaining quality
### 7.2.1 Goals
- **7.2.1.1** Continuous search for new methods/equipment that will aid in providing better and more efficient service.
- **7.2.1.2** Increase the productivity of each housekeeping staff.
- **7.2.1.3** Reduce the cost per square meter while maintaining the same quality.

### 7.2.2 Initiatives for House Keeping

<table>
<thead>
<tr>
<th>7.2.2</th>
<th>Reference Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2.2.1 Strengthen the employees’ loyalty to the job</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>7.2.2.2 Increase positive competition</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>7.2.2.3 Review and redistribute manpower in an optimal manner</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>7.2.2.4 Continue training and cover for any lack in implementing related policies and procedures</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>7.2.2.5 Work on the mentality of the housekeepers to let them feel as if they are paying from their own pocket the cost of supplies</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>7.2.2.6 Encourage competition between the housekeepers by recognizing the best saving that was made by any of the housekeepers through our collected monthly data</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>7.2.2.7 Cooperate with purchasing department in order to monitor any alternative items for its cost and consumptions</td>
<td>b-Best Practices</td>
</tr>
</tbody>
</table>
### LAUNDRY

**Mission**

To provide the highest quality service to AUBMC’s staff and patients. The Laundry Department is to function as per the accreditation standards to ensure the best patient care. To ensure adequate supply of clean linen as required by the patients and staff of the AUBMC and on a timely basis to avoid overstocking.

The Laundry presents a challenge to the Medical Center Administration. As it stands now, this facility, located on the main Campus next to the Power Plant, processes 1.2 million kilograms of laundry annually. It is staffed with 53 employees and a manager with an average age of 46 and an average monthly cost/employee of $1,129.59 (basic salary and benefits). The laundry equipment is aging and would serve another 3-4 years but with frequent breakdowns. The cost of production is around US $ 1.27 per kilogram with a major component of this cost being manpower ($0.71).

The Sewing Room, which is a part of the Laundry, is staffed with four employees with an average age of 48 and an average monthly cost/employee of $1,302.23 (basic salary and benefits).

<table>
<thead>
<tr>
<th>Major Accomplishments</th>
<th>Safety &amp; Hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular disinfection is carried out for all surfaces in contact with soiled linen (trucks, elevator, carriages…).</td>
</tr>
<tr>
<td></td>
<td>Universal Precautions measures are implemented when handling soiled linen</td>
</tr>
<tr>
<td></td>
<td>Laundry staff are vaccinated on regular basis</td>
</tr>
<tr>
<td></td>
<td>A new Fire Alarm system is installed</td>
</tr>
</tbody>
</table>

**Functionality**

- A policy and procedures manual is established
- A linen committee is established and meetings are held to discuss and decide on various linen issues
- The linen room is transferred from the hospital building to the Laundry building
- A computerized system is implemented for the Laundry and Sewing Room.
- The linen and uniforms distribution process is restructured
- Fingerprints system is installed for Staff Attendance
- Restructuring all job descriptions
Vision

The Laundry Department will strive for excellence in its services. It will seek to be cost effective, have a hygienic environment, and use high tech equipments.

Options

Two options were identified to resolve the Laundry problem:

1. **Keep the service as an integral part of AUBMC** which would require an estimated $3.5 million over a period of 5 years to re-equip and train the existing staff on new production technologies and a systematic phasing out of the redundant staff over the period to arrive at a staffing of about 60% of the existing number and achieve a competitive cost to AUBMC of 60-65 c/Kg

2. **Outsource** the supply and processing of the laundry to an industrial laundry service (only one could be identified in Lebanon) or invite an operator who would operate the existing facility against a negotiated cost per kilogram and take in AUBMC Laundry staff (a major problem)

7.3.1 Goals

<table>
<thead>
<tr>
<th>7.3.1.1</th>
<th>Reduce the cost/kilogram as close as possible to benchmarks (about .60 cents per kilogram)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3.1.2</td>
<td>Establish a safe, JCIA compliant, and efficient operation</td>
</tr>
<tr>
<td>7.3.1.3</td>
<td>Have the best Laundry process for patient care</td>
</tr>
<tr>
<td>7.3.1.4</td>
<td>Meet accreditation requirements and international standards</td>
</tr>
<tr>
<td>7.3.1.5</td>
<td>Eliminate the risk of cross-contamination</td>
</tr>
<tr>
<td>7.3.1.6</td>
<td>Save in water consumption</td>
</tr>
<tr>
<td>7.3.1.7</td>
<td>Apply cost effectiveness measures</td>
</tr>
<tr>
<td>7.3.1.8</td>
<td>Hire a consultant to evaluate the existing laundry and the cost of its updating and transfer</td>
</tr>
</tbody>
</table>

7.3.2 Initiatives for Laundry

**In case option 1 was chosen, i.e. Keep the service as an integral part of AUBMC:**

<table>
<thead>
<tr>
<th>7.3.2.1</th>
<th>Transfer the current laundry to a site near AUBMC (a basement in the Salloum building was identified as an optimal solution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3.2.2</td>
<td>Replace the current Laundry equipment with an estimated cost of $2.5 million</td>
</tr>
<tr>
<td>7.3.2.3</td>
<td>Build the new laundry in compliance with all accreditation standards (the existing laundry lacks separate area for clean and soiled linen)</td>
</tr>
<tr>
<td>7.3.2.4</td>
<td>Make sure that the water storage system saves up to 25% of daily consumption</td>
</tr>
<tr>
<td>7.3.2.5</td>
<td>Develop and propose a well studied early departure</td>
</tr>
</tbody>
</table>
program in an effort to reduce the number of current staff to a ratio within established benchmarks

In case option 2 was chosen, that is Outsourcing,
The possibilities for outsourcing in Lebanon involves 2 industrial laundries, Clean Plus and Universal Services and Maintenance (USM).

- Clean Plus is located 12 kilometers north of Beirut which the Hospital Director visited. It handles currently over 70% of the hotels in Beirut and has the capacity and the surface area to develop a dedicated area, on a separate floor, that would service AUBMC. The principal has no prior experience with hospitals but is willing to invest in knowledge, equipment and technology. His reputation in this area is good. He is willing to evaluate the capabilities of the current staff and will consider employing the able ones. There is really no firm commitment on his part. Clean Plus estimated a ballpark figure of 60 to 65 cents per kilogram, as the cost to AUBMC including the cost of transportation of linen back and forth. (The current cost of AUB is $1.27 per kilogram). This will bring an estimated saving of around $744,000/anum.

  If Clean Plus is outsourced, the issue of transporting laundry back-and-forth to AUBMC during civil strife should be seriously considered. The hospital could have suffered for example during January 2007 events, when main roads in Beirut were closed.

- Contact was also established with another laundry service (USM) that does not have its own facilities but operates in the facilities of three hospitals in the Beirut area but with a combination of their own staff and the hospital’s staff (in one instance) or their own staff (in a second). They seem to be knowledgeable and have been in the field well over 35 years. USM will use our own premises and equipment and will supply the manpower as well as pay for equipment maintenance, electricity, fuel, chemicals and disposable bags. They indicated that the cost to AUBMC will be 37 to 43 cents per kilogram. The main issue with this option would be whether we can have an effective early departure plan.

  The Hospital Director and his team contacted both of these outfits. An RFP may be issued to solicit quotations.

  A Laundry specialized consultant may also be invited to evaluate the options with Medicine.
## 7.4 MEDICAL RECORDS

### Mission

To provide information management services that support the delivery of patient care and improve the management of the Medical Center resources.

The Department’s functions are: archiving medical records, the timely delivery of healthcare information to patients and physicians, and maintaining a clinical research data bank.

### Major Accomplishments

In addition to management of the Medical Records Department,

- Implemented the Master Patient Index Registration (MPI) in the following Private Clinics areas:
  - Internal Medicine
  - Surgery
  - Obstetrics / Gynecology
  - Ophthalmology
  - Pediatrics
  - Laboratory Medicine
  - Children Cancer Clinics of Lebanon (CCCL)
- Positioned itself to finalize implementation of MPI in the Family Medicine Department and the new Abu-Khater Medical Arts facility as soon as they open in building 23 and 56 (Autumn 2007).
- Increased the % rate of dictation of operative reports by surgeons within 24 hours, from 80% to 90%.
- Purchased LaserFiche document management software with two licenses and heavy duty scanners ordered.

### Vision

The Medical Records Department is a servicing department that creates an information architecture that will transform the delivery of health care from a process that simply generates data to a process that applies information to achieve better clinical outcomes.

### 7.4.1 Goals

<p>| 7.4.1.1 | Create a paper-less environment |
| 7.4.1.1 | Continue to provide efficient and user-friendly services |
| 7.4.1.2 | Continue to provide health care information to patients |
| 7.4.1.3 | Maintain support for immediate re-imbursement of patients’ bills |
| 7.4.1.4 | Establish a clinical research data bank |</p>
<table>
<thead>
<tr>
<th>7.4.2</th>
<th>Initiatives for Medical Records</th>
<th>Reference Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.4.2.1</td>
<td>Invest in superior transcription and dictation equipment</td>
<td>e-State-of-the Art Technologies</td>
</tr>
<tr>
<td>7.4.2.2</td>
<td>Invest in Medical Patient Records application</td>
<td>e-State-of-the Art Technologies</td>
</tr>
<tr>
<td>7.4.2.3</td>
<td>Make registration into Master Patient Index mandatory for all patients (In and Out), irrespective of the type of service they receive</td>
<td>e-State-of-the Art Technologies</td>
</tr>
<tr>
<td>7.4.2.4</td>
<td>Upgrade the Electronic Medical Records System</td>
<td>e-State-of-the Art Technologies</td>
</tr>
<tr>
<td>7.4.2.5</td>
<td>Continue training physicians and medical staff to best utilize the medical records resources</td>
<td>c-People Excellence</td>
</tr>
</tbody>
</table>
### 7.5 PHARMACY

**Mission**
To ensure ordering, timely receipt, provision and supply, adequate storing, formulation, and dispensing of pharmaceuticals to AUBMC patients in a safe and efficient manner. Advancing the professional practice, graduate and post graduate training, and research in Pharmacy at AUBMC by including all hospital activities related to the field under the Pharmacy professional leadership.

**Major Achievements**
- Initiated the Clinical Pharmacy Program
- Initiated the Adverse Drug Events system
- Initiated the drug and mixture program
- Established satellite pharmacies in the Children Cancer Center of Lebanon (CCCL) outpatient clinics and inpatient floor
- Automated and implemented an inventory system
- Remain open and provide pharmacy services till 11 pm

**Vision**
Expand the pharmacy to include a number of divisions, such as hospital pharmacy, clinical pharmacy, total parenteral nutrition, antiseptics and disinfectants.

#### 7.5.1 Goals

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5.1.1</td>
<td>To expand the Pharmacy to include dispensing, clinical pharmacy, total parenteral nutrition</td>
</tr>
<tr>
<td>7.5.1.2</td>
<td>Develop the clinical pharmacy program to support the medical and nursing staff on the unit</td>
</tr>
<tr>
<td>7.5.1.3</td>
<td>Automate and customize total parenteral nutrition mixture for patient care</td>
</tr>
<tr>
<td>7.5.1.4</td>
<td>Minimize the incidence of adverse drug events</td>
</tr>
<tr>
<td>7.5.1.5</td>
<td>Streamline the purchasing cycle and tighten the controls of the process</td>
</tr>
</tbody>
</table>

#### 7.5.2 Initiatives for the Pharmacy

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5.2.1</td>
<td>Implement the Clinical Pharmacy Program</td>
</tr>
<tr>
<td>7.5.2.2</td>
<td>Establish the formulation system</td>
</tr>
<tr>
<td>7.5.2.3</td>
<td>Establish the adverse drug events monitoring program</td>
</tr>
<tr>
<td>7.5.2.4</td>
<td>Expand the drug and mixture program</td>
</tr>
<tr>
<td>7.5.2.5</td>
<td>Develop total parenteral nutrition system; this entails enlarging the HEPA filtered positive pressure area and purchase automated mixing unit</td>
</tr>
<tr>
<td>7.5.2.6</td>
<td>Define location and space for main and satellite pharmacies as per guidelines of Master Plan</td>
</tr>
</tbody>
</table>

**Reference Patient Care Appendices**

- b-Best Practices in clinical Medicine
- d-enabling facilities
<table>
<thead>
<tr>
<th>Section</th>
<th>Requirement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5.2.7</td>
<td>Fulfill accreditation requirements</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>7.5.2.8</td>
<td>Define a position for supply chain control officer whose responsibility is the direct control of purchasing cycle</td>
<td>c-People Excellence</td>
</tr>
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</table>
FACILITIES and SAFETY

FACILITIES PLANNING and PLANT ENGINEERING

Mission
To provide safe, clean, comfortable and easily accessible facilities to ensure the University's success by providing:
- An outstanding healthcare environment for our patients
- An exceptional educational environment for our students
- A first-rate research environment for our scientists
- An excellent work environment for our faculty and staff

Major Accomplishments (Physical Plant)

OR Chillers: Installation of a new chiller plant on the roof of Phase II building to serve the operating rooms and other spaces that require year round cooling. The plant consists of 3 air cooled chillers, 135 tons each, 4 pumps with their accessories, an automatic feeding system, and a piping system connecting all these components and controlled by a modern digital Building Management System (BMS).

Fire Pumps: Installation of 2 separate fire pump plants for Phase-I and Phase-II buildings. Each of them is connected to the existing firefighting system of the building, and consists of 2 pumps and a jockey pump and a dedicated fire pump controller.

Computerized Maintenance Management Software (CMMS): In-house design of an Excel program where all tasks are listed with their frequencies. The software calculates the next due date of any task, and lists all tasks to be done for a certain period.

Predictive Maintenance (PdM) Program: Acquiring of PdM equipment (Thermal Imager, Ultrasonic Tester, Eddy Current Tester) and launching of a program to provide detection of faults on main utilities at early stages when they can still be managed and their effects minimized. This will reduce down time which affects hospital operation.

Firefighting System: Includes the design and installation of a sprinkler system covering all spaces at the medical center. This is an on-going project that is taking place in parallel with the in-house projects as well as the capital projects at the medical center.

Upgrade of Water Treatment Plants: Replacement of the existing water softening plant with a new one consisting of a twin vessel softener and related tanks and accessories. In addition, the existing reverse osmosis plant that serves the Kidney Dialysis unit as well as other departments was upgraded with more efficient and modern components.

Replace Medical Center’s Roof Water Tanks: Replacement of the two roof mounted metal water tanks (each serving a phase of the Medical Center) with a modern Glass Reinforced Plastic (GRP)
type.

**Chemical Water Treatment for Legionella in Open Cooling Towers:** Introduce chemical water treatment dosing system into Hospital and DTS building water cooling towers to protect system from corrosion, scaling and Legionella infection.

**Storage Capacity of Liquid Oxygen Tanks:** Replace the two liquid Oxygen (LOX) tanks that serve the needs of the Hospital with larger and modern ones to ensure a reserve capacity of 16 days without interruption.

**Central Medical Compressed Air System:** Introduce a central medical compressed air system with a pipe network throughout Phases I and II building that feeds medical air at two convenient pressures.

**Replacement of Cooling and Heating Coils:** Replacement of corroded cooling and heating coils in Air Handling units that serve the Hospital.

**Replacement of DTS House Pumps:** Replacement of old DTS house pumps with new variable frequency ones to meet the variable demand of building and conserve energy.

**Replacement of DTS Chilled Water Plant:** Replacement of old and ageing chilled water plant that feeds DTS and four other Campus buildings during cooling season. The complete plant is now replaced with modern and more energy efficient machines including roof cooling towers (in 2006), water chillers, pumps, interconnecting pipes and accessories, and digital BMS (in 2007).

**Central Medical Vacuum System for DTS:** This project is in the final stages of being awarded and installed. It includes a central vacuum plant that serves all labs in all departments in DTS.

**Emergency Generator:** a standby 775KVA generator (in sound-proof enclosure) was installed in the receiving area of the Medical Center. This generator is required by NFPA Codes to provide electrical power to critical areas and life supporting systems at the hospital in the event of power failures.

**Upgrade of the Medical Center Electrical Intake Room (EIR):** Installation of Medium Voltage (11kV) switchgears to provide additional power capacity during city power failures. Installation of Medium Voltage transformer and Automatic Transfer Switches as part of the NFPA required Emergency Power Supply System (EPSS).

**UPS network at MC:** Increasing the ampacity of the UPS network at the Medical Center through the installation of an additional 200KVA UPS. The total network ampacity became 360KVA which caters for the additional high tech. medical diagnosing equipment.

**Fire Alarm System:** Replacing the non-operational fire alarm system by a state of the art new one. All devices (smoke detectors, pull stations, etc.) are fully digital and addressable whereby any
device in alarm will automatically display its exact location (Floor, room, extension number) on the panel as well as over designated pagers (Beepers).

**Fire Speakers:** Replacing the existing background music (BGM) speakers at the Medical Center with new ones that are listed for both BGM and Fire Evacuation. Also, the number of speakers is increased to fully cover all the areas in the Medical Center (Staircases, Mech. Rooms, etc.) intelligibly.

**Building Management System (BMS):** Installing electronic, microprocessor controlled BMS system for the main environment control equipment (heating, air conditioning, etc.) in place of the non-operational and old pneumatic control. This provides more comfort to the occupants, more energy conservation/saving, and longer equipment life time.

**Nurse Call System (NCS):** Replacing the conventional NCS (installed in 1969) with digital networkable one. All units are linked to one management software that provides statistics on patient calls, nurses’ responses, etc. and this helps in proper allocation of staff per unit as well as patient satisfaction improvement process.

**Master Antenna Television (MATV) System:** Installation of TV antenna distribution system for patient rooms and waiting areas (more than 250 points) and introducing a bouquet of 21 channels consisting of local stations and satellite stations. Also, TVs were installed in semi-private, second class, and ward patient rooms.

**Elevators:** Replacing the old elevators of the Service Staff, Visitors, and E.R. (total of 9) which operates on DC voltage with new ones that are microprocessor controlled and operates on variable frequency and voltage to provide higher performance, efficiency, reliability, and speed for less energy consumption.

**Surgical Lights in O.R.:** replacing the old surgical lights (since 1969) in eight operating rooms with new ones that consist of two moving heads per fixture instead of one. Electronic dimming is provided on all heads with hour meter to replace bulbs before they reach their lifetime end.

**Ground Fault Circuit Interrupter (GFCI) Receptacles:** As required by Health Care NFPA Codes, all regular receptacles in the Medical Center that are in proximity of wet locations (sinks, etc) were replaced by GFCI ones. This considerably minimizes electrical shock hazards to individuals with wet hands.

**O.R. Clean Dumbwaiter:** replacing the old existing chain-type dumbwaiter with new rope-type one. The new one is a floor type with large car size to accept instruments case carts of sizes up to 80x100x120 cm.

**Issam Fares Hall (PGME) A/V Control:** Introducing new audio visual equipment for the Hall as well as a state of the art control
system having wired and wireless touch panels that provides full control of all Hall equipment and lighting.

**Emergency Power Network in DTS:** Introducing an emergency power network at DTS consisting of automatic transfer switches, panel boards, etc. to provide a higher reliability power source for the PCs, certain Lab. equipment, and egress lighting.

**UPS Power Network in DTS:** Introducing an Uninterruptible Power Supply network in DTS consisting of 2x40KVA UPSs, Panel Boards on each floor, etc. to provide clean and uninterrupted power to critical Lab. equipment.

**Energy Conservation:** Launching of a continuous energy saving program (ESP) that aims at reducing energy consumption while emphasizing sustainable energy sources. Some of the achieved tasks are: Energy Efficient Street Lighting in front of the Medical Center, Addressing and solving water leaks, Installation of BMS Systems, Efficient switch times of public areas and exterior lighting, etc.

**In-House Projects:** Over the past four years, Plant Engineering Medical Center (PEMC) was engaged in more than 140 in-house construction projects amounting a total of around USD 1,500,000. These projects varied from minor alterations and facelifts to a complete renovation of a floor or department.

**Wireless Computer Network:** PEMC installed the infrastructure for the implementation of a wireless computer network in SML, DTS, CEC, IFH and Dale Home. The installation will soon be under process for the Medical Center Phase I & II.

**In addition, a Master Plan was developed in 2000-2001 by Machado and Silvetti which was built around a programmatic plan compiled by MGT of America. As a result, the following projects were planned:** listed below is the current status.

**Accomplished**

- Completed renovating the Emergency Unit
- Completed the Outpatient Units of the Children Cancer Center (St. Jude)
- Consolidated the Eye Department and clinics on 7 South and part of 7 East of AUBMC Phase I building
- Developed a full plan for rotational renovation of the hospital building, including choice of material and furniture, by Dar Al-Handassah and Perkins and Wills
- Completed the designs for the inpatient adult cancer unit and the inpatient and outpatient units of the neuroscience program with a phased plan for their implementation
- Received the Abu-Khater Medical Arts facility (Building 23)
- Constructed a stacking diagram for all buildings of FM/AUBMC and presented in the Master Plan, which
addressed current deficiencies and proposed initiatives. FPDU is working with Medicine to develop an implementation plan, with phasing according to Medicine’s priorities.

**In Progress**

- Receive from the contractors the new Family Medicine / UHS Department, the inpatient and outpatient Psychiatry unit of Abu-Haidar, the Basile outpatient cancer unit, the Children Cancer Center inpatient unit, the Children Cancer Center and the HIS offices by October 2007 in building 56.
- Start Physical Works in the Basile Cancer Center inpatient facilities (8th floor of AUBMC Phase II building).
- Start physical works in the Abu-Haidar Neuroscience program.
- Start physical work in the Women’s Health program (AUBMC Phase I, 7th floor West).

**Planned Projects**

- Complete the implementation plan to optimize the Operating Rooms, and upgrade existing Operating Rooms and bring the total capacity to meet projected demands (14 ORs).
- Consolidate the ICUs on 2nd floor phase I building of AUBMC. Another scenario being studied is to move Laboratory Medicine to 2nd floor of phase I AUBMC and place the ICUs on 3rd floor.
- Establish the Office of Project Planning, Management and Tracking at AUBMC.
- Secure parking facility for hospital and new private clinics.
- Start planning landscaping / hardscaping and garden(s) for Medicine.
- Computerized maintenance management software.
- Develop the implementation plan for the renovation of the Multidisciplinary Musculoskeletal Disorder Program and start working on other multidisciplinary programs.
- Build a full rehabilitation Center in the future.
- Build a new hospital as per Master Plan where Dale Home and the parking lot are today.

**Vision**

‘Making AUBMC a Welcoming Environment’

Our vision is to build and maintain our facilities in the aim of creating a positive and safe physical environment for patients and visitors, as well as students and staff.
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<thead>
<tr>
<th>8.1.1</th>
<th></th>
<th><strong>Goals</strong></th>
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<tbody>
<tr>
<td>8.1.1.1</td>
<td></td>
<td>Make AUBMC a welcoming healthy and clean environment</td>
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<td>8.1.1.2</td>
<td></td>
<td>Provide for a safe, reliable, transparent, accountable and fast service</td>
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<td>8.1.1.3</td>
<td></td>
<td>Involve the end-user in the planning process</td>
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<td>8.1.1.4</td>
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<td>Establish a management and coordination office</td>
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<td>8.1.1.5</td>
<td></td>
<td>Work on appropriate space allocation</td>
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<td>8.1.1.6</td>
<td></td>
<td>Monitor Performance Improvement and Quality Controls</td>
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<td>8.1.1.7</td>
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<td>Create an environment of Accreditation Awareness</td>
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<td>8.1.1.8</td>
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<td>Encourage Multi-skilled workers</td>
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<td>8.1.1.9</td>
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<td>Support motivational programs for workforce</td>
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<td>8.1.1.10</td>
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<td>Create a safe and supportive environment</td>
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<td>8.1.1.11</td>
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<td>Develop Marketing Strategies and fundraising activities</td>
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<td>8.1.1.12</td>
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<td>Encourage effective communication</td>
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<td>8.1.1.13</td>
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<td>Secure appropriate budget</td>
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<td>8.1.1.14</td>
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<td>Foster cost effectiveness operation</td>
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<td>8.1.1.15</td>
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<td>Develop a return on investment plan</td>
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<tr>
<th>8.1.2</th>
<th><strong>Initiatives</strong></th>
<th><strong>Reference Patient Care Appendices</strong></th>
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<tbody>
<tr>
<td>8.1.2.1</td>
<td>Establish the office of Management and Planning</td>
<td>d-enabling Facilities</td>
</tr>
<tr>
<td>8.1.2.2</td>
<td>Implement a Computerized Maintenance Management Software (CMMS)</td>
<td>e-State-of-the-art Technologies</td>
</tr>
<tr>
<td>8.1.2.3</td>
<td>Provide for additional parking facility for hospital and new private clinics</td>
<td>d-Enabling Facilities</td>
</tr>
<tr>
<td>8.1.2.4</td>
<td>Enhance landscaping / hardscaping and garden(s)</td>
<td>d-Enabling Facilities</td>
</tr>
<tr>
<td>8.1.2.5</td>
<td>Work on proper space allocation</td>
<td>d-Enabling Facilities</td>
</tr>
<tr>
<td>8.1.2.6</td>
<td>Monitor Staff Performance Improvement</td>
<td>c-People Excellence</td>
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<tr>
<td>8.1.2.7</td>
<td>Work on Facility Image Improvement</td>
<td>d-Enabling Facilities</td>
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<tr>
<td>8.1.2.8</td>
<td>Implement Energy Conservation plan</td>
<td>a-Accreditation</td>
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<tr>
<td>8.1.2.9</td>
<td>Adapt Standardization and Procedures</td>
<td>a-Accreditation</td>
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<tr>
<td>8.1.2.10</td>
<td>Monitor Customer Perspective Survey</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>8.1.2.11</td>
<td>Implement Staffing Plan</td>
<td>c-People Excellence</td>
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### Mission

Provide proper technology transfer and technology management services to the Faculty of Medicine and Medical Center at AUB, the university, Lebanon and the Region to support high international standards of education, research and patient care. Provide top quality work, and through teamwork, be prompt, safe, efficient, accurate, creative, cost-effective, and careful.

### Major Accomplishments

**Technology Transfer & Management**

- Developed the equipment procurement procedure and service contracts for AUB.
- Developed the AUB Request For Proposal Forms.
- Developed an Equipment Acquisition Policy for AUBMC.
- Computerized the equipment data of AUBMC together with the PM needed for each machine & launching a new PM program.
- Developed a network-based software for Medical Engineering Department.
- Spear headed the Y2K project at AUBMC and AUB and worked on developing contingency plans for equipment failure.
- Formed a Technology Review and Process Committee for AUBMC and the Faculty of Medicine
- Supervised the development and launching of a WEB based Equipment Inventory Program.
- Developed a WEB Based calls system software.
- Supervised the design & development of a WEB Based Equipment Budgeting Software for AUBMC and AUB.
- Implemented an on line equipment management module in the labs to allow access equipment history and inventory.
- Is actively participating in the AUB Core Lab’s Equipment Committee.
- Continued help in budgeting, preparing bid documents, and evaluating the bids of equipment in AUBMC, DTS and recently FAS
- Expanded our services to cover not only AUBMC and DTS but FAS too.
- Offered major help to the environmental projects at AUB.
- Took over fully the responsibility of handling the medical equipment maintenance contracts and outside repairs and made substantial savings in it.
- Achieved a very high score without citations in the Lebanese Hospitals Accreditation
Research and Development:

- Installed special software for capturing and archiving high resolution Ophthalmology images and Endoscopic and GI images
- Installed special software for digitally recording images in the OR
- Developed in house digital EEG units instead of buying new ones saving around US $ 80,000
- Developed/implemented with CNS, a dictation (interactive voice responder) system in Medical Records
- Played a very important role in planning and execution of the pioneering surgeries involving deep brain stimulation that were done at AUBMC. This entailed designing a special phantom to verify the calibration of the stereotactic frame, a special adapter for the micrometer drive, helping in the planning phase for the surgeries via special computer software, and during the surgeries, by recording and analyzing the data that was being picked up from the brain.
- Designed and constructed a special syringe pump for block Anaesthesia. A paper was also published
- Designed and developed a special recorder for the Pharmacology Department using LabView Software instead of buying a new recorder

Outside Consultancies/Projects

**Lebanon:**

- Carried out a study for UNICEF on Lebanese governmental hospitals.
- Prepared the equipment list, set the scope of work in the Chronic Care Center, Hazmieh, Lebanon and advised on the specifications for construction of special areas in the center, and advised on the equipment selection.
- Worked on a comprehensive project proposal for renovating Hamlin Hospital (Lebanon) including the medical, business, architecture, administrative, and equipment aspects.
- Worked partially on a study for WHO & the Ministry of Health about forming a central biomedical department for government hospitals.
- Consulted for the Italian Embassy on the Rehabilitation of the Lebanese National Health Central Laboratory
- Consulted for a medical center in Lebanon including advanced diagnostic imaging equipment like PET-CT
• Planned and developed the National Y2K campaign in the Health sector. This included preparing Y2K package, TV interviews and lectures.
• Advised the Australian Consulting Team on the Biomedical Standards for Hospitals in Lebanon. Organized training for Lebanese Hospitals on the new biomedical accreditation standards.
• Gave a 3 days workshop to the Palestinian Red Crescent Administrators and biomedical engineers on how to improve their clinical engineering services. Project sponsored by EU and the Italian NGO, CISP.
• Organized and participated in in-house training for 2 non-AUB non-Lebanese biomedical engineers. Training sponsored by a donor.
• Organized and participated in house training for 6 non AUB biomedical technicians and engineers. Project paid for by the Italian Government.
• Planned, supervised, prepared and participated in a giving 20 x 4 hours biomedical training session to staff from other hospitals. Training was given by AUBMC staff. Training sponsored by EU and the Italian NGO, CISP.

Middle East

• Consulted for Dar-A1-Handasah in Cairo for the building of a new Medical Center in an Arab country. The Medical Center has more than 300 beds and a radiology department with CT-scanner and an MRI.
• Consulted for WHO in Iraq on the Evaluation of Role of WHO and other UN agencies in the biomedical field (equipping hospitals, medical and medical educational centers) in the 3 Northern Governorates of Iraq.
• Consulted for the National Guard Health Affairs in Saudi Arabia

Networking With

• FDA, Global Medical Forum, ECRI (USA & Dubai), Aramark USA, German, Biomedical Engineers and Associations in USA

Conducted several workshops, seminars and held presentations in Lebanon and the Region
Vision

AUBMC Medical Engineering is a leading regional provider of technology transfer and management services that operates at international standards and participates in research and development projects of education and patient care.

8.2.1 Goals

Continue to be a leading regional provider of technology transfer and management services

8.2.1.1 Enhance research and development functions
8.2.1.2 Maintain efficient and effective high quality services
8.2.1.3 Achieve regulatory compliance
8.2.1.4 Sell services. Enhance support and advising on medical technology

8.2.1.5 Improve human health through proper modern healthcare, excellence in research, and superior education, by integrating the two sciences of engineering and medicine

8.2.2 Initiatives for Medical Engineering

8.2.2.1 Restructure the Medical Engineering Department (in phases) - Hiring qualified engineers
8.2.2.2 Hire qualified technicians
8.2.2.3 Participate in conferences and workshops (minimum 2/year)
8.2.2.4 Provide continuous education in the field of medical technology
8.2.2.5 Allocate new office space for Medical Engineering 590 m²
8.2.2.6 Implement regularly equipment management and maintenance programs/ software to meet local and international standards
8.2.2.7 Develop external service/ training programs
8.2.2.8 Market AUBMC Medical Engineering services
8.2.2.9 Train nursing staff, and support teams on the proper use and care of equipment
8.2.2.10 Participate in medical and basic sciences procedures / experiments

Reference Patient Care Appendices

c-People Excellence

d-enabling Facilities

e-State-of-the-art Technologies

g-Marketing
ENIRONMENTAL HEALTH, SAFETY and MANAGEMENT (EHSRM)

The American University of Beirut Medical Center (AUBMC) has been and continues to be a leader in the healthcare field in the region. Presently, AUBMC is accredited by the Lebanese Ministry of Health and is seeking accreditation by the Joint Commission for International Accreditation (JCIA). In addition, various departments within AUBMC are also working on becoming accredited with respect to their areas of specialty. Some of these departments include the Pathology and Laboratory Medicine, which is accredited by the College of American Pathologists (CAP), and the Nursing Services, which aspiring for Magnet designation. Moreover, AUBMC is in the process of applying for licensing from the Lebanese Atomic Energy Commission as required by the latest Lebanese regulations pertaining to the use of radiation. The accreditation bodies and the legal authorities will be inspecting AUBMC on regular basis to ensure compliance with their requirements. It is essential to point out that safety related issues are an integral part of these accreditation standards and requirements. Accordingly, AUBMC must have control over the entity providing safety services since such services have a profound impact on its operation and status. A number of the employees of radiation oncology, radiology and other services at AUBMC perform many of the required duties while doing their own essential work and hence redundancy will be minimized or eliminated.

The Environmental Health, Safety & Risk Management (EHSRM) Department was established 10 years ago as the authority having jurisdiction to develop and implement a safety and risk management program for the entire University (Campus, Medical Center and Farm). While there have been exceptional services provided by various EHSRM personnel, there is consensus that the department can be more efficient, proactive, and extensive with its services.

This plan entails a proposal to change the current EHSRM organizational setup and reporting line to better attend to the needs of the University and its Medical Center. Once adopted, these proposed changes will help ensure that EHSRM provides the required services in an efficient, steady and comprehensive manner yet with approximate savings of 30% of the current EHSRM budget. Moreover, some of the services that are currently provided and will be provided by EHSRM in the near future are essential to assure the safety of patients, staff, students and the general public and may not be provided by any other entity in the region. When all activities that fall under its jurisdiction are up to local and international standards, EHSRM is expected to provide seminars, workshops and services to other hospitals and universities in the country and the region. Such services will be beneficial to the University and will reassure the University’s position as a focal point of uniqueness, distinction and excellence.
Overview of the Current EHSRM

Currently, EHSRM consists of fourteen employees; director, seven managers, four grade 11 and one grade 9 employees distributed over three divisions. These three divisions are: Radiation & Biosafety, Risk Management, and Life Safety & Hygiene.

Radiation & Biosafety Division

The Radiation & Biosafety Division (RBD) was established to oversee, control and provide services pertaining to the handling, disposal, use, and quality control of radiation and biohazardous materials throughout the University. Under the direction of Dr. Malek Chatila, RBD expanded its duties in the Medical Center to provide essential services to cover other areas outside of its original scope, including but not limited to general safety, infection control, and quality assurance. As such, RBD officially assumed all other safety responsibilities at the Medical Center back in November 2005. RBD also works closely with the Hospital Infection Control Program. In recent weeks, RBD has assumed the responsibilities of establishing a respiratory and ventilation protection programs, and an asbestos control program throughout the University. In order to better attend to its new responsibilities, the grade 14 managerial position of the Health Physicist is being replaced by two grade 11 positions; a Radiation Protection Specialist and an Environmental Health Specialist. This will allow RBD to perform its expanded duties without any additional expected cost to the University. Currently, over 90% of the services that are provided by RBD are to the Medical Center.

Risk Management Division

Up till March of 2006, the Risk Management Division (RMD) consisted of only the University Risk Manager. The Risk Manager was entrusted in establishing a University wide risk management program. This program includes loss exposure identification and analysis, loss financing, accident statistics, investigation and prevention, claims management and settlement, worker’s compensation, contract review, general insurance needs assessment, follow up on public and student events, travel insurance to faculty and staff, research studies informed consent and insurance needs. The Risk Manager is expected to focus more on AUBMC needs with respect to risk assessment/management as pertaining to daily activities and contracting with third parties. This includes reviewing of policies, procedures, employment contracts for casual works, services contracts, purchasing, scholarship agreement, etc.

In March 2006, the Wellness/Loss Control Officer was recruited with the main duty to increase health risks awareness. This program has not started yet. The Wellness Officer is expected to work closely with the Benefits Section of the Health Insurance Plan. The Wellness Officer and the Administrative Assistant became reporting to the Risk Manager in March of this year. UHS was doing this function very well and should continue to initiate wellness programs. It has significantly greater capacities than EHSRM. AUBMC also launches many programs for all the public including AUB’s.
**Life Safety & Hygiene Division**

This division should have been responsible for all general safety, life safety, sanitation, and construction related activities throughout the University.

**Proposed Reorganization of EHSRM**

While the department is somewhat overstaffed, some essential tasks which fall under the department responsibilities are not currently being performed and effort is spent on works that may not be relevant to the department. Moreover, four out of the fourteen positions that are currently available in the department, i.e. 30%, are either not needed or better suited to be in other departments.

As mentioned previously, the *Wellness Officer* is a new position which is a couple of months old. This position is not relevant to EHSRM and should be eliminated or transferred to the UHS. This position may remain at EHSRM as an *Executive Officer* and hence there will be no need for the *Administrative Assistant* or vice versa. The unneeded person should be transferred to another department in need of personnel.

While the *Fire Protection Engineer* is offering essential service to the University, most of the works provided by this position is to the Facility Planning & Design Unit (FPDU), and to the Physical Plant Department. Hence from the type of works that are currently being performed by the *Fire Protection Engineer*, and from a process efficiency perspective, it will be more suitable to transfer this position to the FPDU. Such a transfer will allow the *Fire Protection Engineer* to be involved in projects at the early stages.

The duties which are currently being assumed by the *Environmental & Safety Engineer* may be distributed to existing staff: the *Occupational Safety Officer*, the *Sanitarian*, which will be reclassified as a *Hygiene Officer*, the *Health & Safety Technician* and the *Environmental Health Specialist*. Hence the person filling this position will no longer be needed in the near future and therefore will also need to be transferred out of the department.

The current organizational chart of EHSRM, with the above mentioned changes are provided in figure 1. In addition to containing the replacement of the Health Physicist position by a *Radiation Protection Specialist*, and an *Environmental Health Specialist*, figure 1 also contains the current salaries (in blue) and the proposed new salaries (in red). The proposed new organizational chart of EHSRM is provided in figure 2. EHSRM plays a unique, important and vital role in the day to day operations of the Medical Center. This role, is not only limited to accreditation and regulatory requirements, but it also has a direct impact on patient care and in assuring a safe working environment. The implementation of this proposal will help ensure that EHSRM is streamlined, efficient, and effective in providing essential services for the entire University at a saving of 30% of its current budget.
Figure 1: EHSRM Organizational Chart with Suggested Changes

- Assume Directorship & remains the Radiation & Biosafety Officer.
- Title to be changed to Assistant Director for Risk Management.
- Radiation & Biosafety Division
  - URSC Radiation & Biosafety Officer (Grade: Management, $3800) ($6000)
  - Occupational Safety Officer (Grade: Management, $2800)
  - Environmental Health Specialist (Grade: 11, $600)
  - Radiation Protection Specialist (Grade: 11, $875)
  - Radiation Protection Specialist (Grade: 11, $875)
  - Biosafety Specialist (Grade: 11, $875) ($1050)

- University Risk Management Division
  - University Risk Manager (Grade: Management, $2600) ($3000)
  - Wellness/Loss Control Officer (Grade: Management, $1000)
  - Administrative Assistant (Grade: 11, $750)

- Life Safety & Hygiene Division
  - Fire Protection Engineer (Grade: Management, $3300)
  - Environmental & Safety Engineer (Grade: Management, $2500)
  - Sanitarian (Grade: Management, $1500)
  - Health & Safety Technician (Grade: 9, $550)

- Should be transferred to the Campus Human Resources as a Wellness Officer as HR wanted to establish a Wellness Program. This position is couple of months old and is not relevant to EHSRM.
- Should be transferred to the Facility Planning & Design Unit since job duties are facility management related.
- This position is not needed.

Director of EHSRM (Grade: Management, $8000)

- Save EHSRM 4 Managerial FTEs (30% of EHSRM FTEs).
- Save the University 2 Managerial FTEs (15% of EHSRM FTEs).
- Salaries savings: 40% to EHSRM 26% to the University

Figure 2: Proposed New EHSRM Organizational Chart

- Director, Radiation & Biosafety Officer (Grade: Management)
- Assistant/Director for Risk Management (Grade: Management)
- Administrative Assistant (Grade: 11) or Executive Officer (Grade Management)

Radiation & Biosafety Unit
- Radiation Protection Specialist (Grade: 11)
- Radiation Protection Specialist (Grade: 11)
- Biosafety Specialist (Grade: 11)

Health & Safety Unit
- Occupational Safety Officer (Grade: Management)
- Hygiene Officer (Grade: Management)
- Environmental Health Specialist (Grade: 11)
- Health & Safety Technician (Grade: 9)
Proposed Reporting Line

Due to the specialized technical services that are/will be provided by EHSRM, it is more economically and logistically feasible to maintain EHSRM unified as one department. However, as mentioned at the beginning of this report, the Medical Center will be inspected on regular basis by various accreditation and regulatory bodies and that safety related issues play an integral part of these standards and requirements. Therefore, the services which fall under the jurisdiction of EHSRM will have a profound impact on the operation and status of the Medical Center. Hence the Medical Center needs to be involved in the day to day operations of EHSRM.

Moreover, as indicated by table 1, which provides the expected time allocations for each EHSRM staff between the Medical Center and the Campus, 70% of works are related to the Medical Center.

<table>
<thead>
<tr>
<th>Title</th>
<th>AUBMC FTE</th>
<th>Campus FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>0.9</td>
<td>0.1</td>
</tr>
<tr>
<td>Assistant Director for Risk Management</td>
<td>0.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Occupational Safety Officer</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hygiene Officer</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Biosafety Specialist</td>
<td>0.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>0.9</td>
<td>0.1</td>
</tr>
<tr>
<td>Radiation Protection Specialist</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Radiation Protection Specialist</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Environmental Health Specialist</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Health &amp; Safety Technician</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

In light of the above, it is fundamental that EHSRM reports to the Vice President for Medical Affairs. Such reporting is necessary to provide EHSRM authority over the entire Medical Center (Hospital, Medical School, etc.). Since EHSRM also provides services to the Campus, the existing EHSRM Oversight Team, which consists of VP for Medical Affairs, VP for Administration, and the Director of EHSRM, should be expanded to include: VP for Medical Affairs, VP for Facilities, Provost, and the Director of EHSRM. The EHSRM Oversight Team will provide EHSRM the necessary support and authority in implementing policies and procedures in order to assure the safety of personnel, patients, students, and visitors.

In addition, EHSRM is currently the custodian of the University Insurance. This insurance includes coverage for malpractice, public liability, property, etc. Table 7 provides the 2005/2006 insurance premiums for the various coverages and the distribution of those premiums between the Medical Center and the Campus. As indicated by table 7, approximately 70% of the entire insurance premiums are related to
the Medical Center. Hence with the implementation of this proposal, EHSRM should remain the custodian of the insurance. Moreover, the University Ad Hoc Committee on Insurance should continue assessing insurance needs and selection to better serve University interest.

Proposed Financial Savings

The implementation of this proposal will result in substantial financial savings of at least 30% of the current EHSRM budget. These are due to savings in salaries & benefits (40%), and in the operational budget (17%). Tables 2 and 3 compare the proposed 06/07 total budget with the current 05/06 and the draft 06/07 budgets.

Table 2: Proposed 2006/2007 Vs. 2005/2006 Total Budget

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries:</td>
<td>$209,700</td>
<td>$353,700</td>
<td>$(144,000)</td>
<td>-41%</td>
</tr>
<tr>
<td>Benefits + NSSF (0.3 * Salaries):</td>
<td>$62,910.0</td>
<td>$106,110</td>
<td>$(43,200)</td>
<td>-41%</td>
</tr>
<tr>
<td>Operational Budget:</td>
<td>$197,323</td>
<td>$267,213</td>
<td>$(69,890)</td>
<td>-26%</td>
</tr>
<tr>
<td>Total:</td>
<td>$469,933</td>
<td>$727,023</td>
<td>$(257,090)</td>
<td>-35%</td>
</tr>
</tbody>
</table>

Table 3: Proposed 2006/2007 Vs. Draft 2006/2007 Total Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Proposed</th>
<th>Draft</th>
<th>Difference</th>
<th>% Diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries:</td>
<td>$209,700</td>
<td>$353,700</td>
<td>$(144,000)</td>
<td>-41%</td>
</tr>
<tr>
<td>Benefits + NSSF (0.3 * Salaries):</td>
<td>$62,910.0</td>
<td>$106,110</td>
<td>$(43,200)</td>
<td>-41%</td>
</tr>
<tr>
<td>Operational Budget:</td>
<td>$197,323</td>
<td>$237,944</td>
<td>$(40,621)</td>
<td>-17%</td>
</tr>
<tr>
<td>Total:</td>
<td>$469,933</td>
<td>$697,754</td>
<td>$(227,821)</td>
<td>-33%</td>
</tr>
</tbody>
</table>

Table 4 compares the proposed 06/07 operational budget to the 04/05, 05/06 and the draft 06/07 budgets. The first item in table 4, i.e. the actual cost of supplies, will be reevaluated in the upcoming year. While savings will be achieved by better management,
these might be balanced by the required works that EHSRM should be performing. The main cost of item 3 is due to equipment renewal, $47,000, i.e. 23% of the operational budget. With proper management and the avoidance of purchasing of unneeded equipment, it is expected that the cost of equipment renewal to decrease by $20,000 annually and therefore resulting in additional 10% savings in the operational budget.

Proposed Allocation

Based on the proposed 06/07 budget and the expected percentage of time spent by each employee between the Medical Center and the rest of the University, it is estimated that 25% ($117,000) of EHSRM budget will be spent on non-Medical Center related works and hence should be allocated to the Campus, tables 5 & 6.

Table 5: Salaries Allocation for EHSRM Staff Between AUBMC & Campus

<table>
<thead>
<tr>
<th>Title</th>
<th>Salary</th>
<th>FTE</th>
<th>Salary</th>
<th>FTE</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>$72,000</td>
<td>0.9</td>
<td>$64,800</td>
<td>0.1</td>
<td>$7,200</td>
</tr>
<tr>
<td>Assistant Director for RM</td>
<td>$36,000</td>
<td>0.8</td>
<td>$28,800</td>
<td>0.2</td>
<td>$7,200</td>
</tr>
<tr>
<td>Occupational Safety Of.</td>
<td>$33,600</td>
<td>1</td>
<td>$33,600</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hygiene Officer</td>
<td>$18,000</td>
<td>0.2</td>
<td>$3,600</td>
<td>0.8</td>
<td>$14,400</td>
</tr>
<tr>
<td>Biosafety Specialist</td>
<td>$12,600</td>
<td>0.8</td>
<td>$10,080</td>
<td>0.2</td>
<td>$2,520</td>
</tr>
<tr>
<td>Administrative Ass.</td>
<td>$8,400</td>
<td>0.9</td>
<td>$7,560</td>
<td>0.1</td>
<td>$840</td>
</tr>
<tr>
<td>Radiation Protection Sp.</td>
<td>$8,100</td>
<td>1</td>
<td>$8,100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Environmental Health Sp.</td>
<td>$7,200</td>
<td>0.7</td>
<td>$5,040</td>
<td>0.3</td>
<td>$2,160</td>
</tr>
<tr>
<td>Health &amp; Safety Tech.</td>
<td>$6,600</td>
<td>0</td>
<td>$6,600</td>
<td>1</td>
<td>$6,600</td>
</tr>
<tr>
<td>Total:</td>
<td>$209,700</td>
<td>7</td>
<td>$166,620</td>
<td>3</td>
<td>$43,080</td>
</tr>
</tbody>
</table>

Table 6: 2006/2007 Proposed AUBMC Allocations to the Campus

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Campus</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$209,700</td>
<td>$43,080</td>
<td>21%</td>
</tr>
<tr>
<td>Benefits + NSSF (0.3 * Salaries):</td>
<td>$62,910.0</td>
<td>$12,924</td>
<td>21%</td>
</tr>
<tr>
<td>Operational Budget (campus FTEs / total FTEs * budget):</td>
<td>$197,323</td>
<td>$61,170</td>
<td>31%</td>
</tr>
<tr>
<td>Total</td>
<td>$469,933</td>
<td>$117,174</td>
<td>25%</td>
</tr>
</tbody>
</table>

Mission

Ensure that safety services will be provided to AUBMC in a streamlined, efficient, and effective manner at minimum cost.
**Major Accomplishments**

- Monthly wipe tests in all laboratories/divisions of the Medical Center using radioactive materials
- Monitoring of radioactive materials upon receival for laboratories/divisions of the Medical Center for possible leakage
- Monitoring of radioactive materials upon receival for divisions in DTS for possible leakage
- Keeping inventories of radioactivity on board
- Developed a standard and procedures manual

**Vision**

EHSRM will play a unique, important and vital role in the day to day operations of the Medical Center to make all those concerned take full ownership of making AUBMC the best and safest environment.

### 8.3.1 Goals

- 8.3.1.1 Devolution of EHSRM to better attend to the needs of the Medical Center
- 8.3.1.2 Assure the safety of patients, staff, students and the general public
- 8.3.1.3 Ensure AUBMC position as a focal point of uniqueness, distinction and excellence
- 8.3.1.4 Develop at AUBMC a training program for staff of other hospitals in Lebanon and the Region
- 8.3.1.5 Create public awareness and develop educational material on EHSRM

### 8.3.2 Initiatives for EHSRM

<table>
<thead>
<tr>
<th>Reference</th>
<th>Patient Care</th>
<th>Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.2.1</td>
<td>Establishment of EHSRM at AUBMC</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>8.3.2.2</td>
<td>Continue to be accredited by the MOH</td>
<td>a-Accreditation a-Accreditation</td>
</tr>
<tr>
<td>8.3.2.3</td>
<td>Seek accreditation by the JCIA</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>8.3.2.4</td>
<td>Seek licensing from the Atomic Energy Commission (required by the latest Lebanese regulations pertaining to the use of radiation)</td>
<td>a-Accreditation</td>
</tr>
<tr>
<td>8.3.2.5</td>
<td>Provide seminars, workshops and services to other hospitals in the country and the region</td>
<td>g-Marketing</td>
</tr>
<tr>
<td>8.3.2.6</td>
<td>Establishing a respiratory and ventilation protection programs (work closely with the Infection Control program)</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>8.3.2.7</td>
<td>Re-evaluate cost of supplies, achieve saving by balancing the work performed</td>
<td>b-Best Practices</td>
</tr>
<tr>
<td>9</td>
<td>ADMINISTRATIVE SERVICES</td>
<td></td>
</tr>
</tbody>
</table>
### Scope of services

- **Strategic management role:**
The human resource department is a partner in aligning the human capital with the strategic direction of the medical center, and implements functional plans accordingly. It is involved in the decisions that provide overall direction and vision for the hospital. Being a strategic partner, it understands the strategic objectives of AUB and links accordingly the HR policies and practices, to make the planned changes happen.

- **Enabler and consultant role:**
The Human Resources Department facilitates HR knowledge transfer to AUBMC management at all levels. HR officers are accessible to all employees and attuned to their changing needs and concerns. They serve as consultants to head of departments by helping them diagnose problems and develop solutions that incorporate good HR practices. They enable head of departments to be more effective by designing and carrying out activities such as recruiting, selecting, evaluating, and ensure adequate training and development to enable employees to be more effective.

- **Monitoring and maintaining role:**
The HR department is responsible to monitor that HR programs and plans are implemented fairly and consistently, as well as monitoring the outcomes and effectiveness of all HR activities. It also has an important role in ensuring that the organization maintains overall morale and a healthy corporate culture. It provides guidance, counseling and advices to employees. It also anticipates changes based on organizational goals and assist in identifying skills and competencies required and ensures their availability at the right time.

### Functions:

- **Personnel management and manpower planning**
  a. Updating organizational charts and organization development
  b. Developing staffing plans
  c. Assisting in workload/productivity measurement
  d. Investigating staffing requests/ replacements
  e. Investigating and following on disciplinary and legal issues
  f. Writing and updating job descriptions.
• **Recruitment and selection**
  a. Developing a recruitment plan
  b. Career counseling/identifying personal competencies
  c. Conducting selection and screening interviews and tests.
  d. Developing and conducting campaigns and open house.

• **Reward and compensation**
  a. Maintaining the pay structure.
  b. Administering merit increases, other pay and promotion increases.
  c. Job evaluation.
  d. Maintenance of career ladders, job families and retention plans.

• **Performance development and training**
  a. Maintaining staff development plan.
  b. Coordinating new employee orientation
  c. Coordinating and analyze employee surveys
  d. Coordinating and review performance appraisal process
  e. Conducting exit interviews.
  f. Receiving employees’ complaints/appeals.
  g. Coordinating service award ceremonies.

• **Data and systems support**
  a. Maintenance of HR information systems
  b. HR balanced scorecard
  c. Benchmarking
  d. Preparation of monthly and statistical reports
  e. Newsletter
  f. Update of HR webpage

• **Quality management system**
  a. Accreditation standards
  b. Policies and procedures
  c. Performance improvement plan

**Mission**
Maintain and improve the medical center human capital by planning and carrying out short-term and long-term related activities, in a fair, consistent and objective manner, to sustain a healthy corporate culture and excellent patient care.
Major Accomplishments

- Applied with the University an early departure program (EDP) in:
  - 2003- Sixty- three employees departed, only 30 were replaced, at about one third of the salaries.
  - 2005- Twenty six departed and 18 were replaced with one third of the salaries
- Completed the certification program offered to all HR Professional staff at AUB successfully.
- Removed automatic annual salary increases (4%), and replaced it with a merit-based system of salary increases in 2003 as part of an all University plan
- Implemented the Wintime (Time Attendance Management System) in all Non Nursing Departments.
- Established an HR website and Web Enabled HR Services, such as a new on line leave request, HR reports and HR forms
- Automated the HR processes and developed a new HR Systems (Personnel Management System, Transaction Log System, Training Database, Sick Leave).
- Initiated the staffing plan for all AUBMC Departments.
- Completed Consolidation of personnel files and initiation of the scanning of personnel files project expected to end by July 2006.
- Passed the Ministry of Public Health (MOPH) accreditation survey.

Vision

Maintain a motivating culture where personal and organizational goals are met simultaneously

9.1.1 Goals

9.1.1.1 Adjust salaries according to the new pay structure recommended by Towers Perrin and point out areas of concern
9.1.1.2 Develop a plan to ensure internal equity and compress total salaries
9.1.1.3 Create opportunities for promotion and job mobility within AUBMC
9.1.1.4 Introduce and administer new merit programs that enforce pay-for-performance, and adjust pay within ranges according to performance.
9.1.1.5 Ensure full transparency, employee awareness of all processes
9.1.1.6 Develop and implement a staff development and education plan.
9.1.1.7 Increase response rate for employees’ survey to 70% and improve overall satisfaction and engagement.
9.1.1.8 Improve employee retention and reduce turnover, especially for nurses.
9.1.1.9 Revise the appraisal process and standards to have a reliable tool for merit decisions and promotions.
9.1.1.10 Develop an accurate yearly human resource budget that takes into consideration staffing plans and pay-for-performance activities.
9.1.1.11 Establish a competency-based management system.
9.1.1.12 Improve recruitment efficiency.
9.1.1.13 Establish staffing plan that specifies optimal utilization and productivity of human resources at AUBMC.
9.1.1.14 Meet Joint Commission International accreditation.

9.1.2 **Initiatives for Human Resources**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Reference Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.2.1 Develop and achieve devolution of human resources functions</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.2 Identify mechanisms for recognition, e.g. awards</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.3 Establish a yearly recruitment plan where replacement of mission-critical positions and hard-to-fill positions are well planned to maintain continuity of services.</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.4 Re-evaluate AUBMC positions and review and update the remuneration plan</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.5 Continue implementation of the Staffing Plan, productivity studies, improve operation efficiency, and identify sources for benchmark.</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.6 Develop a process to periodically review the staffing plan</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.7 Implement competence assessment as a requirement for all newly hired and on a continuous basis thereafter.</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.8 Revise and update all job descriptions and performance appraisals to make them competency-based</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.9 Create career ladders for all positions by allowing expansion over three grades.</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.10 Change merit increase administration by considering performance and placement in the grade.</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.11 Prepare yearly staff development plan based on need assessment.</td>
<td>c-People Excellence</td>
</tr>
<tr>
<td>9.1.2.12 Eliminate all redundant positions and consolidate support services where possible by closely revising organizational structure and charts</td>
<td>c-People Excellence</td>
</tr>
</tbody>
</table>
9.1.2.13  Eliminate unproductive employees by either administrating ERP or taking disciplinary measures where applicable.

9.1.2.14  Introduce new effective software for competency-based management system

9.1.2.15  Introduce a market assessment process within HRMC

c-People Excellence

c-People Excellence

g-Marketing

A study by Towers Perrin (TP), an HR consultancy firm, determined the pay scales of each grade, benchmarked by the Lebanese market. HRMC compared the existing Medical Center salaries in each grade with the proposed scale. Analysis revealed:

1. A much wider range of salaries at AUBMC compared to Towers Perrin within each grade indicating inequity for the same job
2. A significant number of employees are above the maximum and below the minimum of grade (see Figure 9.1.1) for Grade 8 which is fairly representative of all grades at AUBMC

Figure 9.1.1 Distribution of Salaries (example in grade 8)

Initiatives to correct the deviations and achieve equity listed above fall into two tasks:

a. **Adjustment of salaries to market value**
   
   Application of TP results in an initial increase in total salaries as shown in figure 9.1.2. for year 1. This results from the fact that the salaries of a significant number of employees below the minimum will be increased while those above the maximum will stay the same. Statistical analysis reveals that
the overwhelming majority of those above maximum will be retiring within the coming 5 years (mandatory retirement of age 65 – Lebanese labor law). This will result in breakeven within 3 years and a reduction in overall salaries by 5 years, keeping all else constant.

Figure 9.1.2 – Current vs proposed as per TP salaries

b. **Compression of salaries within each grade to ensure internal equity and be within the range of the grade**

The current merit increase administration of an average of 3% per annum irrespective of placement in the grade, further increases inequity.

Salary distributions within each grade follow the same pattern since deviations resulted with time from the automatic 4% increases and adjustments in the past to compensate for the Lebanese Pounds to Dollars exchange rate. These determinants affected employees in all grades.
Distribution in grade 11 is representative of other grades and is used as an example.

Figure 9.1.3-a represents the current (2006-2007) distribution of salaries. The curve is bimodal (labeled A and B), and skewed to the left. ‘A’ has a dip reflecting inequities. The span of A and B demonstrates the wide range (spread) of salaries in grade 11 at AUBMC.

Applying merit increases as traditionally and previously done at AUB will result in a distribution shown in figure 9.1.3-b
The range of salaries (spread) increases when compared to the current distribution. The gap between the low earners and high earners increases (same percent for same merit applied to inequitably high and low salary). The dip in A remains.

Analyzing different scenarios for administering the merit increase to eliminate base salary bias resulted in an optimal scenario. This consists of applying the % merit increase in a descending fashion with increasing salaries as shown in figure 9.1.3-c below.

Figure 9.1.3-c

Applying these percentages to salaries in grade 11 produced the results shown in Figure 9.1.3-d. Although bimodality remains, A increases while B decreases, the total range within the grade is compressed and the inequity is minimized. The final results for each employee, needless to say, will be studied independently. It is estimated that full correction may be achieved within 5 years.

Figure 9.1.3-d
9.2 PURCHASING

Purchasing

The aim is to ensure the availability of supplies and materials necessary to support AUBMC’s departments and units through a cost-effective management of the supply chain.

A purchasing devolution plan was initiated to ensure the implementation of an effective and responsive system of purchasing that supports material planning, inventory management, operation of stores, and timely dispatching of supplies. All steps are set with strict embedded controls.

In 1998 the Strategic and Organizational Assessment by the JCI evaluated six organizational options for the AUBMC. The option of choice was a separate “Strategic Business Unit” for AUBMC. President Waterbury announced in April 2006 that a significant devolution of Purchasing and Supply to AUBMC will be initiated to become effective October 1, 2006. Due to the July 2006 war this date was changed to January 1, 2007, and then postponed pending the Earnst and Young analysis and report.

(please refer to attachment below for the Current Procurement Cycle and Devolution plan)

Progress

• A Devolution Task Force headed by Mr. Andre Nahas was appointed by President Waterbury. The Director of AUBMC, Directors of Purchasing, Business Services and Internal Audit were appointed as members
• A Plan of Action was prepared by the Director of AUBMC and later modified and translated into a timeline
• A meeting was held with Ms. Dula and Mr. Lee of Health Services of New England (HSNE) to get input on their previous experience with AUB in their efforts to implement, among other things, group purchasing. The potential role HSNE may be able to play in developing policies and procedures congruent with the implementation of devolution was discussed also.
• Work is underway to accommodate AUBMC Purchasing in the existing location alongside AUB Purchasing
• It was suggested, as an interim plan, to appoint the current Director of AUB Purchasing to head two independent purchasing units each with its own cost center until such a time when the an AUB Director of Purchasing is identified and appointed
• The current staff in purchasing will be re-assigned, based on their actual work, to each of these units
• A follow-up meeting was held on December 12-13, 2006 to further assess the plans for the devolution
• On January 15, 2007 President Waterbury announced the appointment of Ernst and Young to evaluate the procurement cycle, all initiatives are now suspended awaiting the outcome of their report.
### 9.2.1 Goals

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9.2.1.1</td>
<td>Introduce new techniques and approaches to achieve significant reduction in cost of acquired goods</td>
</tr>
<tr>
<td>9.2.1.2</td>
<td>Manage efficiently the supply chain</td>
</tr>
<tr>
<td>9.2.1.3</td>
<td>Introduce new techniques and approaches to achieve significant reduction in cost of acquired goods</td>
</tr>
<tr>
<td>9.2.1.4</td>
<td>Control effectively each step in the supply chain</td>
</tr>
</tbody>
</table>

### 9.2.2 Initiatives for Purchasing

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>All initiatives are now suspended awaiting the outcome of the Ernst and Young report.</td>
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</tr>
</tbody>
</table>

(See Purchasing Cycle as of P 122/149, as drafted pre-Ernst and Young assignment. The draft was given to them during the first meeting with AUBMC)
Attachment – Purchasing Cycle and Devolution Plan

Purchasing Devolution Plan
Draft prepared by Samia Ibrahim-Azar

Please find below the Purchasing Devolution Plan recommended steps to secure a smooth procurement cycle devolution process. This is a quick flow of basic recommendations; a task force should be assigned to further detail the required steps.

a. Applications in effect
   It is understood that Oracle Financials will be maintained as the main system for procurement.

   *Applications in effect are:*
   *Modules with no major impact:*
   . iProcurement
   . General Ledger (including Budget, and Budget Control, commitments and encumbrances)
   . Purchasing Module
   . Payable Module
   . Grants
   . Fixed Assets

b. Pre-Planning
   Since AUBMC is an ongoing operation, selecting a target date across fiscal boundaries should not be an issue, but prior resolution of pending and open Requisitions and Purchase Orders would be advisable.

   - Identify if the Procurement devolution will cover only AUBMC Cost Centers (code 2xxxxx) or include Faculty of Medicine (cost center codes 114xxx) and School of Nursing (116xxx).
   - This step is essential to secure the security set-up. Special consideration should be noted for the Grants Module.
   - Agree on a target date for devolution, test all required extracts and reports prior to this date.
   - It would be advisable to move to the new set-up over a week-end, to be able to test and monitor all processes (a complete system back-up should be stored)

c. Organization and Users set-up
   Oracle can be configured to have a multi-organization structure.
   Another option would be to maintain the current set-up, but control users’ identification and security accesses.

   - If possible, and if the current Director will be assigned the duties of the AUBMC Purchasing, it is recommended to maintain the current Director System ID, by this we would secure access to old historical records and queries. New hierarchy set-up will be identified to include new buyers, and Cost Center accesses will be amended.
   - If a new Director is identified and hired, access to old records should be through exporting records of Requisitions and Purchase Orders related to AUBMC, creating a database file for possible future needs
- Buyers (old or new) should follow same set-up
- All iProcurement users of AUBMC requisitions should be automatically forwarded to the assigned Director, users will not be affected by these changes, only be instructed to follow-up with new assigned team.

d. **Required Tables Set-up**
Since the two entities (AUB Campus and AUBMC) would be using the same application, it is recommended to:
- Maintain current **Vendor** system data, we need to agree on a process (and owner(s)) for selecting, approving and creating new vendors.
- Items **categories** and sub-categories, we need to agree on the mechanism to set new required items categories and sub-categories (identify owner(s))
- **Location** setup (Departments abbreviation codes) is already identified for the AUBMC Organization

e. **Requisitions**
Full assessment of requisition lines should be conducted.
We need to resolve all pending requisitions by forwarding to new AUBMC buyers.
Requisitions should be categorized based on Cost Centers and Buyers.

**Buyers** should be identified as:
- Continuing support of AUBMC, resolving their non-AUBMC requisitions should be conducted
- Moving to support AUBMC, resolving their non-AUBMC requisitions should also be conducted
- Moving out from the support of AUBMC, we need to resolve (re-assign) their AUBMC requisitions to assigned buyers.
- New Buyers (no history of requisitions) no issue

**Requisitions Categories**
- Open, not assigned to buyers yet, we need to assign to AUBMC Buyers
- Open, but assigned buyers, we need to re-assign to AUBMC buyers
- Closed, we need to determine the needed query follow-up, maybe export records
- Partial requisitions, we need to resolve open lines as per open category

f. **Request for Quotations (RFQ) and Quotations**
Since the current RFQ and Quotation process is not through Oracle (mostly PC based tables), no automated process is required. We might consider future implementation of the module through Oracle. Policies should be reviewed to secure process according to AUBMC standardization.

g. **Purchase Orders**
Full assessment of Purchase Order lines should be conducted.
**Buyers** should be identified as:
- Continuing support of AUBMC, resolving their non-AUBMC POs should be conducted
- Moving to support AUBMC, resolving their non-AUBMC POs should also be conducted
- Moving out from the support of AUBMC, we need to resolve (re-assign) their AUBMC POs to assigned buyers.
- New Buyers (no history of POs) no issue

**Purchase Order Types**
- Auto-created from Requisitions
- Direct POs
- Blanket POs
- Contracts / Agreements

**Purchase Order Categories**
(Please refer to below summary table)
- Open (open to receiving and invoicing), assigned to AUBMC buyers (or new buyers), no issue
- Open (open to receiving and invoicing), assigned to Non-AUBMC buyers, we need to re-assign to AUBMC buyers
- Closed (to receiving and Invoicing), we need to Fully Close (not to allow adding new lines) and determine the needed query follow-up, maybe export records
- Partial POs, we need to resolve open lines as per open category above
- Open to Receiving, closed to Invoicing (foreign orders), depending on the Buyer, we need to determine process if buyer is non-AUBMC or moving out of AUBMC support
- Open to Invoicing, closed to Receiving, depending on the Buyer, we need to determine process if buyer is non-AUBMC or moving out of AUBMC support
- Partial to Receiving, closed to Invoicing (foreign orders), depending on the Buyer, we need to determine process if buyer is non-AUBMC or moving out of AUBMC support
- Partial to Invoicing, closed to Receiving, depending on the Buyer, we need to determine process if buyer is non-AUBMC or moving out of AUBMC support
- Special analysis for ISS (US) orders should also be conducted

This step needs an in-depth analysis (volume of orders is also an issue), options can be:
- Allow non-AUBMC buyers to continue monitoring AUBMC Orders, until final close
- Allow AUBMC buyers to continue monitoring Non-AUBMC Orders, until final close
Forcing cancellation (or closing) of POs and re-creating in new set-up might be an issue, mainly in the PO Number reference, especially if forwarded to Vendor.

Assess the possibility of speeding up the receiving and invoicing process for such orders.

### Purchase Order Category Table

<table>
<thead>
<tr>
<th>PO Status</th>
<th>Receiving</th>
<th>Invoicing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Open to Invoicing – Partially Received</td>
<td>Partial</td>
<td>Open</td>
</tr>
<tr>
<td>Closed to Receiving - Open to Invoicing</td>
<td>Closed</td>
<td>Open</td>
</tr>
<tr>
<td>Open to Receiving – Partially Invoiced</td>
<td>Open</td>
<td>Partial</td>
</tr>
<tr>
<td>Partially Received – Partially Invoiced</td>
<td>Partial</td>
<td>Partial</td>
</tr>
<tr>
<td>Closed to Receiving – Partially Invoiced</td>
<td>Closed</td>
<td>Partial</td>
</tr>
<tr>
<td>Open to Receiving – Closed to Invoicing</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td>Partially to Received – Closed to Invoicing</td>
<td>Partial</td>
<td>Closed</td>
</tr>
<tr>
<td>Closed / Eligible for Finally Closed</td>
<td>Closed</td>
<td>Closed</td>
</tr>
</tbody>
</table>

### h. Receiving

There is no issue here since it is already set up for AUB and AUBMC. We need to determine what to do with Faculty of Medicine, School of Nursing and Saab Medical Library, upon deciding on the Devolution related cost centers.

### i. Payables

If the responsibility for AUBMC payables will be reassigned from the Comptroller’s Office to the office of the CFO at AUBMC, the staffing needs should be defined in detail, as some shared and payment functions are under the responsibility of the main Comptroller’s Office.

If the operation will be maintained in the main Comptroller’s Office Payable section, it might be advisable to assign a specific payable clerk to handle all AUBMC Invoices (a back-up employee should also be considered).

Any employee handling AUBMC invoices should be instructed to fully match PO Lines to actual related Invoice lines.

The following functions are needed for Payable functions:

- Data entry Clerk (can be part of any set-up)
- Review and Approve (part of the current Comptroller’s set-up, handling all invoices and vouchers
- Payments Process (part of current Comptroller’s set-up, handling all payments process)
- Cheques and Transfer payments process (part of current Comptroller’s set-up, handling all process)
- Cheques signatures (Comptroller’s Office)

We need to also consider in Payable:

- VAT Handling
j. Other Assessments and Needs

- Vendors would be notified for the new measures of creating two entities, for picking Bids, Orders, and follow-ups.
- Vendors would be instructed to provide separate invoices for POs relating to the two different entities.
- An automatic interface should be created between the AS400 Inventory system and Oracle receiving, to eliminate duplicate entries. It would be advisable if the feeder is the Oracle Receiving. By this at time of Inventory counts, check and audit, items on shelves should match count of inventory system. (AS400 Inventory system – Item Quantity should be secured against data entry and update)
- Should also agree on separating existing reports, and hard copy documents
- Space to house the two departments
- Future plans would be set to automate and control the consignment items
- Future plans to explore the four-way matching (including user in addition to PO Line, Receiving and Invoice) process
- Re-visit the set financial limits brackets for approval, at all levels
- Re-assess the in-house developed AS400 Inventory system controls and links

k. Mapping of current Purchasing Cycle

The following charts detail the current purchasing cycle including process and controls. They will be revised based on the Purchasing Devolution Plan once approved.
- Non-Catalogued Requisitions
- Purchasing
- Receiving – General Expense Items
- Payables
- Receiving – Capital Items
- Pharmacy Items
Non-Catalogued Requisition Information includes:
1. Requesting/Preparing User
2. Date requested/entered (Auto by system)
3. Item Category and Code (Table lookup)
4. Cost Center defaulting from user setup
5. Account defaulting from selected Item
6. Department abbreviation / ship-to code
7. Item Generic Description, UOM, Quantity required, estimated amount (by Currency-auto convert to $)
8. Program Code (for grant or capital)
9. Attachments (if needed)
10. Comments and special instructions
11. Delivery Instructions (date, address, room number, extension ...)
12. Name and extension of person to be contacted for further information

Controls
1. Operating Budget automatically controlled and committed
2. Cost Center automatically defaults based on the User setup
3. Expense Account automatically defaults based on selected item
4. Grants and Projects rules apply to Cost Center and Expense Account based on Item
5. Approval Hierarchy controls and needed steps
6. Requisition query and status query
**Purchase Order Controls**
1. Budget is automatically controlled
2. Training (if any) is negotiated
3. Consult related Technical Departments (if needed)
4. Additional testing units are acquired (if not within the scope of the order)

**Types of Purchase Orders**
A. Blanket Orders
B. Agreement/Contracts
C. Direct Orders (new allocations and long-term contracts)
D. Donations are added as additional lines with zero value
E. PO's are categorized as Local, US, Foreign

**Special Considerations**
1. Changes to an approved PO is marked with a revision number
2. Lines can be added to a PO unless finally closed (manual operation)
3. A VAT is created at the invoice level
4. On consignment orders will be documented on a separate process
5. Printing and Binding Items are reviewed with AUB printing and binding unit
6. Low value orders are not paid off this process
7. Foreign/EUROPE orders are usually paid in advance (a pro-forma invoice)
8. US Orders are paid by EIS, invoicing and shipment/customs and clearing invoices are specially handed
9. Food and dietary items process will be documented separately
10. Pharmacy Orders will be documented separately
Receiving – General Expense Items

Vendor

1. Exceptions Handling:
   1. Packaging discrepancies (different unit of measures)
   2. Damaged goods
   3. Additional donated items (different quantities)
   4. Price variance

Partial delivery is not considered as an exception.
Payable

Payable enter invoice data into the system, matching the PO number (and line)

PO on System

Receiving controls on system

Vendor Invoice

All matching

Verify and signatures by comptroller’s Office for all documents

Initiate the Payment Process (transfer or cheque)

Yes

System hold the invoice, conflicts are resolved with purchasing

Log Payment Entries

GL

Payable

Purchasing

Vendor

Special Considerations
1. Invoices are sometimes matched against total PO, not line to line
2. VAT is added on the invoice level
3. US Orders are paid to ISS, although multi-initial vendors
4. Exceptions are forwarded from the Payable section to Purchasing for handling, follow-up and resolving
The Materials Management Department (MMD) and its related sections and staff receive purchased goods, and are responsible to store them with inventory control, making sure that they satisfy the needs of all clients in a timely manner. The MMD developed systems for replenishing stores based on min-quantity-on-hand.

Material Management had evolved to ensure better and more cost effective and efficient service.

The Hospital Administration presented its devolution plan drawing attention to the potential improvements of splitting Supply Function of AUB into two functions, one for AUB and one dedicated to AUBMC.

The Supply Function is separated to ensure that the requirements of AUBMC for goods and services are met in an efficient, cost effective and timely manner. The AUBMC Main Stores provide an essential service to various units and departments and is responsible for the receipt and distribution of goods ordered by AUB Purchasing Department. Although the Supply Department delivered good services and worked hard to satisfy the internal customers, there was, however, no well-defined strategy, clear policies and procedures to organize store activities in an efficient manner.

**Mission**

To plan, develop and implement efficient processes and to provide goods and quality services in the most timely manner to ensure that the needs of AUBMC staff are satisfied. Consistent with the vision, core values, and guiding principles of AUBMC. The Materials Management strategy is designed to deliver an efficient and high quality service to AUBMC-staff and their patients.

This strategy helps MM take a proactive approach by initiating action rather than responding. This strategy represents the goals and initiatives required to take Materials Management forward over the next two years, offering effective cost control, effective and efficient processes, system integrity and cooperation to achieve best value.

**Vision**

Maximizing the contribution of Materials Management to the AUBMC's vision, mission, values, goals and objectives through determining the best ways of streamlining the supplies processes, cutting costs and ensuring that value for money devoted to supplies is achieved by efficient inventory management and supply chain
### 9.3.1 Goals

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>9.3.1.1</td>
<td>Satisfy the needs and the expectations of internal customers so that AUBMC can deliver high quality health care services in a dignified and cost effective manner</td>
</tr>
<tr>
<td>9.3.1.2</td>
<td>Develop a Materials Management Team to fulfill institutional and personal goals, address best practices, and observe the highest standards of integrity, objectivity and efficiency</td>
</tr>
</tbody>
</table>

### 9.3.2 Initiatives for Material Management

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.3.2.1</td>
<td>Revise and implement procedures and guidelines for stock replenishment and inventory management</td>
</tr>
<tr>
<td>9.3.2.2</td>
<td>Set-up a plan to transfer or to dispose of items identified as no longer needed</td>
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<tr>
<td>9.3.2.3</td>
<td>Set-up a clear procedure for consignment supplies and automate the process of ordering, receiving, issuing, and controlling</td>
</tr>
<tr>
<td>9.3.2.4</td>
<td>Review existing stocks and set optimum stock levels, taking into account the delivery, capability of suppliers, criticality of supply, customer demands and price</td>
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<tr>
<td>9.3.2.5</td>
<td>Integrate essential departmental stores into Materials Management function (e.g X-ray, Lab and Cardiac Cath)</td>
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<tr>
<td>9.3.2.6</td>
<td>Expand storage space and totally renovate the stores interior using the latest design, store layout, and décor in order to better meet customer’s needs</td>
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<tr>
<td>9.3.2.7</td>
<td>Develop an automated process for items purchased through non-catalogued requisition and low value purchase order</td>
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<tr>
<td>9.3.2.8</td>
<td>Review, assess and increase the security and safeguarding of all stores</td>
</tr>
<tr>
<td>9.3.2.9</td>
<td>Extend electronic requisitioning to facilitate and accelerate the requesting process</td>
</tr>
<tr>
<td>9.3.2.10</td>
<td>Develop a reporting system that identifies slippage and recommend a Remedial Work Plan (RWP)</td>
</tr>
<tr>
<td>9.3.2.11</td>
<td>Equip all storekeepers and warehousemen with computers to ensure that all transactions are properly processed, monitored, and controlled</td>
</tr>
<tr>
<td>9.3.2.12</td>
<td>Undertake, on a quarterly basis, a customer satisfaction assurance and take necessary corrective actions</td>
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</table>

### Reference Patient Care Appendices

<table>
<thead>
<tr>
<th>Reference Patient Care Appendices</th>
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<tbody>
<tr>
<td>b-Best Practices</td>
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<td>b-Best Practices</td>
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<tr>
<td>d-Enabling Facilities</td>
</tr>
<tr>
<td>b-Best Practices</td>
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<tr>
<td>d-Enabling facilities</td>
</tr>
<tr>
<td>e-State-of-the-art technologies</td>
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<tr>
<td>e-State-of-the-art technologies</td>
</tr>
<tr>
<td>c-People Excellence</td>
</tr>
<tr>
<td>a-Accreditation</td>
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</tbody>
</table>
measures as appropriate

**Compliance**

9.3.2.13 Determine action needed to achieve compliance with the requirements of the criteria as set by Internal Audit

a-Accreditation
9.4 COMPUTING and NETWORK SERVICES

Mission
To deploy information technology to improve medical care, medical education and hospital management

Major Accomplishments
- Deployed software to search and Register patients in the Master Patient Index. All patients are being registered and issued with an ID Card. The process is now under the supervision of Medical Records.
- Piloted an Order Entry system in the ER. The process is going well and IT hopes to start deploying it on the floors by the end of this year.
- Made available a mini PACS system, acquired with the Agfa CR solution in December 2006, that can capture images for CT, X-ray and other modalities and can deliver images to the floors over the web. The Radiology department is responsible for giving access to the system.
- Issued a Request for Proposal (RFP) for a PACS system and to implement the radiology Information System. Bids received and evaluated. 2 out of the seven vendors have been short listed. (Philips and Agfa) The price difference is wide however we will ask purchasing to negotiate prices. Expect resolution by middle of September.
- Purchased a LaserFiche document management software with two licenses and heavy duty scanners ordered. The process will start in Medical Records and once configured and fine-tuned, the plan is to do same in medical records.
- Upgraded the Infrastructure from 10 to 100 Mb/s, installed a wireless network and activated it throughout the hospital.
- Implemented enhancements to Administrative Services, summarized into areas of:
  o Stores and Material Management
  o Admission and Discharge Process
  o Scheduling
  o Accounting System
  o Hospital Web Site

Vision
Strive to improve the quality of medical care as well as hospital administrative services.
### 9.4.1 Goals

#### 9.4.1.1
Deploy a Hospital Information System (HIS) for the successful operation of AUBMC. The HIS is composed of a combination of in-house developed systems and specialized purchased systems.

#### 9.4.1.2
Continue to acquire and/or develop HIS modules and expand and upgrade the infrastructure by taking advantage of new technologies.

### 9.4.2 Initiatives for Computing and Network Services

<table>
<thead>
<tr>
<th></th>
<th><strong>Initiatives for Computing and Network Services</strong></th>
<th>Reference Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4.2.1</td>
<td>Make Registration into Master Patient Index mandatory for all patients (In and Out).</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.2</td>
<td>Implement Order Entry System.</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.3</td>
<td>Implement the Picture Archiving Computer System (PACS).</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.4</td>
<td>Implement the Radiology Information System (RIS)</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.5</td>
<td>Implement the Surgery Information System (SGIS)</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.6</td>
<td>Implement document management system for Medical and Administrative units.</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.7</td>
<td>Upgrade the Electronic Medical Records System (EHR)</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.8</td>
<td>Upgrade the Pharmacy module</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.9</td>
<td>Extend the Telemedicine support.</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.10</td>
<td>Acquire needed hardware. Additional Servers and Network Storage (SAN)</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
<tr>
<td>9.4.2.11</td>
<td>Upgrade the Networking infrastructure and install wireless network.</td>
<td>e-State-of-the-Art Technologies</td>
</tr>
</tbody>
</table>
Mission

AUBMC Financial Affairs Office will support the clinical, teaching, and research mission of the medical center by providing expertise in all the financial areas we are entrusted with. Those areas are budgeting, financial reporting, financial analysis, financial planning, control, billing, and collections. The US Generally Accepted Accounting Principles (GAAP) will be adhered to.

Major Accomplishments

- Grew patient-care net revenue from $51 million in FY 2001-02 to $75 million in FY 2005-06. An increase of $24 million or 47%.
  - Reduced total Teaching & Administration Salaries and Benefits from around $10 million per year to $6 million.
  - Increase in number of faculty of full-time physicians by 36 or 25%.
- Tremendous Growth in our Outpatient Business (Private Clinic visits up by 31,000 or 32%).
- Major Growth in our Inpatient Admissions (Up by 3,700 or 21%).
- Increasing Net Revenue by 53.69% i.e. from $54,326,014 to $83,493,519 (from 2000-01 to 2006-2007)
- Embarking on a Gradual Phasing-In of Devolution
  - Human Resources
  - Financial Administration Office
  - Finance and Control Office
  - Plant Engineering / FPDU
  - Computer Network Support
  - Materials Management
  - Environmental Health, Safety and Management
- Daily billing of inpatients; electronic integration of most chargeable supplies with patient billing system.
- Automated settlement of bills via the Internet with one guarantor (MedNet).
- Improved systems and control in many areas (such as cafeteria, parking, ambulatory) resulting in hundreds of thousands in annual savings.
- Increased net revenue per FTE by 38% from $134,000 in 2000-2001 to $47,000 in 2006-2007 (Figure 10.1.1)
Vision

To eliminate our operating deficit in the next 2 to 3 years and in fact set a course for achieving operating surpluses each year. This will be achieved through improving every facet of the financial operation, revamping prices and private guarantor contracts as a result of analysis by MedLink a new cost accounting system was installed at AUBMC, increasing our volume of business, controlling and reducing expenses, and soliciting donations, gifts, endowments, etc. We will raise the bar by gradually adopting key “Sarbanes-Oxley” (SOX) standards for financial accounting and reporting.

10.1 Goals

10.1.1 Achieve breakeven by end of Fiscal Year 2008-2009 (Figure 10.1.2)
10.1.2 Restructure the Medicine financial team
10.1.3 Implement the Med-Link cost accounting system
10.1.4 Develop pricing, chargemaster, and collection strategies
10.1.5 Establish an integrated supply chain operation
10.1.6 Implement Sarbanes-Oxley (SOX) checklist to address critical financial controls

10.1.2 Initiatives for Financial

10.1.2.1 Increase the number of physicians as planned now that the facility is available and ensure capacities are expanded such as MRI to meet demand
10.1.2.2 Negotiate all contracts and adjust volume discounts
10.1.2.3 Activate endowment from Basile and Abu-Haidar
10.1.2.4 Continue to improve management of receivables

Reference Patient Care Appendices (special report for finance)
10.1.2.5 Control wages and benefits through the Towers Parren recommendation and new staffing plan

10.1.2.6 Complete the Med Link costing analysis, targeting a new pricing structure by October 1, 2008.
   . Room and Service will be divided into private or semi-private
   . Inpatient procedure will have one price which is dependent
   . Outpatient procedures, likewise will be priced, taking into account competitive market factors

10.1.2.7 Change patient mix, in particular replacing NSSF patients by K-Class patients

Source of funding for Capital Projects

- funding Medicine’s annual capital budget at a level no less than its depreciation and amortization expense (“renewal & replacement”)
- providing funds from FM/AUBMC restricted endowment income and its share from the university endowment income
- providing Medicine’s share of ASHA/USAID contributions
- funding through gifts, grants, and philanthropy
- funding through targeted donations realized through the support of the Development Office
- funding through: a) bank loans for revenue generating equipment (such as for an MRI), b) through lease/purchase agreements with vendors, or c) revenue sharing agreements with vendors
11.1 EXTERNAL PROGRAMS

The Faculty of Medicine and Medical Center at the American University of Beirut (FM/AUBMC) cooperates with health care organizations at the national, regional and international levels. Cooperation in the fields of medical care, education, and research aims at improving the health of people and their quality of life.

Factors leading to the increased engagement in external programs include:
- Need for FM/AUBMC expertise by several institutions in the region
- FM/AUBMC needs other training centers that can provide a load of caretakers
- Increased emphasis on community based programs by regulatory bodies as a cost effective mean for delivering health and educating health professionals
- FM/AUBMC commitment to deliver high quality medical care, education and research to the country, region and beyond
- Realization that external programs can play a role in providing FM/AUBMC with financial support that is of utmost importance.

Recognizing the increased role and importance of the community affiliated network, the Dean of the Faculty of Medicine at the AUBMC established the Committee on Strategic Planning for External Programs. The mission, objectives and the means to promote external clinical, educational and research opportunities are stated in this report.

Health care in Lebanon has changed dramatically in the last fifteen years. Factors contributing for this change are several:
- Increase in the health bill
- Private insurers and Health maintenance organizations are getting stronger
- Increase in the number of hospitals and hospital beds/services (e.g.: more than twenty open heart programs are present in Lebanon at this point, compared to three programs fifteen years ago)
- The Lebanese population financial status is relatively weakening
- After the civil war, health takers have more freedom to reach healthcare facilities that they were not able to access during the civil war

All this resulted in competition and slashed reimbursements for many types of medical services. In such circumstances hospitals nationwide need innovative measures to survive. This applies more to AUBMC, an academic center committed to high quality care, which has a higher overhead. Work and adaptation is needed to address this and other issues of importance to an academic center like AUBMC.

AUBMC undertook several actions to manage the decrease in admission rates and to contain the decrease in revenues. The shift of hospital admissions to more financial profitable patients has solved one problem but has affected clinical teaching. To overcome the shortage of ward patients, the Faculty of Medicine at the AUMC sought
cooperation with a broad range of health care organizations, practice settings and practitioners. This partially helped in overcoming this problem.

The External Programs Committee will work on suggestions to promote the teaching experience of learners, support the function of health institutions, and carry sound research on the national, regional and international scene.

**Mission**

To promote the delivery of high quality service and care to patients in Lebanon and the region as well as to develop educational programs that satisfy the needs for knowledge and skill development that participants wish to acquire, develop, or reinforce. The Committee on Strategic Planning for External Programs works on developing the strategies and suggestions to help in achieving this mission.

**Major Accomplishments**

Affiliated agreements, Placement Site or Practice Setting agreements, Cooperation agreement, Teaching Practice sites
- National (13)
- Regional (10)
- International (7)

As a summary of planning units of the Patient Care major accomplishments:
- Updated Forms and Results Reporting
- Developed information Booklets and Education Sessions and Material for Patients
- Improved Dress Codes
- Decrease in Mortality Rate
- Revised and Updated Policies and Procedures
- Upgraded Safety Measures to JCI level
- Improved infection rates
- Surveyed patients providing evidence of high Patient satisfaction rates
- Established a volunteer Visitors Guides system
- Initiated multidisciplinary activities
- Provided Continuing Education sessions, BLS and ACLS
- Established guidelines on Safety for patients
- Demonstrated progress in Medical Procedures
- Engage in evidence-based clinical practice with primary focus on patient outcomes
**Vision**

To communicate, collaborate, and conduct academic/medical exchanges with universities/hospitals from the region and throughout the world as well as to facilitate faculty research and consultation and foster vital linkages with other public and private institutions. For that purpose, the University community will support active programs for visiting lecturers and physicians, and the Medical Center will promote outstanding academic research, teaching, and training while providing crucial range of medical services to the community at large. Thus, Health Sciences, as well as the Division of Educational Programs, will all combine research and teaching with community and public service activities. In brief, our Vision is National, Regional and International leadership in health care, medical research and education.

**11.1.1 Goals**

11.1.1.1 Promote the practice of sound health services outside AUBMC
11.1.1.2 Facilitate the growth and development of health services at AUBMC
11.1.1.3 Deliver medical education at the highest level in the country and region
11.1.1.4 Cooperate with external bodies to promote research activities
11.1.1.5 Open new training opportunities to AUBMC staff
11.1.1.6 Open new markets with financial feasibility to the FM/AUBMC
11.1.1.7 Collaborate with other parties to raise funds for certain programs of excellence
11.1.1.8 Offer extension courses in targeted areas to specific groups including the general public
11.1.1.9 Supervise the exchange of experts in the fields of health and medical sciences

**11.1.2 Initiatives for External Programs**

| 11.1.2.1 | Allocate appropriate office/space, secretarial and supporting staff to render the office of External programs functional. |
| 11.1.2.2 | Form of a task team for each program when needed and Delegate with accountability the implementation of programs. |
| 11.1.2.3 | Conduct periodic workshops to improve and update participants on performance of the program. |
| 11.1.2.4 | Consult with appropriate firms to execute the mission. |
| 11.1.2.5 | Define steps towards the activation and implementation of programs. |
| 11.1.2.6 | Work in close collaboration with the VP/Dean and appropriate Associate Deans for Academic, clinical and educational affairs, as well as the Director of the Hospital, nursing service and department Chairs. |

**Reference Patient Care Appendices**

d-Enabling facilities

g-Marketing
**Future Steps**

Implementation of the mission with appropriate structure to allow continuous development at educational, clinical, research and financial feasibility. Cutting costs, increasing efficiency, and commanding a larger, more influential share of health care market can be achieved by the affiliation between hospitals. A hospital might lease another and operate it for a certain period of time or hospitals may also join other kinds of affiliations, such as joint purchasing agreements or sharing of laboratories to cut on costs.

Promotion of collaborative research with the affiliated network: Promotion of research including pilot studies to large trials. The committee suggests promotion of the fully-affiliated hospitals to achieve harmonization of research ethics and research policy which may appropriately be extended to the community affiliated network. Of further interest is community-based research in collaboration with the University.
12 DEVELOPMENT and MARKETING

12.1 MARKETING

Mission
To improve the visibility of AUBMC in Lebanon and the Region, and increase the awareness of the people of all provided services and available resources with outcome related to best practices and care

Major Accomplishments
- Participated in trade shows and medical conferences and fares

Vision
To support the Marketing Campaigns with venues that will facilitate for all clients accessibility into the system without undue difficulties and delays

12.1.1 Goals
12.1.1.1 Increase ambulatory care workload volume
12.1.1.2 Increase referrals to specialists
12.1.1.3 Promote the elective surgical services
12.1.1.4 Promote AUBMC services and image to customers to help distinguish ourselves from competitors
12.1.1.5 Maintain high patient satisfaction scores
12.1.1.6 Improve communication with patients
12.1.1.7 Increase employee communication
12.1.1.8 Facilitate and increase users access to AUBMC Web site
12.1.1.9 Increase customer awareness of our accessible services

12.1.2 Initiatives for Marketing

<table>
<thead>
<tr>
<th>Reference Patient Care Appendices</th>
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<tbody>
<tr>
<td>12.1.2.1 Produce promotional Material (brochure, directories…)</td>
</tr>
<tr>
<td>12.1.2.2 Enhance communication through direct mail/ email</td>
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<tr>
<td>12.1.2.3 Enhance Physicians Outreach</td>
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<tr>
<td>12.1.2.4 Support Staff follow-up with patients</td>
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<tr>
<td>12.1.2.5 Monitor Employee satisfaction surveys</td>
</tr>
<tr>
<td>12.1.2.6 Continuous update of data into web, introducing new services</td>
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<tr>
<td>12.1.2.7 Increase Advertising and Media relations</td>
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<tr>
<td>12.1.2.8 Continue to participate in trade shows and medical conferences and fares</td>
</tr>
</tbody>
</table>
The Accreditation Office is the owner of Joint Commission International (JCIA) and the Ministry of Public Health (MOPH) accreditation processes. Additionally, it tracks all other accreditation processes at AUBMC, such as the College of American Pathologists (CAP), the Magnet, the American Nurses Credentialing Center for accreditation (ANCC), and ACGME as per Medicine’s policy on ‘Accreditation of Facilities / Services / Programs (GLD-ACR-001)’.

The Accreditation Office works in close coordination with the Risk Management program, the Quality Management & Utilization Review Program, the Infection Control & Prevention Program, the Safety Office and the Medical Staff Office, all reporting to the Chief of Staff and through him to the Associate Dean for clinical Affairs.

The Accreditation Office, the Risk Management program and the Quality Management & Utilization Review Program, ensure the implementation of established Multidisciplinary policies and procedures in accordance with the Performance Improvement Plan of AUBMC, coordinates with all Departments and healthcare professionals the implementation and compliance with healthcare standards and departmental policies. The outcome of all these processes is documented through close monitoring of Medical Center-wide and department-specific performance indicators.

**Mission**

To maintain national and international accreditation status for the Faculty of Medicine and AUBMC

**Achievements**

- Initiated JCIA and MOH accreditation processes
- Positioned AUBMC to achieve accreditation in other areas
- Initiated Performance Improvement and Quality Assurance programs
- Established Institution-Wide Indicators
- Supported the development of departments’ specific indicators
- Worked with AUBMC departments to document and update the Policies and Procedures manuals
- Helped in the reorganization of the Infection Control and Prevention program
- Developed the Risk Management Program and its plan
- Initiated Staff Education programs and awareness for Policies & Procedures, and in the PDCA (Plan-Do-Check-Act) process
- Tracked the accreditation of the College of American Pathologies (CAP)
- Tracked the accreditation of the American Nurses Credentialing Center (ANCC)
The AUBMC accreditation office strives to become a leader in the process of hospital accreditation and to assume a role in educating other hospitals in Lebanon and the region on the process of becoming ready for accreditation.

13.1.1 Goals
13.1.1.1 Continue to be accredited by the Ministry of Public Health (MOPH)
13.1.1.2 Continue to seek accreditation by the Joint Commission International (JCI)
13.1.1.3 Continue to support other departments, services, and units to achieve their respective accreditation
13.1.1.4 Ensures the updating of all Departmental Policy and Procedure manuals
13.1.1.5 Expand the Institution-wide measurable indicator program and monitor the outcome of initiatives

13.1.2 Initiatives

<table>
<thead>
<tr>
<th>Reference</th>
<th>Patient Care Appendices</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1.2.1</td>
<td>Complete the required recruitments of the Performance Improvement and Infection Control Teams</td>
</tr>
<tr>
<td>13.1.2.2</td>
<td>Monitor (monthly) institution-wide measurable indicators for Performance Improvements (KPIs)</td>
</tr>
<tr>
<td>13.1.2.3</td>
<td>Ensure that the Medical Center facilities are ready for inspection</td>
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<td>13.1.2.4</td>
<td>Prepare the departments for the accreditation visits</td>
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<td>13.1.2.5</td>
<td>Plan the accreditation visits</td>
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<tr>
<td>13.1.2.6</td>
<td>Define Clinical Initiatives that would directly improve Medical Care</td>
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</tbody>
</table>

Initiatives listed under other Patient Care function units in this report are listed below
- Complete the necessary policies and procedures
- Establish the KPIs for the various programs needed for proper measurement and documentation
- Initiation of quality indicators and close follow-up of those indicators
- Accreditation of the postgraduate medical education/training program
- Achieve national and maintain international accreditation of continuing education
- Implement the process to achieve ‘Magnet’ designations
- Create and maintain a state of continuous survey readiness for international accreditation
- Benchmark the selected department and unit based quality indicators
- Meet JCIA and MOH accreditation standards
- Seek licensing from the Atomic Energy Commission (required by the latest Lebanese regulations pertaining to the use of radiation)
- Conduct regular customer satisfaction as well as inpatient satisfaction surveys
- Determine action needed to achieve compliance with the requirements of the criteria as set by Internal Audit
- Undertake, on a quarterly basis, a customer satisfaction assurance and take necessary corrective measures as appropriate
Appendix

STRATEGIC PLAN 5 YEAR
EXPENDITURE and REVENUES

<table>
<thead>
<tr>
<th>SECTIONS</th>
<th>FUNCTIONS</th>
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<tbody>
<tr>
<td>Education</td>
<td>a. Accreditation</td>
</tr>
<tr>
<td>Research</td>
<td>b. Best Practices in Clinical Medicine</td>
</tr>
<tr>
<td>Patient Care</td>
<td>c. People Excellence</td>
</tr>
<tr>
<td></td>
<td>d. Enabling Facilities</td>
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<tr>
<td></td>
<td>e. State-of-the-Art Technologies</td>
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<td></td>
<td>f. Best Services</td>
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<td></td>
<td>g. Marketing</td>
</tr>
<tr>
<td></td>
<td>h. Research</td>
</tr>
<tr>
<td></td>
<td>i. Education</td>
</tr>
</tbody>
</table>

Initiatives listed in any of the above sections will appear under one of the related functions shown above on right. A 5-year estimate of expenses or revenues over and above the current 5-year operating and capital plans of Medicine are shown.

Overall expenses and revenues for each function are presented in a summary table, one for revenues and the other for expenses. Both summaries appear before the relevant section and are not paginated.

All these estimates are now being verified and confirmed, particularly through inputs from Medlink, a costing software installed by Medicine finance.

The colors inside the tables link each goal to its related initiative(s), for example under the section of a. Accreditation (Appendix, page 1) the Goal “Ministry of Public Health (MOPH)” highlighted in yellow, has two initiatives which are each highlighted in yellow in the Initiatives table. Each goal in each section has a separate color than the other goals in that section which then relates to the corresponding initiative(s) in that section with the same color. The colors on the side of the “Initiative” tables in both the revenue and expense sections are explained by a legend at the bottom of each table. The rows adjacent to a particular color, relate the row(s) to one of the following units: Education (brown), Research (red), Patient Services (blue), Administration (Pink) and Auxiliary functions (green). The totals for Goals in each section, equals the total for the initiatives in that section. Using again “Accreditation” as an example, if the Goal is highlighted yellow then all the rows highlighted yellow in the initiative table in that section will add up to a total amount for that Goal for each year.