



Senate Committee on Academic Development
Report to Senate – Meeting of May 26, 2010

Proposal for Organizational Restructuring of the Basic Sciences in the School of Medicine

Introduction

The proposal for organizational restructuring of the Basic Sciences in the School of Medicine was reviewed by the Senate Committee on Academic Development (SCAD) at its meeting of May 5, 2010. I. Young, Vice-Dean Academic, Faculty of Health Science, attended the SCAD meeting to speak to the proposal and to answer questions from members of SCAD. Members of SCAD were also provided with background documentation provided by the Faculty of Health Sciences. A copy of the documentation is attached to this report.

Analysis and Discussion

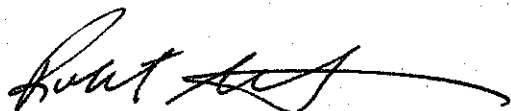
The following should be noted:

- The proposed model merges the Departments of Anatomy & Cell Biology, Biochemistry, Microbiology & Immunology, Pharmacology & Toxicology, and Physiology into a new Department of Biomedical and Molecular Sciences;
- The proposed organizational restructuring of the Basic Sciences will enable the Faculty of Health Sciences to maintain its high level of academic excellence in the current environment of fiscal constraint;
- The proposed integrated structure will provide a platform for multi-discipline education and research collaboration and promote new interdisciplinary opportunities;
- The proposed organizational restructuring is the result of an extensive consultative process that took place over several months. The final product/recommendations of this process were approved both by the School of Medicine Academic Council and the Faculty of Health Sciences' Faculty Board;
- If approved, detailed planning around the organizational restructuring of the Basic Sciences will be implemented immediately.

Conclusions/Recommendation

Recommendation:
**that Senate approve the organizational restructuring of the Basic Sciences
Departments in the School of Medicine.**

Respectfully submitted,



Bob Silverman
Chair, Senate Committee on Academic Development

Committee Members:

Members

N. Chesterley
J. Emrich
P. Fachinger
N. Fulford
A. Jack-Davies
P. Oosthuizen
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April 8, 2010

Ms. Georgina Moore
University Secretary
University Secretariat
B400 Mackintosh-Corry
Queen's University

Dear Ms. Moore:

Please find attached a document entitled **“INTEGRATION OF THE BIOMEDICAL AND MOLECULAR SCIENCES, Proposal For Organizational Restructuring of the Basic Sciences in the School of Medicine” plus addendums** for your consideration and approval by Senate. **An Executive Summary can be found on page 3.**

This proposal was put forward by the Dean's Advisory Group on Restructuring (AGoR), discussed and approved at our School of Medicine Executive on February 23, 2010, our School of Medicine Academic Council on March 23, 2010 and a Special Faculty Board meeting on April 7, 2010.

The following motion was put forward at the Faculty Board meeting:

It was moved by I. Young and seconded by R. Deeley, “that the decision of the School of Medicine Academic Council concerning organizational restructuring of the Basic Science departments in the School of Medicine, as recommended by the Dean's Advisory Committee plus addendums, be approved and referred to Senate for consideration”
CARRIED

If you require any further information please do not hesitate to contact me.

Thank you for your attention to this matter.

Best regards;

Original signed by

David R. Edgar
Secretary to the School of Medicine
Faculty of Health Sciences

c.c. D. Walker, Dean Faculty of Health Sciences
I. Young, Vice-Dean Academic, Faculty of Health Sciences



INTEGRATION OF THE BIOMEDICAL AND MOLECULAR SCIENCES

Proposal For Organizational Restructuring of the Basic Sciences in the School of Medicine

**Submitted by the Dean's Advisory Group on Restructuring:
I. Young (Chair), B. Banfield, C. Cahill, A. Croy, R.
Deeley, J. Fisher, G. Jones, K. Rose, S. Smith, S. Vanner**

February 2010

TABLE OF CONTENTS

	<u>PAGE</u>
I. EXECUTIVE SUMMARY	3
II. PREAMBLE	4
III. THE DESIGN PROCESS	5
IV. THE INTEGRATED DEPARTMENT OF BIOMEDICAL AND MOLECULAR SCIENCES	6
1. Divisional Structure and Research Education	
2. Undergraduate Education	
3. Research	
4. Leadership and the Executive Function	
V. INTEGRATION: OPPORTUNITIES AND BENEFITS	11
VI. THE RESTRUCTURING TIMELINE	14

Appendices

Appendix 1: Organizational Design Process

Appendix 2: Restructuring the Basic Sciences in the School of Medicine: The Need For Change

Appendix 3: Restructuring the Basic Sciences In the School of Medicine: Discussion Paper on Design Criteria for the New Organizational Structure

Appendix 4: Department of Biomedical and Molecular Sciences Organizational Chart

Appendix 5: School of Medicine Organizational Chart

Appendix 6: Research Education Committee: Proposed Terms of Reference

Appendix 7: Undergraduate Education Council: Proposed Terms of Reference

Appendix 8: Research Committee: Proposed Terms of Reference

Appendix 9: Executive Committee: Proposed Terms of Reference

I. EXECUTIVE SUMMARY

The combination of the internal fiscal situation at Queen's and the economic recession has created significant financial challenges for all Faculties in the University. In the School of Medicine, necessary reductions in base budgets are jeopardizing the quality and sustainability of educational and research programs in the Basic Sciences that are integral and of critical importance to the School's academic mission. In response to this challenge, the Dean's Advisory Group on Restructuring (AGoR) was established to design an organizational model that will enable the Basic Sciences to maintain its high level of academic performance in an environment of diminishing resources.

Following completion of a detailed, comprehensive and inclusive design process, AGoR recommends that the School of Medicine adopt an integrated structure for the Basic Sciences in which its educational and research programs are brought together in a single academic unit. AGoR proposes that a new Department of Biomedical and Molecular Sciences be formed by the merger of the Departments of Anatomy & Cell Biology, Biochemistry, Microbiology & Immunology, Pharmacology & Toxicology, and Physiology. Current undergraduate Biochemistry and Life Sciences Programs and the graduate programs of each of the five merged departments remain unchanged but each of these educational programs becomes the administrative responsibility of the new department.

This integrated structure will significantly enhance the operational and strategic capabilities of the Basic Sciences. Amalgamation of human, financial and infrastructure resources and the alignment of authority and responsibility with fiscal management will greatly improve both the effectiveness with which collective resources can be utilized and the ability to respond and adapt quickly to changing environments. More importantly, uniting faculty and staff around common missions and visions for education and research will promote new interdisciplinary collaborative opportunities on which future success in the biomedical sciences so critically depends.

II. PREAMBLE

In March of 2009, Dean David Walker expressed to the Faculty of Health Sciences his deep concern regarding the effects that imminent budget cuts would have on the capability of the Basic Sciences of the School of Medicine to maintain its very high level of performance in education and research. The Dean emphasized the critical importance of the Basic Sciences to the educational and research enterprises of the School of Medicine and the consequent necessity that the Basic Sciences have the capability to adapt to an increasingly challenging environment in a way that will enable continued academic excellence and investment in strategic priorities. To this end, the Dean struck the Advisory Group on Restructuring (AGoR) with a mandate to propose an alternate organizational structure for the Basic Sciences that would enhance its capability to respond and adapt to challenges and opportunities and to improve its ability to manage and invest its available resources. Specifically, AGoR was directed to recommend a new organizational model for the Basic Sciences that will enable and foster:

1. The development of distinctive and sought-after educational programs that will enhance the Faculty's capability to recruit the best students.
2. The most effective and efficient deployment of faculty to achieve the educational and research goals of the Faculty of Health Sciences.
3. The support and development of intra- and cross-Faculty interdisciplinary research and the expansion of collaborative research involving Basic and Clinician Scientists.
4. The capability of the Faculty of Health Sciences to acquire external resources.
5. The optimal strategic utilization and management of financial and infrastructure resources.

This document, which represents the culmination of AGoR's organizational design process, describes a proposal for a new integrated organizational structure for the Basic Sciences and includes a detailed description of the design process and the rationale for the recommended structure.

This proposal will be submitted for review and approval by the School of Medicine Executive, School of Medicine Academic Council and Faculty Board.

III. THE DESIGN PROCESS

In developing its recommendation for the new organizational structure of the Basic Sciences in the School of Medicine, AGoR employed a detailed design process, the major components of which are described in Appendix 1. The initial steps of this process included the development of the rationale for organizational change and the establishment of a set of organizational design criteria that were described in previously issued documents (Appendices 2 and 3). The design criteria, which formed the foundation for the subsequent organizational modeling, can be summarized by the following three themes:

1. Integration

The organizational structure must enable functional integration of the Basic Sciences and facilitate interdisciplinary collaboration in the development and administration of educational and research programs.

2. Operational Capability

The organizational structure of the Basic Sciences must enable the most efficient and effective management of human, financial and infrastructure resources.

3. Strategic Capability

The organizational structure of the Basic Sciences must enable adaptability to environmental change and the development and exploitation of competitive advantages.

Detailed design criteria for each of the educational, research and executive functions of the Basic Sciences (see Appendix 3) were used to guide the development of design concepts that eventuated in the proposal for a single integrated Basic Science Department, the initial iteration of which was described in the previously issued document entitled “Restructuring the Basic Sciences in the School of Medicine: Proposal for a New Organizational

Design”(http://healthsci.queensu.ca/agor/assets/document_for_the_restructuring_proposal.pdf).

Faculty, students and staff were then engaged in a consultative process, including ten individual Focus Groups, through which advice and input regarding the proposed organizational design were sought. The collected information was used by AGoR to inform its subsequent review and refinement of the proposed model. The recommended structure for the Basic Sciences that is described in this document is the final product of this process.

IV. THE INTEGRATED DEPARTMENT OF BIOMEDICAL AND MOLECULAR SCIENCES

The organizational model that best meets the design criteria and optimizes the operational and strategic capabilities of the Basic Sciences is one in which its educational and research programs, as well as associated infrastructures, are integrated within a single department. The proposed organizational structure for this new Department of Biomedical and Molecular Sciences and its position within the organizational chart of the School of Medicine are depicted in Appendices 4 and 5, respectively. The principle features of the model are:

- The Department of Biomedical and Molecular Sciences is formed by the merger of the Departments of Anatomy and Cell Biology, Biochemistry, Microbiology and Immunology, Pharmacology and Toxicology, and Physiology.
- The Department of Community Health and Epidemiology remains as a discrete unit with continuing responsibility for the advancement of the Public Health Sciences.
- The Undergraduate Biochemistry and Life Sciences Programs remain unchanged. The administration of these programs becomes the responsibility of the Department of Biomedical and Molecular Sciences in conjunction with the Associate Dean, Undergraduate Science Education.

- All graduate programs in the School of Medicine remain unchanged. The administration, of the Anatomy & Cell Biology, Biochemistry, Microbiology & Immunology, Pharmacology & Toxicology, and Physiology Graduate Programs becomes the responsibility of the Department of Biomedical and Molecular Sciences, in conjunction with the Associate Dean, Graduate and Postdoctoral Education.

The process through which AGoR engaged stakeholders in consultation regarding the initial restructuring proposal proved extremely valuable. The advice received critically informed the review and refinement of the structure of the Department of Biomedical and Molecular Sciences, the final framework of which is depicted in Appendix 4. In redesigning the internal structure of the Department, AGoR has endeavored to describe the major operational components of the Department in a way that will enable a clear understanding of their responsibility, authority and functioning (see Appendices 6 to 9) without addressing the numerous operational details that must be finalized in the detailed functional planning phase to follow.

1. Divisional Structure and Research Education

The consultation process provided AGoR with a very strong message of the importance of introducing a divisional structure into the integrated department. The establishment of a divisional structure fulfills several needs. Through membership in divisions, faculty and staff are provided the opportunity to maintain longstanding professional identities that may be linked to either specific professional groups or educational programs. As the linkages between professional groups and graduate programs are particularly strong, the divisional structure of the Department has been aligned with its role in research education.

Although divisions will contribute to sustaining the professional identities of faculty, their principle function will be to provide support for the educational programs of the Department of Biomedical and Molecular Sciences. The divisions will provide structure within which both departmental and educational issues relevant to graduate programs can be addressed. Furthermore, the divisions will also provide fora in which faculty can address educational issues pertinent to undergraduate programs and the teaching of individual disciplines.

Four divisions are proposed: Biomolecular Structure and Function; Infection and Immunity; Integrated Human Function and Therapeutics; and Neurosciences. These divisions are suggested because of their alignments with graduate and undergraduate educational programs, AGoR's recognition of the roles, strengths and traditions of existing professional groups and scientific disciplines, and the current functional interrelationships of faculty with respect to both the educational programs in which they participate and research they conduct. Individual faculty will choose their division of membership and each division will have a named Director whose roles will include leadership and advocacy for educational programs and disciplinary teaching, coordination of divisional activities and divisional representation on various departmental committees.

AGoR strongly recommends that the divisional structure of the Department be fluid. The vitality and longevity of individual divisions will be determined largely by the success and strength of the educational programs that they support. Therefore, the focus, structure and number of divisions should be free to change as the educational programs they support evolve.

The research education function of the Department of Biomedical and Molecular Sciences will be administered by a Research Education Committee (REC), the proposed terms of reference for which are described in Appendix 6. In conjunction with the Associate Dean, Graduate and Postdoctoral Education, the REC will oversee the departmental graduate programs and postdoctoral training and will also be responsible for the development and implementation of research education and training programs for medical scientists (i.e. medical postgraduates).

2. Undergraduate Education

Departmental undergraduate educational functions will be governed by an Undergraduate Education Council (UEC), the proposed terms of reference for which are included in Appendix 7. Reporting to the Department Head, the purpose of the Council will be to provide oversight and coordination of all departmental undergraduate educational programs including Biochemistry, Life Sciences, teaching in the MD program and service teaching. The operational

and management responsibilities for the Biochemistry and Life Sciences programs will reside within the respective program committees that report to the UEC.

The UEC and the Biochemistry and Life Sciences program committees will administer the Biochemistry and Life Sciences programs in conjunction with the Associate Dean, Undergraduate Science Education. In its initial proposal, AGoR recommended that the position of Associate Dean, Life Sciences and Biochemistry be discontinued and that administration of these programs become the sole responsibility of the integrated department. Following consideration of the advice it received, AGoR is rescinding that recommendation for several reasons. As the Biochemistry and Life Sciences programs are delivered through a partnership with the Faculty of Arts and Science, it is crucial that the Faculty of Health Sciences has an administrative counterpart to the Associate Dean in Arts and Science who is responsible for these programs. Having responsible positions of equivalent administrative seniority in the two faculties will facilitate communication and coordinated decision-making and also provide a constructive balance of influence between the partners as they govern the programs. Furthermore, the Associate Dean position will contribute leadership to curricular renewal and academic planning in undergraduate science education in the School of Medicine, both of which may eventuate in the development of trans-Faculty initiatives for new programs and revenue generation. AGoR suggests that the description of the portfolio of the Associate Dean position be changed to “Undergraduate Science Education” to better reflect its role.

The Human Structural Sciences Education Unit

The human structural sciences, including Anatomy, are integral components of many current educational programs. As well, the quality of Anatomy teaching provided is outstanding, the educational resources supporting the human structural sciences are unique and highly valued, and the discipline has a strong reputation for educational scholarship and innovation. To maintain the integrity of this vital educational program, AGoR proposes that a Human Structural Sciences Education Unit (HSSEU) be established within the Department of Biomedical and Molecular Sciences. This Unit would provide an

administrative structure for the teaching programs, the involved faculty and staff, and the infrastructure related to the teaching of the human structural sciences. Its functions would include, but not necessarily be restricted to: administration of the delivery of Anatomy education across all undergraduate, graduate and postgraduate programs; management of the relevant teaching resources, such as the Anatomy museum; and, management of the infrastructure that supports the delivery of Anatomy education and the development of its educational resources. As well, the HSSEU would be responsible for the oversight of the Pattern II M.Sc. program in Anatomical Sciences. This latter responsibility would necessitate a communicative linkage to the Research Education Committee described above, as illustrated in Appendix 6.

Biochemistry and Life Sciences Laboratory Education Unit

Laboratory-based education is an important and highly valued component of the Biochemistry and Life Sciences programs that will face significant challenges due to financial constraints. In order to strengthen the administration and leadership of the laboratory component of these programs at this critical juncture, AGoR recommends that a Biochemistry and Life Sciences Laboratory Education Unit be established in parallel with the Human Structural Sciences Education Unit. This Unit will provide the educational and technical expertise required to optimally maintain the existing undergraduate laboratory offerings in the two programs, with a longer-term goal of enhancing and developing new laboratory components. The optimization of operational efficiencies will be realized by consolidation of related staff, resources and infrastructure.

3. Research

The departmental research infrastructure will be administered by a Research Committee, the proposed terms of reference of which are described in Appendix 8. The Research Committee will work in conjunction with the Vice-Dean, Research, particularly with respect to the administration of research space.

Research Groups are not assigned a formal organizational structure within the Department. Although some existing Research Groups are functionally aligned with the departmental divisions that are under the purview of the Research

Education Committee, the divisions do not have authority over or responsibility for Research Groups or programs. AGoR recommends that Research Groups and programs remain fluid with sufficient administrative flexibility to enable their differential growth and development commensurate with their success and dependent on the strategic direction of the Department, School and Faculty. Research Groups will work collaboratively with the Department Head and the Vice-Dean Research.

4. Leadership and the Executive Function

Integration of the administration of the research and educational programs of the Department will occur at the level of an Executive Committee (proposed terms of reference in Appendix 9), advisory to the Department Head, that has balanced representation from the departmental education and research enterprises as well as departmental leadership. The primary responsibilities of the Executive Committee will be oversight and coordination of the administration of academic programs, financial and infrastructure management, strategic planning, and human resource functions.

As stipulated by the Collective Agreement, the Department will also have a Promotions, Reappointments and Tenure Committee and an Appointments Committee, neither of which are included in the chart in Appendix 4.

V. OPPORTUNITIES AND BENEFITS

Integration of the Basic Sciences to foster and enable interdisciplinary collaboration in education and research aligns closely with Principal Woolf's anticipated direction for the University, as articulated in his vision document "Where Next? Toward a University Academic Plan" that was recently issued to frame the current academic planning initiative. Assuming leadership within the University in the development and expansion of interdisciplinary education and research will provide the Department of Biomedical and Molecular Sciences with a competitive advantage as enhanced University investment in its programs is pursued. But, regardless of the potential advantages of aligning restructuring of the Basic Sciences with University objectives, the implementation of a structural change as profound as the merger of multiple departments must be justified in the first instance by the combination of

functional benefits and opportunities it creates. Coalescing the disciplines and thematic groups of the Basic Sciences into a cohesive unit will markedly improve the capability to optimally manage resources, to respond effectively to environmental change and new opportunities, and to invest resources strategically. The principle benefits of the proposed model include the following:

Enhanced Interdisciplinary Collaboration

- Basic Science faculty will be linked by common departmental missions and visions for education and research. Historical boundaries will become obsolete and their disappearance will significantly mitigate internal competition for resources. Interdisciplinary collaboration will become a pragmatic imperative and, eventually, a cultural norm.
- The establishment of Education Committees with responsibility and authority for the administration of both undergraduate and graduate programs will enable growth and implementation of interdisciplinary approaches to teaching and learning.
- Creation of a single home for the large majority of basic biomedical research faculty will remove existing administrative boundaries and facilitate expansion of interdisciplinary research. The establishment of Divisions and Units aligned with educational programs will enable professional identities of faculty and staff to be sustained.

Improved Operational Flexibility and Effectiveness

- Consolidation of resources within a single administrative unit will enable their timely reallocation to areas of need and strategic importance.
- Uniting the Basic Science faculty within one department requires the establishment of a single faculty workload document. Having a common set of guidelines to govern the assignment of teaching responsibilities will enable the equitable division of responsibilities among basic science faculty, the efficient use of faculty teaching time and the allocation of appropriate teaching resources to areas of strategic need. Improving the

efficiency with which the faculty teaching resource is employed will facilitate the protection of faculty time for scholarship.

The benefits of the implementation of a single workload document will be maximized if such a document governs all QUFA faculty in the School of Medicine who are engaged in biomedical and molecular education and research, not just those who form the new Department of Biomedical and Molecular Sciences. Our challenges demand the use of our entire faculty resource in the most effective way possible. The capability to optimally deploy all our teachers will be critical to maintaining the vitality and integrity of some of our educational programs. Therefore, AGoR strongly recommends that a common workload document be developed and implemented for all QUFA members in the School of Medicine who are engaged in the biomedical and molecular sciences, including those whose primary appointments are in clinical departments.

- Achieving alignment of responsibility and authority for the administration of educational programs and research infrastructure will facilitate planning, decision-making and management, and reduce duplication of effort.

Increased Efficiency of Resource Utilization

- Creation of a single administrative unit for the Basic Sciences will enable optimal coordination of administrative processes and resource management.
- Resources can be closely aligned with function. For example, space can be allocated to achieve maximal research benefit and synergies.

Enhanced Responsiveness and Strategic Management Capability

- Integration of Basic Science operations within a single unit enables the establishment of cohesive and coordinated strategies for education and research.

- The alignment of responsibility with authority will promote organizational responsiveness by enabling timely and effective planning, decision-making and the implementation of decisions.

VI. THE RESTRUCTURING TIMELINE

The following description summarizes the next steps that will be followed in the restructuring process and the timeframe for their completion:

- **Faculty Decision-Making**
 - Approval of proposed organizational structure by School of Medicine Executive at meeting of February 23, 2010
 - Approval of proposed organizational structure by School of Medicine Academic Council at meeting of March 23, 2010
 - Approval of proposed organizational structure by Faculty Board at meeting of April 7, 2010
 - The Faculty of Health Sciences submits to Queen's Senate a request for approval of the restructuring plan
- **Detailed Design (April-June 2010)**
 - Specific and detailed planning is undertaken regarding all aspects of the new organizational structure including work processes and functional considerations
- **Detailed Planning for Transition (June-September 2010)**
 - Development of the implementation plan
- **Implementation (2010-11 Academic Year)**
 - The target date for achievement of full implementation of the new organizational structure is September 2011

APPENDIX 1 ORGANIZATIONAL DESIGN PROCESS

The major steps of the organizational design process employed by AGoR included:

1. Establishing The Rationale For Change

- The events, trends and developments creating the need for change were identified.
- A preliminary analysis of the current organizational structure was conducted and opportunities for improvement through redesign were determined.
- The purpose, focus and scope of the restructuring initiative were established.
- The outcomes of this stage of the process were articulated in a document, entitled “Restructuring the Basic Sciences in the School of Medicine: The Need for Change”, that was issued in early May and posted on the AGoR website at http://healthsci.queensu.ca/agor/assets/the_need_for_change.pdf

2. Development of Design Concepts

- Boundary conditions were established for the design process.
- Stakeholders were engaged and data collected.
- Design criteria were formulated for the education, research and executive functions and described in a discussion paper that was issued in late June and posted on the AGoR website at http://healthsci.queensu.ca/agor/assets/design_criteria_discussionpaper.pdf

3. Design Modeling

- Straw models were created and tested against design criteria and for feasibility
- The best design was identified and described in a document, entitled “Restructuring the Basic Sciences in the School of Medicine: Proposal for a New Organizational Design”, that was issued in November and posted on the AGoR website at http://healthsci.queensu.ca/agor/assets/document_for_the_restructuring_proposal.pdf

APPENDIX 1 ORGANIZATIONAL DESIGN PROCESS

4. Consultation Process

- Input and advice regarding the proposed organizational design was solicited by AGoR
- Ten Focus Groups were held with students, faculty and staff. Input from the Focus Groups was submitted to AGoR

5. Model Refinement

- Input from the Focus Groups and written submissions was synthesized by AGoR and used to refine the proposed organized model into its final form.

APPENDIX 2
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
THE NEED FOR CHANGE

The Basic Sciences of the School of Medicine have a long standing and well deserved reputation for excellence and high achievement in education and scholarship. Our undergraduate Life Sciences and Biochemistry programs are nationally recognized for both their quality and their ability to attract the nation's best students. Our graduate programs are equally strong. The research enterprise is highly productive and we have numerous faculty whose scholarship receives international recognition. This level of accomplishment has been achieved within a strong and collegial academic culture having its historic roots in departments that have imparted upon their faculty a sense of pride, loyalty and professional identity.

If we have been this successful, why must we embark on a change as significant and potentially disruptive as restructuring the organization? The compelling reason is that the structure that served us well in the past will not meet our needs in what will prove to be a much different future. We are entering a time in which constraints on our resources will be severe and changes in the environment will demand alternative approaches to how we conduct both our educational and research programs. Achieving excellence as we strive to fulfill our integrated missions in biomedical education and research in this very challenging environment will not be possible unless we have a form that is tightly linked to function and optimally structured to enable flexibility, responsiveness and collaboration.

The recent event that has necessitated our reorganization in a time-sensitive manner is the budget reduction in the Basic Science departments. This cut will lead to a significant decrease in the number of basic science faculty and will consequently have a major impact on our collective ability to deliver educational programs, conduct research and engage in service activities. Over the last several years, we have seen a gradual but progressive increase in faculty workload, much of which has been mitigated significantly by the valued cooperation of our colleagues. Unfortunately, the extent of the future reduction in faculty complement will far outstrip our capability to compensate through collegiality. We must now plan and implement innovations in how we are organized and conduct our operations if we are to not only maintain our high levels of performance but also enable the development of competitive advantages that will facilitate future strategic growth.

Although the financial situation is the acute, precipitating factor for the restructuring initiative, the purpose of redesigning the Basic Sciences is not to manage a budget cut.

APPENDIX 2
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
THE NEED FOR CHANGE

Rather, the objective is to design an optimal organizational structure that will enable the Basic Sciences to excel in education and research within the constraints of its future resources. This report describes the initial work that has been completed by the Dean's Advisory Group on Restructuring (AGoR), the purpose of which is to establish the focus and scope of the redesign process. The following sections describe major drivers of the need for innovation in education and research and opportunities for improvement that currently exist within our organizational structure. The final section presents a statement of the framing purpose and scope for the restructuring initiative.

THE DRIVERS OF INNOVATION AND CHANGE

The most significant factor that is precipitating the immediate need for innovation and change in our organizational structure is the reduction in faculty complement that the Basic Sciences must manage over the intermediate to long term. A 10% reduction (approximately \$1.2M) in the budgets of the Basic Science departments will be implemented gradually through fiscal year 2013. As a very large proportion of the budget is devoted to faculty compensation, a significant decrease in faculty complement is inevitable. Hiring to newly vacated basic science faculty positions has already been effectively frozen and will likely remain so into the foreseeable future. The pressure for individual faculty to expand their teaching and service responsibilities at the expense of time available for scholarship will consequently progressively increase. As well, because of varying departmental demographic profiles, differential attrition of faculty between departments will occur with some units suffering losses that will be large enough to place major educational programs in jeopardy.

Although the acute financial crisis represents the "tipping point" for organizational change, there are numerous other internal and external influences that are very important drivers of the need for innovation. During the last ten to fifteen years, there have been dramatic changes in the environment in which both postsecondary education and biomedical research are conducted. Within the Basic Sciences we have for some time recognized the increasing pressures to adapt to an academic world in which transdisciplinary integration has been accelerating. As traditional organizational boundaries have been transcended by the gradual emergence of interdisciplinary research groups and educational programs, questions as to whether our current organizational structure would enable the integration and flexibility necessary for the Basic Sciences to be a leader in biomedical education and research in this type of environment have been raised, yet we have not acted. The progressive loss of faculty that we face has removed any luxury of complacency we may have had. It is imperative that

APPENDIX 2
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
THE NEED FOR CHANGE

we now respond to ensure we are optimally structured to engage an environment in which transdisciplinary approaches to education and research are critically necessary.

The research funding environment is extremely challenging. Recent government decisions regarding the allocation of research funding may facilitate future investment in infrastructure but this opportunity is emerging at the expense of operating budgets. Developing and exploiting competitive advantages will be crucial to maintaining funding streams for research programs. In this context, the well-established trend of research funding agencies to emphasize inter- and transdisciplinary research and the increasing prominence of translational research are important factors that will determine the future allocation of a significant proportion of biomedical research operating funds. Furthermore, the extent, functionality and strength of interdisciplinary research groups have become critical determinants of the competitiveness of applications for major research infrastructure grants. Given these developments, significant competitive advantage will accrue to those institutions that foster the development of effective, functional interdisciplinary research groups and the integration of basic and clinical research.

Just as interdisciplinarity has become a very important theme in biomedical research, so it has in biomedical education. At both the undergraduate and graduate levels we have seen the development of transdisciplinary courses, streams and programs that have served to integrate both historical and emergent disciplines in the curricular design. The decision of funding agencies to specifically support transdisciplinary graduate programs underlines the significance of this trend and our Faculty's achievements in obtaining such funding emphasizes the strength of the foundation of interdisciplinary education that we have established. Our future success, however, will require that we build significantly on this foundation.

Province-wide implementation of the University Undergraduate Degree Level Expectations (UUDLEs) program (available on the Council of Ontario Universities website: <http://www.cou.on.ca>) will drive innovation in the Life Science and Biochemistry undergraduate programs. The UUDLEs program will require clear delineation of learning objectives and student outcomes as well as firmly established mechanisms for determining that intended outcomes have been met. The establishment of UUDLEs is driven in no small part by the requirement that universities be demonstrably accountable to government and the public for their performance in both education and research. The trend of increasing

APPENDIX 2
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
THE NEED FOR CHANGE

accountability and quality management in education will continue and we must incorporate these principles into the management of our curricula.

The ability of the Basic Sciences to respond effectively to this combination of progressive faculty attrition, impetus for interdisciplinary curricular development and increasing requirements for accountability will depend on having an organizational structure that enables integration, flexibility and the most efficient use of faculty resources.

THE OPPORTUNITIES IN RESTRUCTURING

If the Basic Sciences are to continue to achieve excellence in this extremely challenging and competitive environment then we must have an organizational structure that optimizes both functionality and the most efficient and effective use of resources. AGoR has conducted an assessment of the elements of the current structure of the Basic Sciences in order to identify significant opportunities for improvement through redesign. The exploitation of the following opportunities will form the basis of the purpose and scope of the restructuring initiative.

1. Enhancement of the level of integration and operational flexibility within the organizational structure.

- Our capability to reallocate or redeploy resources – either financial, human or infrastructure – to areas of need or new development is limited. For example, departments independently and differentially assign professional responsibilities to their faculty members and there is no formal mechanism for cross-departmental reassignment of responsibilities, such as teaching, to meet critical needs. This shortcoming will inhibit our ability to respond to the differential faculty attrition that will occur in departments over time and jeopardize our major undergraduate and graduate programs. In addition, space is largely a departmental resource for which there is no effective faculty-wide mechanism of reallocation to optimize functionality.
- There are areas in our organization in which accountability and function are not aligned. The strong trend toward interdisciplinary education has led increasingly to the development of new undergraduate and graduate programs by research groups. However, only departments are accountable for faculty teaching assignments. This misalignment creates tension around the assignment of faculty to department- or group-based programs and will hamper the future allocation of faculty resources.

APPENDIX 2
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
THE NEED FOR CHANGE

- There are areas in our organization in which funding and function are not aligned. The research and educational programs provided by research groups are generally not directly linked to traditional funding streams. This misalignment fosters internal competition for resources and hampers the cooperation necessary for their optimal utilization.
- There is redundancy of various administrative functions within the organization. Enhanced integration will provide opportunities to consolidate administrative functions and create operational efficiencies.

2. Enhancement of collaboration, cooperation and integration within the organization by establishing effective linkages between people and their groupings.

- Our future success will depend on the capability of the Basic Sciences to develop integrated, cohesive strategies and timely adaptive responses to external and internal challenges. This capability will require establishment of strong mechanisms that link all groups and people in a way that better enables collaboration and cooperation. Optimizing the effectiveness of these linkage mechanisms in facilitating strategic planning and decision-making will necessitate mitigation of influences that currently hamper integration, such as historical professional allegiances and internal competition.
- Establishing a linkage mechanism for the now largely independent basic science graduate programs will enable coordination and standardization of approaches to student funding and access to teaching assistantships.

FRAMING PURPOSE AND SCOPE

The Basic Sciences within the School of Medicine have a mission to conduct biomedical education and research of a quality meriting national and international recognition. The educational and research components of the mission are integrated and inseparable and the success of one enterprise is critically dependent on the success of the other. Similarly, failure in one will lead inevitably to failure in the other.

With this dual mission as its guiding principle, AGoR has used its understanding of the major influences that are driving change in the Basic Sciences and its identification of the elements of the current organizational structure in which improvement will result in significant functional gain to establish the following framing purpose and scope for the restructuring initiative.

APPENDIX 2
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
THE NEED FOR CHANGE

The purpose of the restructuring initiative is to:

Redesign the organization of the Basic Sciences in the School of Medicine so as to enable and foster:

- The maintenance and development of distinctive undergraduate and graduate educational programs that are of the highest quality and will attract the best students.
- The achievement of excellence and strategic growth in interdisciplinary research.
- The optimal flexibility and utilization of human, financial and infrastructure resources.

Key design elements the restructuring initiative will focus on include:

- Educational and research groupings and their responsibilities and accountabilities.
- Linkage mechanisms between functional groupings and people that enable integration and collaboration
- Optimization of the strategic capability of the organization.

The expected outcomes are:

- Maintenance of the high quality of our educational and research initiatives.
- A level of operational flexibility that will enhance responsiveness and enable efficient utilization of all resources within the Basic Sciences.
- Coordinated processes and mechanisms for operational management, decision-making and strategic planning.
- Alignment of funding and accountability with the organizational structure
- Enhanced capability to exploit competitive advantages and adapt to environmental change.

APPENDIX 3
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
DISCUSSION PAPER ON DESIGN CRITERIA FOR THE
NEW ORGANIZATIONAL STRUCTURE

In its initial communication, “Restructuring the Basic Sciences in the School of Medicine: The Need for Change”, the Dean’s Advisory Group on Restructuring (AGoR) described major factors driving innovation and change in the organization of the Basic Sciences of the School of Medicine, identified opportunities for organizational improvement through redesign and defined the framing purpose and scope for the restructuring initiative. In this paper, AGoR proposes a set of provisional design criteria to guide the creation of the new organizational structure for the Basic Sciences.

Design criteria have been developed for each of the core functions of the Basic Sciences: education; research; and, executive functions including leadership, strategic management and administration. The approach to establishing the design criteria was framed by the three key design elements that were identified in the “Need for Change” document:

- Educational and research groupings and their responsibilities and accountabilities
- Linkage mechanisms between functional groupings and people that enable integration and collaboration
- Optimization of the strategic capability of the organization.

The following questions were used to guide identification of the design criteria for each core function:

- What are the responsibilities and accountabilities of the individual functional groupings and what type of flexibility must they have?
- What critical internal and external linkages must the functional groupings have and how will these linkages enable collaboration and integration?
- What are the optimal reporting relationships of the functional groupings?
- How will the strategic capability of functional groupings be fostered?
- What are the critical feasibility factors and how will they impact organizational design?

The results of this analysis were then synthesized into overarching statements of the purpose of the organizational design and each purpose was linked to specific design criteria. The following sections present the statements of purpose and design criteria for each core function.

APPENDIX 3
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
DISCUSSION PAPER ON DESIGN CRITERIA FOR THE
NEW ORGANIZATIONAL STRUCTURE

DESIGN CRITERIA for the EDUCATION FUNCTION

The organizational structure of the Basic Sciences of the School of Medicine must be designed to deliver distinctive and innovative undergraduate and graduate educational programs that will achieve the following goals:

1. The acquisition by our undergraduate students of critical thinking, problem-solving and sophisticated communication skills within curricula that embrace an interdisciplinary approach to biomedical education.
2. The acquisition by our graduate students of the intellectual and research skills that will enable high achievement in careers in the biomedical sciences.
3. The recruitment of exceptional students.

To achieve these goals, the organizational structure of the Basic Sciences must be designed to:

1. Enable integration of the traditional disciplines and thematic groups of the Basic Sciences in the administration and delivery of undergraduate and graduate education programs.
2. Facilitate collaborative management of educational programs that will:
 - Promote adaptability, responsiveness and creativity in curriculum development and implementation;
 - Enable flexibility in the assignment of faculty teaching responsibilities and the allocation of financial and infrastructure resources;
 - Achieve alignment of program funding with the responsibility and authority for program delivery.
3. Enable harmonization of strategic planning, administrative processes and student funding across graduate programs.
4. Facilitate effective communication and collaboration with key educational partners.

DESIGN CRITERIA for the RESEARCH FUNCTION

The organizational structure of the Basic Sciences of the School of Medicine must be designed to promote and enable interdisciplinary scholarship and research that is of international caliber and achieves the following goals:

APPENDIX 3
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
DISCUSSION PAPER ON DESIGN CRITERIA FOR THE
NEW ORGANIZATIONAL STRUCTURE

1. The discovery of fundamental knowledge in the biomedical sciences and the improvement of health through knowledge translation to clinical medicine.
2. The provision of a multidisciplinary environment for graduate and postdoctoral training in basic and translational research.

To achieve these goals, the organizational structure of the Basic Sciences must be designed to:

1. Enable and foster research collaboration and partnerships both within the Basic Sciences and between the Basic Sciences, clinical sciences and cognate external research groups;
2. Facilitate coordinated strategic planning, decision-making and the development and exploitation of competitive advantages;
3. Facilitate strategic growth of existing and emerging areas of interdisciplinary research strength;
4. Enable adaptation to changes in the research funding environment
5. Facilitate the alignment of funding with research program function and the optimal management of resources, including the allocation of research space, to meet strategic priorities.
6. Foster innovation, creation of intellectual property and technology transfer;
7. Promote the development of coordinated postdoctoral training programs that include opportunities for career development.

DESIGN CRITERIA for the EXECUTIVE FUNCTION

The organizational structure of the Basic Sciences of the School of Medicine must be designed to provide a framework for leadership and administration that achieves the following goals:

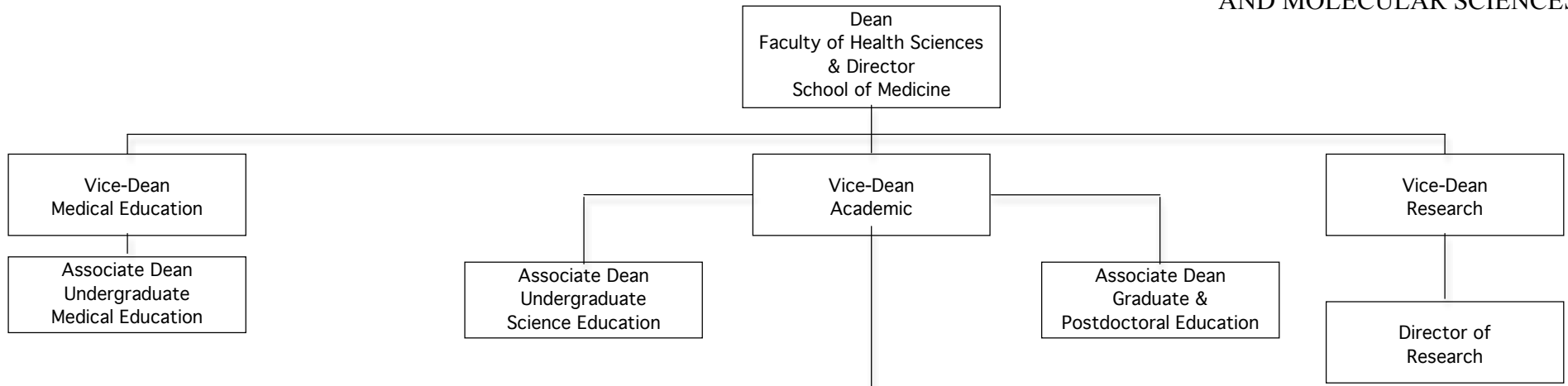
1. Alignment of leadership around a common vision;
2. Optimization of the responsiveness and adaptability of the organization to environmental change;
3. Development of an organizational culture that highly values collective achievement and collaborative resource management;

APPENDIX 3
RESTRUCTURING THE BASIC SCIENCES
IN THE SCHOOL OF MEDICINE:
DISCUSSION PAPER ON DESIGN CRITERIA FOR THE
NEW ORGANIZATIONAL STRUCTURE

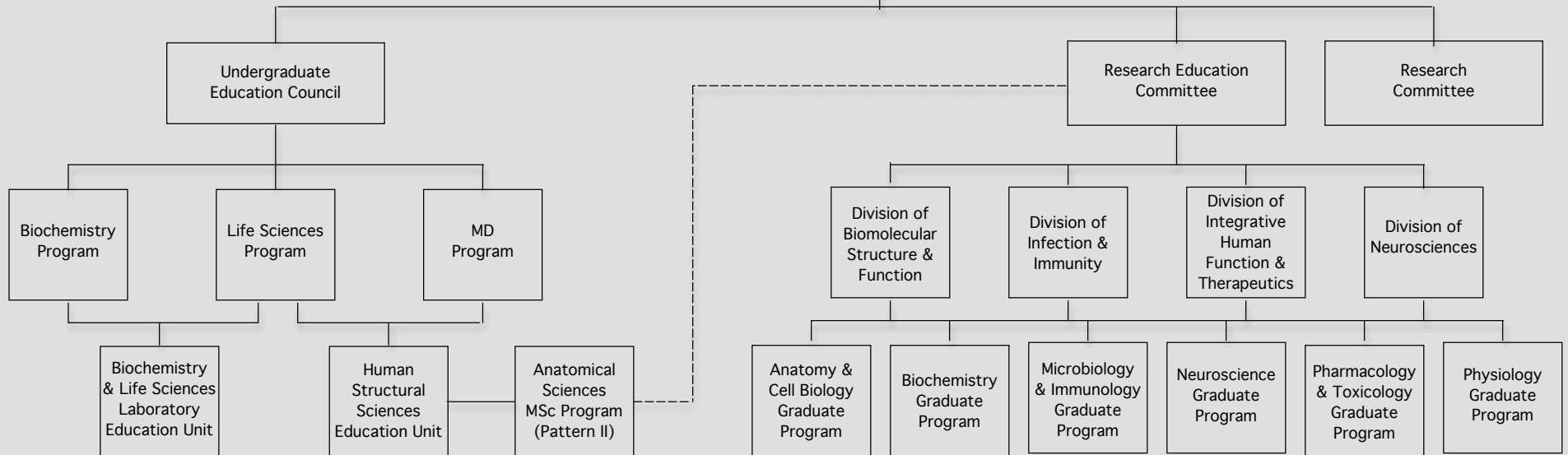
To achieve these goals, the organizational structure of the Basic Sciences must be designed to:

1. Facilitate the development of both internal and external collaborations;
2. Integrate strategic management of the education and research functions;
3. Align funding with responsibility and authority and enable flexibility in the allocation and management of resources;
4. Provide internal communication linkages that promote inclusivity and transparency of process;
5. Enable knowledge transfer and application through partnerships with key external agencies;
6. Enable administration of effective mentoring programs for all faculty in which the development of educational, scholarly and administrative capabilities are integrated.

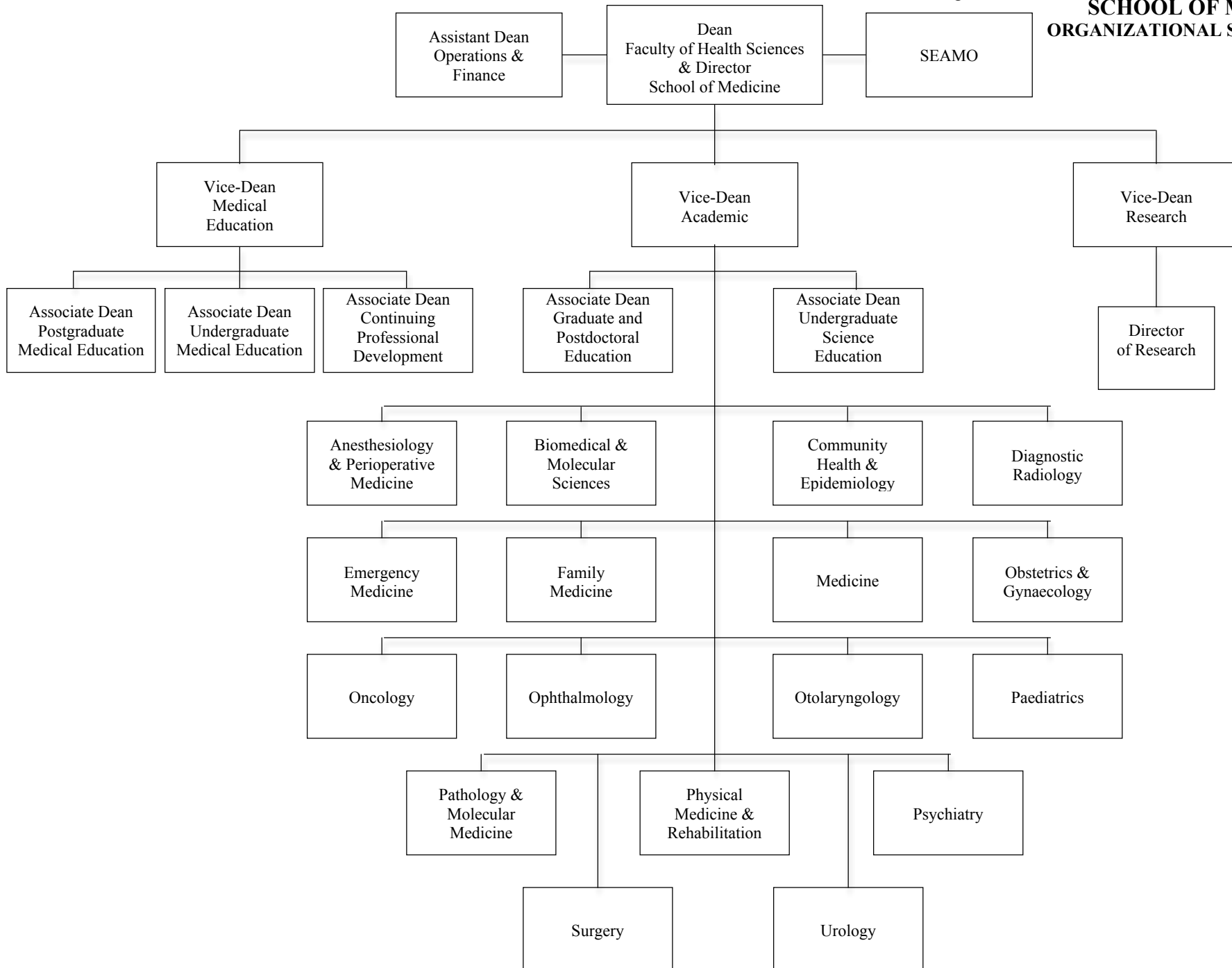
Engagement of all stakeholders and constituencies in the review of the design criteria presented in this paper is very important. The design criteria will determine the structure of the Basic Sciences and it is therefore essential that they accurately reflect the purposes and needs of our organization. It is our collective wisdom that will produce the best design criteria and, through their application, the most effective organizational structure. AGoR strongly encourages all students, faculty and staff to provide commentary, advice and recommendations that will inform the process through which the final design criteria will be established.



**Department of Biomedical
and Molecular Sciences**



APPENDIX 5
SCHOOL OF MEDICINE
ORGANIZATIONAL STRUCTURE



APPENDIX 6
RESEARCH EDUCATION COMMITTEE

Proposed Terms of Reference

Purpose

- Oversee departmental graduate programs and postdoctoral and medical scientist training
- Provide leadership in research education and training

Membership

- Directors of departmental Divisions
- Directors of Graduate Programs
- Representation from graduate students
- Representation from postdoctoral fellows

Primary Responsibilities

- In conjunction with the Associate Dean, Graduate and Postdoctoral Education:
 1. Oversee the development, implementation and quality of departmental graduate programs, postdoctoral training and medical scientist training
 2. Oversee the training and development of students and fellows as educators
 3. Develop and implement recruitment strategies for students and postdoctoral fellows
 4. Acquire external funding for graduate programs
- Collaborate with the departmental Research Committee and Research Groups on the implementation and administration of research education and training programs
- Ensure appropriate harmonization of curricula, administrative processes and student funding between departmental graduate programs
- Advise Department Head on strategic planning for research education and training programs
- Manage the research education budget
- Advise the Department Head on the assignment of faculty graduate teaching and related administrative responsibilities

Authority

- Authority, in conjunction with the Associate Dean, Graduate and Postdoctoral Education, for the development, implementation and management of graduate programs

APPENDIX 6
RESEARCH EDUCATION COMMITTEE

- Strong influence, through advice to the Department Head, regarding strategic planning and the assignment of faculty graduate teaching and administrative responsibilities

Reporting and Key Relationships/Linkages

- Reports to Department Head
- Collaborative relationship with Associate Dean, Graduate and Postdoctoral Education
- Communicative linkages to Vice-Dean Graduate and Postdoctoral Education and Vice-Dean Research
- Communicative linkage to departmental Research Committee
- Communicative linkages to clinical departments and clinical research units and research units outside the School of Medicine

Accountabilities

- Quality of educational and training programs and quality of students' and trainees' educational experiences
- Quality of teaching, supervision and mentoring provided by faculty
- Sustaining high academic and ethical standards within the educational and training programs
- Quality of recruited students and trainees
- Efficient and effective utilization of resources

APPENDIX 7
UNDERGRADUATE EDUCATION COUNCIL

Proposed Terms of Reference

Purpose

- Provide oversight and coordination of all departmental undergraduate educational programs including Biochemistry, Life Sciences, MD and service teaching
- Provide leadership in undergraduate education

Membership

- Associate Dean, Undergraduate Science Education
- Directors of Biochemistry and Life Sciences Programs
- Lead, Human Structural Sciences Education Unit and Lead, Biochemistry and Life Sciences Laboratory Education Unit
- Representation from the MD Program
- Representation from each Division

Primary Responsibilities

- In conjunction with the Associate Dean, Undergraduate Science Education:
 1. Oversee and manage the development, implementation and quality of undergraduate programs
 2. Oversee operation of key committees including the Life Sciences Program and Biochemistry Program committees
 3. Manage the undergraduate education budget
 4. Lead strategic planning for undergraduate education
- Advise the Department Head on the assignment of faculty undergraduate teaching and related administrative responsibilities
- Liaise with relevant internal and external units including undergraduate medicine committees, cognate departments and those units accessing service teaching
- Collaborate with the departmental Research Education and Research Committees to facilitate appropriate integration of undergraduate education with these functions
- Advise the Department Head on the development of educational, supervisory and mentoring skills of faculty

Authority

- Full authority in conjunction with the Associate Dean, Undergraduate Science Education, for the development, implementation and management of undergraduate programs

APPENDIX 7
UNDERGRADUATE EDUCATION COUNCIL

- Strong influence, through advice to the Department Head, regarding assignment of faculty teaching and related administrative responsibilities

Reporting and Key Relationships/Linkages

- Reports to Department Head
- Collaborative relationship with Associate Dean, Undergraduate Science Education
- Lateral linkages to departmental Research Education and Research Committees, Directors of Divisions and Research Groups
- Communicative linkages to the MD program and cognate departments within and outside the School of Medicine
- Communicative linkage to the Associate Dean (Faculty of Arts and Science)

Accountabilities

- Quality of educational programs and quality of students' educational experience
- Quality of teaching, supervision and mentoring provided by faculty
- Sustaining high academic and ethical standards within the educational programs
- Efficient and effective utilization of resources

APPENDIX 8 RESEARCH COMMITTEE

Proposed Terms of Reference

Purpose

- Provide leadership and operational management for departmental research functions
- Administer the departmental research infrastructure

Membership

- Representation from Directors of Research Groups
- Representation from Directors of Divisions

Primary Responsibilities

- Manage the departmental research infrastructure resources including space, equipment and support staff
- Manage the departmental research infrastructure budget
- Advise the Department Head on strategic planning and resource allocation

Authority

- Full authority for the operational management of research infrastructure resources and support staff
- Strong influence, through advice to the Department Head, regarding strategic planning and resource allocation

Reporting and Key Relationships/Linkages

- Reports to Department Head
- Lateral linkages to departmental Research Education Committee, Undergraduate Education Council and departmental Graduate Program Committees
- Communicative linkages to Vice-Dean Research, Director of Research and Assistant Dean, Finance and Operations
- Communicative linkages to clinical departments and research units and cognate departments and research units outside the School of Medicine

Accountabilities

- Quality management of research staff
- Efficient and effective utilization of research infrastructure resources

APPENDIX 9

EXECUTIVE COMMITTEE

Proposed Terms of Reference

Purpose

- Provide high-level leadership and integrated strategic management for all departmental functions

Membership

- Representation from undergraduate education program leadership, graduate and postdoctoral education program leadership, divisional Directors, Research Committee and Research Group leadership

Primary Responsibilities

- Oversee and coordinate management of all educational and research programs
- Conduct financial management and budgeting
- Lead and coordinate departmental strategic planning
- Allocate and oversee management of infrastructure resources
- Assign faculty teaching and administrative responsibilities
- Initiate and oversee mentoring and development programs for faculty and staff
- Lead faculty recruitment and retention initiatives

Authority

- Advisory to the Department Head

Reporting and Key Relationships/Linkages

- Reports to the Department Head
- Lateral linkages to cognate departments and units within and outside the School of Medicine

Accountabilities

- Overall quality and performance of the departmental educational and research programs
- Efficient and effective management of departmental resources
- Professional and career development of faculty and staff