



**The Report of
The New Jersey
Commission
on Health Science,
Education, and Training**



Submitted to Governor James E. McGreevey

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The Commission thanks the administration of the University of Medicine and Dentistry of New Jersey, Rutgers, the State University of New Jersey, and the New Jersey Institute of Technology who assisted in coordinating responses to the Commission's requests for information. We profited greatly by our discussions over several months with leadership, administration, faculty, and students associated with the universities. The New Jersey Commission on Higher Education also offered assistance and pertinent data. Lastly, three public meetings and written comments provided additional information for discussion.

The Commission received valuable insights and assistance from others in academic medical centers, higher education, industry, and the research community. Leadership from the Oregon Health & Science University, University of California – San Diego, University of California – San Francisco, University of Maryland at Baltimore, University of Michigan, University of Texas – Southwestern, and University of Washington and other institutions willingly shared their knowledge and experience. Many individuals dedicated considerable time and staff resources in answering questions and providing detailed data about their organizations.

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EXECUTIVE SUMMARY

At the request of Governor James E. McGreevey, the Commission on Health Science, Education, and Training (the Commission) has assessed medical and allied health care education in the state and formulated recommendations designed “to enhance the quality of education, to increase their overall competitiveness as institutions of health care learning, and to foster healthy synergy amongst these institutions.” Based on this assessment, the Commission hereby submits to the Governor this *Report of The Commission on Health Science, Education, and Training* (the Report).

With advances in knowledge, technology, and increasing national wealth there has been expansive growth of health care institutions, such that medical care now constitutes approximately 13 percent of the American economy.¹ Moreover, health research and education reach more and more deeply into many areas of knowledge from physics, biology and the mathematical sciences to the behavioral sciences, engineering, business, philosophy and history, among others. The reach of health across research and scholarship is increasingly illuminating the determinants of health and providing challenges and opportunities for scholars in a wide range of disciplines and schools to develop theoretical and analytic perspectives in their own areas of knowledge and to take advantage of research opportunities in health related areas. In such diverse fields as the material sciences, artificial intelligence, psychology and ethics, increased access to medical settings and collaboration with health scientists provide extraordinary opportunities for synergy.

Because the University of Medicine and Dentistry of New Jersey (UMDNJ) is the only provider of medical education and a major provider of allied health education in the state, it was initially the focus of the Commission’s work. However, it soon became clear that understanding the full potential of research and clinical developments in medical science and technology required a more far-reaching inquiry into synergies available through potential alliances outside the health sciences university. With the Governor’s consent and consistent with Executive Order No.14, the Commission thus conducted a targeted analysis of the quality and systems of Rutgers, The State University of New Jersey (Rutgers), with focus on its health science and related offerings. In making its recommendations, the Commission strived to assess the impact of our recommendations on the comprehensive educational enterprise as well as the health sciences.

¹ *Health Affairs*, 2002, Volume 21, Number 1.

Responding to a specific request from the Governor, the Commission also summarized national trends in hospital ownership and best practices and makes several overarching recommendations regarding University Hospital in Newark.

Our recommendations emerged as we analyzed publicly available information, benchmarked major quality-related measures; visited top schools nationwide; interviewed UMDNJ and Rutgers leaders and faculty as well as New Jersey Institute of Technology (NJIT) leadership; sought community input through public hearings; and leveraged the expertise of Commission members, many of whom have managed universities, health schools or hospitals. In combination, these activities enabled the Commission to evaluate the various accomplishments and inherent shortcomings of the existing institutions.

Based on our assessment, the Commission recommends that the state:

- ¶ Create a single New Jersey research university system (herein called, the University of New Jersey or UNJ)² that builds on the collective strengths of the eight UMDNJ schools and the schools and programs of Rutgers and NJIT and thus creates an effective platform for excellence in both health and non-health disciplines. Using other successful state university systems as models, the University of New Jersey system would:
 - Encompass three universities: UNJ-North (Newark), UNJ-Central (New Brunswick/Piscataway), and UNJ-South (Stratford/Camden). Each university would have significant academic and administrative autonomy. This would give each community its own largely independent university.
 - Reduce the size of central administration: the UNJ system chancellor would be responsible for functions such as hiring university presidents, writing the budget requests, approving new schools, system-wide planning, and relations with government and other external parties.
- ¶ Ensure best practices in governance and leadership of UNJ at the state, university system, and university level. This would involve establishing appropriate structures and roles (i.e., Board of Regents, university system chancellor, university presidents, and University Advisory Boards).
 - These structures should be populated with exceptional leaders with deep academic experience and commitment. Top schools make a priority of hiring distinguished leaders at the system, university, and

² We would leave to university leaders and stakeholders the decision on the actual name to be adopted.

school level. These were not just accomplished administrators but nationally renowned academics who brought a clear vision for how to achieve excellence and were able to rally others around that vision.

- ¶ Ensure best practices for processes and funding. Process reforms should include implementing a standard budgeting and reporting system and better knowledge sharing systems, focus on hiring faculty with high potential, encouraging top New Jersey high school students and outstanding graduate students to seek admission to UNJ. With respect to funding, the Commission endorses the state’s commitment to funding two-thirds of educational and general costs for research universities and 90 percent of these costs for health science students. Further, the Commission recommends that funding should not be reduced to existing schools as a result of these recommendations. UNJ and the state should consider adopting formula-based funding to improve transparency and predictability of appropriations.
- ¶ Should the Governor accept these recommendations, establish a Review and Implementation Task Force to assess the impact of the recommendations on health and non-health schools and programs and complete the significant work required to turn the Commission’s guidance into a blueprint for action.

The Commission separately examined the current ownership structure of University Hospital in Newark. The Commission recommends that the university maintain ownership of the University Hospital to best carry out the academic mission of the New Jersey Medical School and to ensure high quality ongoing service to the Newark community.

The remainder of this Executive Summary describes – in brief – the findings that influenced these recommendations and our rationale in making them.

FINDINGS INFLUENCING THESE RECOMMENDATIONS

The Commission’s assessment of UMDNJ

At UMDNJ, whose eight schools enroll approximately 4,700 students, the Commission found that – despite significant strides in recent years – the goal of excellence has not been achieved. For example, academic quality at UMDNJ’s allopathic medical schools, the Robert Wood Johnson Medical School and the New Jersey Medical School, is at or somewhat below the national average and

significantly below the top 10 state medical schools in the country on a number of parameters such as student and faculty metrics, residency programs (with some exceptions), and the research enterprise. However, all the UMDNJ medical schools, including the School of Osteopathic Medicine, distinguish themselves on community service for which the Commission wishes to commend them.

Similarly, national comparisons reveal average rankings, in general, for other UMDNJ schools including the School of Osteopathic Medicine, the Graduate School of Biomedical Sciences and the Nursing School, though each has distinguished itself in specific ways detailed in the Report. The New Jersey Dental School attracts a diverse cadre of students who perform at or slightly above national averages. Few nationally comparable metrics are available for the new School of Public Health. The School of Health Related Professions has a strong track record in community collaborations and service but again collects few quality metrics to permit comparison.

In addition to assessing quality of academic offerings at UMDNJ, the Commission examined the university system itself, which is critical to creating a quality academic experience. We found that the current centralized system of governance constrains the ability of the campuses and schools to function optimally – both from an academic and operational perspective. School leaders and faculty expressed concern with a “one-size-fits-all” vision, which does not focus on defined areas that would be the basis for a national reputation. This centralized governance makes the UMDNJ system unique in that it is the only multicampus health science university in the country. In addition, no top universities with medical schools on multiple campuses are administered centrally – rather, co-located schools report to a campus president or chancellor. This UMDNJ system also results in an opaque and complex administration that hinders effective research grant management, knowledge sharing, budgeting, student services, and other processes. This is in stark contrast to other outstanding systems where campuses have significant autonomy in determining their direction and in administration. The Commission believes that this structure permits local accountability, greater responsiveness to school and community needs, and increased campus entrepreneurship.

The Commission’s assessment of Rutgers

A similar, although less intensive, assessment was carried out of Rutgers’ health science offerings and its institutional quality. This effort revealed that the quality of Rutgers’ educational programs is good overall and excellent in several specific areas. However, it is the view of Rutgers’ faculty and administrators that Rutgers’ national and local reputation does not adequately reflect the school’s true academic quality and future potential. Many see the addition of a medical school and other

health schools as an asset that would contribute to the visibility of its reputation, increase educational and research opportunities for undergraduate and graduate students, and enhance the quality of faculty and students attracted to the University in many areas of study.

Overall Rutgers' academic quality is well above the national average for state schools, though below the top state schools. The New Brunswick campus is ranked 20th among state universities for undergraduate education. Notably, several of its health sciences institutes and departments are nationally renowned for the quality of their faculty and research, but overall faculty distinctiveness is below the top state schools. The school attracts strong health-sciences graduate students and has several nationally recognized non-health graduate programs.

The Commission noted, in particular, that Rutgers has doubled its external research funding in the past 10 years, with most of this funding awarded to the New Brunswick campus. As with UMDNJ, the Commission also assessed Rutgers' strategic vision, structure and governance, leadership, processes, and funding. Among other things, this assessment revealed several academic collaborations between Rutgers and UMDNJ in New Brunswick and Newark, although the Commission frequently heard frustrations with various administrative matters related to these partnerships. Commission also heard that recruiting top faculty in some science areas is difficult in the absence of a medical school. In terms of funding, the Commission's analysis indicates that state support for Rutgers is on the low end of the national range, lags the Higher Education Price Index, and is a decreasing share of the state budget.

RATIONALE FOR THESE RECOMMENDATIONS

While the attached report documents all the factors that shaped these recommendations, the Commission wishes, with this Executive Summary, to highlight the rationale underlying these recommendations.

Creating a single New Jersey research university system

The Commission believes strong synergies can be gained by combining UMDNJ, Rutgers, and NJIT given the geographic proximity of the campuses, the strong undergraduate student pools, complementary graduate programs, similar infrastructure (e.g., labs and equipment) and existing scientific collaborations. The establishment of three universities whose schools and programs with similar offerings could capitalize on academic synergies, build on existing collaborations, and share a single administrative and operational umbrella under the unified

structure. Our vision addresses many of the structural issues identified at UMDNJ and creates a platform for building excellence in education in New Jersey. While our initial focus was on the health sciences, the Commission believes that programs in areas outside the health sciences will not experience negative effects from the restructuring. On the contrary, they have much to gain from this restructuring in terms of improved administrative processes and increased prominence of the university system.

In addition to promoting academic excellence, the structure of UNJ would also address many of the system issues the Commission identified at UMDNJ. Below we list some of the main benefits that UNJ offers.

Benefits impacting the whole university include:

- ¶ *Interdisciplinary synergies.* Interactions between health and non-health disciplines are an increasingly important national trend. The flow of ideas among disciplines serves to improve the rigor and breadth of academic offerings across the university.
- ¶ *More robust graduate-undergraduate interactions.* Bringing together undergraduates and graduates “under one roof” would provide improved undergraduate opportunities in instruction, research, and mentorship in health and health related areas including part-time and summer career related job opportunities. It would also provide teaching experience for graduate students.
- ¶ *More responsive administration.* Given geographic proximity and campus governance, administration and support services would be more responsive and accountable to students and faculty.
- ¶ *More effective use of resources.* State appropriations would be more effectively used in the UNJ system than they are today in supporting the three research universities. A single unified university administration would simplify processes for students and faculty across various disciplines.
- ¶ *Stronger community relations.* A local university would strengthen social and economic ties with its community. Communities, local academic experts, business leaders, and alumni would have greater input in their universities through University Advisory Boards.
- ¶ *Stronger corporate links.* A clearly articulated focus on academic and research excellence would attract life science companies. Further, an

effective corporate relations office would increase investment in the universities.

- ¶ *Institutional identity, scope, and excitement.* Each local university, guided by its own mission and vision, would raise the level of identification with the institution among faculty, students, and community. With larger size and more comprehensive offerings as well as a system more comprehensible to outsiders, the universities would be able to establish their own unique identities.

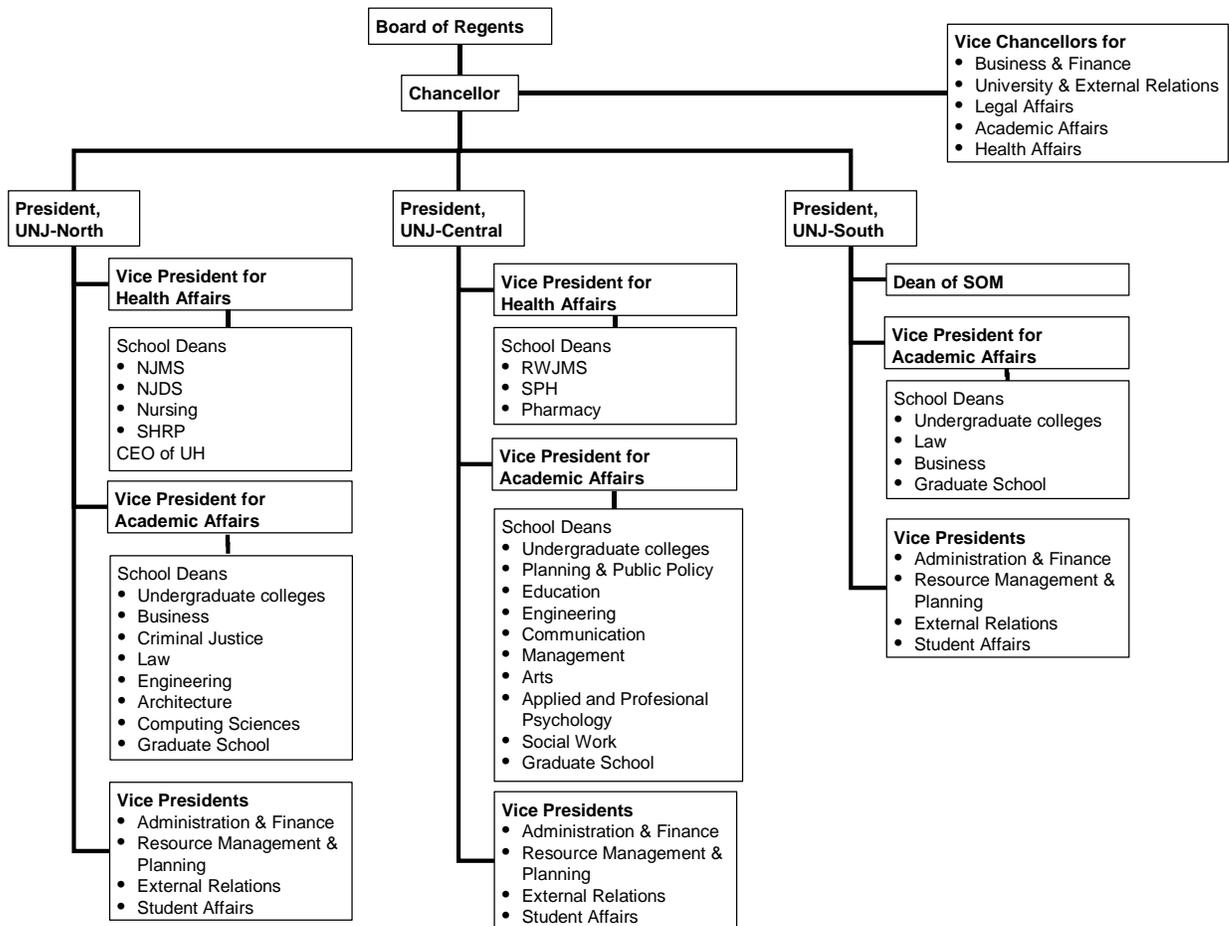
Benefits accruing to the health sciences include:

- ¶ *Enhanced collaboration within health science disciplines.* Departments could build on existing collaborations and create new ones without the administrative hassles encountered today. Working with other scientists in close proximity promotes sharing of equipment and resources and provides more opportunities for training and knowledge building.
- ¶ *Concentration of health sciences faculty.* Bringing together the science departments of UMDNJ and Rutgers (and NJIT in the case of UNJ-North), would improve the faculty profile for the combined institutions by creating a larger faculty with deeper expertise, which would attract quality scientists and students to the new university. In addition, over time, faculty rankings would improve.
- ¶ *Creation and enhancement of centers of excellence.* The Commission believes in the importance of developing several strong areas of focus. This means that each university would assess its strengths and local needs to create centers and areas of excellence. Closer interactions on the university level would strengthen existing centers of excellence and promote development of new centers as departments grow and develop.
- ¶ *Increased attractiveness to New Jersey students.* Outstanding New Jersey high school students potentially interested in health science careers would be attracted to a school offering full undergraduate and graduate health science programs and medical schools.
- ¶ *Increased opportunity for attracting research funding.* Certain large NIH and other grants (e.g., training and program/project grants) require a sponsoring department with deep faculty expertise. UNJ would be in a better position to apply for these sizeable grants that can significantly help to further develop departments.

UNJ STRUCTURE AND UNIVERSITY PROFILES

The Commission was inspired by the structure of the great state university systems, which have the university as the center for most academic and administrative powers. The campus-based structure permits these systems (e.g., University of California, University of Texas, and others) the freedom to build local visions of excellence, thereby enhancing the whole system.

Based on the example of top university systems in the country, the Commission recommends that the three universities of UNJ have significant academic and administrative autonomy. The primary reporting would be to the university president with oversight from the Office of the University Chancellor on issues such as government relations, and system-wide coordination. A Board of Regents would have ultimate governance authority over the system. We would advocate that the Office of the University Chancellor be located in Trenton to maintain neutrality *vis à vis* the universities. A potential structure for UNJ is shown below:



While the detailed composition of each UNJ university would be the province of the Review and Implementation Task Force, we outline the basic facts about each university and potential schools, based on current composition.

UNJ-North (Newark)

- ¶ Total university enrollment (combining UMDNJ, Rutgers, and NJIT) would be 21,442 students with 8,681 undergraduates and 12,761 graduate students.
- ¶ The campus would be 145 acres and consist of 69 buildings; former UMDNJ, Rutgers, and NJIT campuses are located in close proximity in Newark.
- ¶ Schools may include Architecture, the Faculty of Arts and Sciences, Business, Computing Science, Criminal Justice, Dentistry, Engineering, the Graduate School, Law, Medicine, Nursing, and Health Related Professions.
- ¶ NJIT contributes a broad range of engineering and applied science programs at both the undergraduate and graduate levels. These will be especially valuable to UNJ as there are increasing research interactions between health and basic sciences and applied sciences.
- ¶ The Commission sees UNJ-North as building on and enhancing the historic Newark agreements by giving the Newark community a larger and more robust autonomous university comprising the current UMDNJ, Rutgers, and NJIT.

UNJ-Central (New Brunswick/Piscataway)

- ¶ Total university enrollment (combining UMDNJ and Rutgers) would be 36,793 students with 28,351 undergraduates and 8,442 graduate students.
- ¶ The campus would be 2,203 acres and consist of 650 buildings; some former UMDNJ and Rutgers campuses would be co-located (e.g. Busch campus in Piscataway and New Brunswick programs) and others would be about three to five miles from one another.
- ¶ Schools include Arts, the Faculty of Arts and Sciences, Applied and Professional Psychology, Communication, Information and Library Studies, Education, Engineering, the Graduate School, Management and Labor Relations, Medicine, Pharmacy, Planning and Public Policy, Public Health, and Social Work.

UNJ-South (Camden/Stratford)

- ¶ Total university enrollment (combining UMDNJ and Rutgers) would be 5,656 students with 3,677 undergraduates and 1,979 graduate students.
- ¶ This university is smaller than the other UNJ universities and smaller than most campuses at top universities, which range from 15,000-50,000. However, there are small successful campuses like Washington and Lee University with just over 2,000 students, the University of Texas-Tyler campus with 3,732 students, the University of Alabama-Huntsville campus with 6,754 students, and the University of Washington-Bothell campus with 1,688 students.³
- ¶ The campus would be 59 acres and would consist of 35 buildings; former Rutgers Camden and UMDNJ Stratford campuses would be located about 20 miles from one another; in Camden, the former Rutgers campus and UMDNJ affiliated Cooper Hospital would be located about two miles apart.
- ¶ Schools would include the Faculty of Arts and Sciences, Business, the Graduate School, Law, and Osteopathic Medicine.

Creating UNJ will, of course, involve both one-time and ongoing costs related to moving central administration functions to universities and establishing the office of the Chancellor in Trenton, but should also generate system wide and university-level efficiencies. It is important to note that the Commission's recommendations are not based on capturing savings but on creating a system positioned for excellence with the most effective use of resources.

THE COMMISSION'S REVIEW OF THE UMDNJ-UNIVERSITY HOSPITAL RELATIONSHIP

The Commission also investigated the optimal relationship between University Hospital (UH) and UMDNJ, as we were tasked with addressing the question of whether UH should be divested from UMDNJ. The Commission found that medical schools need a close and collaborative relationship with their principal teaching hospital to achieve excellence in education and research. We also recognized that UH plays a critical role in providing care for Newark residents regardless of their ability to pay and is thus a valued community resource.

³ Fall 2001 figures.

While multiple successful models exist, the best practices for the medical school-hospital relationship require strong leadership at the medical school and are largely independent of the hospital ownership structure. Best practices include: creating alignment of academic and hospital missions by giving the medical school dean the authority to make key decisions concerning the hospital; ensuring coordination in certain strategic areas (e.g., building selected tertiary care capabilities, agreeing on how to compete for private patients); ensuring transparency of reporting around agreed metrics; establishing a hospital advisory board; and selecting a hospital CEO who is committed to academic medicine and the medical school's educational mission.

The Commission looked at four ways medical school-hospital relationships are frequently structured – a university-owned hospital (current model), the hospital as a state-owned corporation, the hospital as a private, not-for-profit, or 501(c)(3) organization, or the hospital as a private, for-profit institution. The Commission determined that while separate ownership has increased nationally over the past eight years, the top state systems continue to own their own hospitals.

Based on our assessment, the Commission recommends that the university should retain ownership of UH and monitor how UH's performance is affected by the new university and direct, unambiguous and single reporting of the CEO to the Dean of the New Jersey Medical School. The Commission also recommends formalizing the reporting relationship of the CEO of UH to the Dean of the New Jersey Medical School; implementing best practices of medical school-hospital alignment; making capital investments; and reassessing ownership options, if required by worsening external and/or UH economics. However, while UNJ and UH leadership will continue to strive to improve the quality and competitiveness of UH, the state's commitment to UH must be paramount, to avoid exposing UNJ-North to undue financial risk.

RECOMMENDATIONS ON THE REVIEW AND IMPLEMENTATION TASK FORCE

While the Commission has made recommendations to frame the general principles for establishing the University of New Jersey, should these recommendations be accepted by the Governor, more investigation will be needed to examine and develop a comprehensive plan for implementing this vision. The Commission therefore recommends the establishment of a three-tiered UNJ Review and Implementation Task Force (the Task Force) to review and optimize the impact of the restructuring on both health and non-health schools and create a detailed implementation plan based on the Commission's recommendations within 12 months. Following this, the

implementation will likely be staged, with key milestones at one, three, and five years.

A Governing Committee of the Task Force, which would include UMDNJ, Rutgers, and NJIT leaders as well as selected academic experts, would set the vision and mission for UNJ consistent with the overarching recommendations in this Report, and approve all recommendations. The Governing Committee would include top leadership from UMDNJ, Rutgers and NJIT, as well as a group of independent academic experts. The Governing Committee would be supported by a Project Office, which would coordinate the work of all the committees. Three University Committees, drawn from the local leadership from UMDNJ, Rutgers, and NJIT at each location, would report to the Governing Committee. The Commission also envisions the need for Issue Working Groups, which would assess implementation options and report to the University Committees, and in the case of university-wide issues, the Governing Committee. These Working Groups could, include groups focused on health school interactions, faculty reviews, student issues, non-health school issues, standards and relations, the physical plant, operations, human resources, information technology and communications, finance and accounting, support and student services, public affairs and legal issues, and alumni affairs.

Advisory groups would provide *ad hoc* counsel to the Issue Working Groups, the University Committees and the Governing Committee. The Commission recommends creating at least two advisory groups: a Community Advisory Group and an Academic Expert Advisory Group.

The most critical issue during the transition will be continuing operations of the existing universities. While the plan for UNJ is being developed and the Task Force deliberates specific recommendations, it will be critical to keep classes running, to keep leadership motivated, and to manage faculty retention and recruitment. Among other challenges to be negotiated will be issues related to community employment, operational continuity, finances, communication, cultural differences between schools, and legislative processes.

We believe that this vision, although significantly shifting the status quo, will maximize the quality and competitiveness of health education while also improving the higher education system in New Jersey. Further, we believe this vision is feasible given the foundation already existing in New Jersey. If the vision is accepted by the Governor, its implementation will require support and ongoing commitment from the Governor, legislators, and all other stakeholders in New Jersey. Given the tremendous potential benefits to all stakeholders (e.g., students,

faculty, local communities, the broader New Jersey community), we believe that such support will be forthcoming.

1.0 GOVERNOR’S CHARGE TO THE COMMISSION

Governor James E. McGreevey charged the Commission on Health Science, Education, and Training (the Commission) with assessing the current status of the medical and allied health care education in the state and formulating recommendations to: “enhance the quality of education, to increase their overall competitiveness as institutions of health care learning, and to foster healthy synergy amongst these institutions.” The specific goals of the Commission, as outlined in Executive Order No. 14, were to:

- ¶ Identify specific gaps and requirements necessary to enhance the overall quality and competitiveness of health education in the State of New Jersey including, but not limited to, health research, basic science and clinical education, and health care professional training; and
- ¶ Review the existing nationally recognized medical and allied health care models and work to design a framework to help guide the relationship between the medical and allied health care educational institutions, hospitals, and health care agencies within the State of New Jersey; and
- ¶ Determine the appropriate governance structure of the State institutions of medical and allied health care education; and
- ¶ Determine any prospective institutional alliances and/or relationships between these schools.

With advances in knowledge and technology and the growth of health care institutions, medical care now constitutes approximately 13 percent of the American economy.¹ Moreover, health research and education reach more and more deeply into many areas of knowledge from physics, biology and the mathematical sciences to the behavioral sciences, engineering, business, philosophy and history, among others. The reach of health across research and scholarship is increasingly illuminating the determinants of health and providing challenges and opportunities for scholars in a wide range of disciplines and schools to develop theoretical and analytic perspectives in their own areas of knowledge and to take advantage of research opportunities in health related areas. In such diverse fields as the material sciences, artificial intelligence, psychology and ethics, increased access to medical settings and collaboration with health scientists provide extraordinary opportunities for synergy.

¹ *Health Affairs*, 2002, Volume 21, Number 1.

Because the University of Medicine and Dentistry of New Jersey (UMDNJ) is the only provider of medical education and a major provider of allied health education in the state, it was initially the focus of the Commission's work. However, it soon became clear that understanding the full potential of research developments in medical science and technology required a more far-reaching inquiry into synergies available through potential alliances outside the medical university. With the Governor's consent, and consistent with Executive Order No. 14, the Commission thus conducted a targeted analysis of the quality and systems of Rutgers, The State University of New Jersey (Rutgers), with focus on its health science and related offerings. The Commission strived to assess the impact of its recommendations on the comprehensive educational enterprise as well as the health sciences.

Responding to a specific request from the Governor, the Commission also summarized national trends in hospital ownership and best practices and makes several overarching recommendations regarding University Hospital (UH).

The rest of the *Report of the Commission on Health Science, Education, and Training* (the Report) presents the Commission's approach, key findings, and recommendations.

2.0 OVERVIEW OF THE UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY

The University of Medicine and Dentistry of New Jersey (UMDNJ) is one of three state research universities in New Jersey. Created by state legislation in 1970, UMDNJ today offers a wide variety of graduate and professional health programs throughout the state. UMDNJ is centrally administered from Newark and consists of eight schools on three primary campuses as well as University Hospital in Newark, and the statewide University Behavioral HealthCare network. There are about 1,800 full-time faculty and 4,700 students in more than 50 degree programs. UMDNJ employs over 12,500 New Jersey residents. Governance of UMDNJ is vested in its 12-member Board of Trustees.

2.1 History

The Medical and Dental Education Act of 1970 created the College of Medicine and Dentistry of New Jersey (CMDNJ) to consolidate and unify the State's public programs in medical and dental education. CMDNJ merged the previous New Jersey College of Medicine and Dentistry (NJCMD) which included New Jersey Medical School (NJMS), New Jersey Dental School (NJDS) and the Graduate School of Biomedical Sciences (GSBS), with the medical school of Rutgers University. Based on the 1968 Newark Agreements, a historic social contract between federal, state, and local governments and the Newark community, CMDNJ focused on building the Newark campus, which was dedicated in 1976. Since its founding in 1971, CMDNJ (renamed UMDNJ in 1981) has continued to grow. Key milestones include:²

- ¶ 1972: Expansion of the two-year Rutgers Medical School curriculum to a full four-year medical school (the first M.D. class graduated in 1974).
- ¶ 1976: The School of Osteopathic Medicine (SOM) and the School of Allied Health Professions, the forerunner of the current School of Health Related Professions (SHRP), opened.
- ¶ 1979: University Hospital, then called College Hospital, was dedicated.
- ¶ 1981: UMDNJ was granted status as a freestanding university.
- ¶ 1985/1986: Two joint research institutes were established in collaboration with Rutgers University: the Center for Advanced Biotechnology and

² From briefing book provided by UMDNJ to Commission.

Medicine (CABM) and the Environmental and Occupational Health Sciences Institute (EOHSI).

- ¶ 1986: Rutgers Medical School was officially renamed Robert Wood Johnson Medical School (RWJMS).
- ¶ 1991: The Cancer Institute of New Jersey (CINJ) was created.
- ¶ 1992: The School of Nursing was added to the UMDNJ system.
- ¶ 1995: SHRP added a Scotch Plains campus.
- ¶ 1998: UMDNJ added the School of Public Health (SPH) in collaboration with Rutgers and the New Jersey Institute of Technology (NJIT).

UMDNJ's growth has been remarkable: its total operating budget has grown from \$60 million in 1971 to \$149 million in 1980 to \$1.15 billion in 2000 – a growth rate of approximately 16 percent per year. Student enrollment has increased from about 660 students in 1971 to about 1,880 students in 1980 to about 4,700 students in 2000.³

2.2 Mission

UMDNJ's objectives and aspirations have evolved since its founding in 1970. As UMDNJ has matured as an institution, its goals have evolved to keep pace with new challenges:³

- ¶ *First decade.* The institution focused on meeting the health needs of New Jersey; the main goals were to “reverse the effects of the state’s neglect of medical and health professions education” and to “coordinate a system of health services to address health manpower shortages and fill identified healthcare gaps in NJ.”
- ¶ *Second decade.* Having established the foundations for UMDNJ, the University concentrated on serving the community through primary care. UMDNJ’s objectives were to “improve the quality, breadth, and access to health education,” to “increase emphasis on family medicine and primary care” and to build a strong community health system to support New Jersey’s health care needs.
- ¶ *Third decade.* In the 1990s, UMDNJ began emphasizing the development of research and specialized care as a goal; the core objectives were to develop “basic and clinical sciences research to address New Jersey’s

³ UMDNJ (and CMDNJ) *Annual Reports*, 1971-2001.

most serious health problems,” to develop “specialized health care and medical technology” with continuing “emphasis on community outreach and provision of health services to the needy” and aiming to be among the “top 25 health sciences universities.”

The current mission statement is:

UMDNJ is dedicated to the pursuit of excellence in:

- The undergraduate, graduate, postgraduate and continuing education of health professionals and scientists;
- The conduct of basic biomedical, psychosocial, clinical and public health research;
- Health promotion, disease prevention and the delivery of health care; and
- Service to our communities and the entire state

UMDNJ seeks to advance the health sciences; to prepare future health professionals for leadership roles; to respond to academic, health personnel and service delivery needs while recognizing the diversity of our constituents; to provide educational opportunities to all New Jerseyans; and to improve the health and the quality of life of the citizens of New Jersey and society at large.⁴

2.3 Schools

UMDNJ today consists of eight schools: the three state medical schools (NJMS in Newark, RWJMS in New Brunswick/Piscataway and SOM in Stratford); the GSBS, which operates graduate programs taught by the medical schools’ faculty; NJDS in Newark, the state’s only dental school; the School of Nursing; SHRP, which is based in Newark and runs many programs in various locations, often with affiliated institutions; and SPH based in New Brunswick with programs in Newark and Stratford.

The schools enroll nearly 4,700 students, the majority in professional and graduate degree programs, with about 700 pursuing certificate, associate’s, or bachelor’s degrees at the School of Nursing or SHRP. Eighty-six percent of the students in the incoming class at UMDNJ are New Jersey residents. The schools have worked toward expanding minority recruitment to increase diversity. Today, 19.9 percent

⁴ UMDNJ mission statement.

of the students are underrepresented minorities.⁵ There are about 1,800 full-time faculty, of whom about 23 percent are tenured.

UMDNJ operates five campuses with an area of nearly five million square feet containing 58 buildings. Capital improvements and expansions are taking place on the Newark, New Brunswick/Piscataway, and Stratford campuses.

In addition to its educational programs, UMDNJ operates two health care service units:

- ¶ UMDNJ's University Hospital (UH) in Newark is the primary teaching hospital for New Jersey Medical School and a provider of primary and specialized health care to the Newark community.
- ¶ University Behavioral HealthCare (UBHC), which provides mental health and addiction-related services to the New Jersey population, is one of the largest behavioral-health care services in the country.⁶ UMDNJ faculty participate by providing care and conducting research. UBHC provided services to about 30,000 individuals last year at its 14 UBHC clinics or through its municipal and school-based programs.

UMDNJ's network also includes more than 200 health care and educational affiliates throughout the state's 21 counties. UMDNJ collaborates with other institutions of higher education in New Jersey in offering 54 joint- and dual-degree programs, and a variety of articulated programs.

2.4 Structure and governance

As UMDNJ's governance body, the Board of Trustees is responsible for managing and administering the University. Many of its activities are carried out by committees such as the Finance/Audit Committee and the University Affairs/Research Committee. Board members are appointed for five-year terms. The Board is composed of 11 members appointed by the governor with the consent of the legislature; additionally, the Commissioner of Health and Senior Services is an ex-officio member, without vote.

⁵ For the purposes of this Report, underrepresented minorities include African-American, Hispanic, and American Indian students; if Asians were included, the figure would rise to 46.1 percent. The split of students into these groups is based on UMDNJ records.

⁶ UBHC is chartered by the State as its only "demonstration mental health center." Revenues are generated through fee-for-service billing and other forms of third-party reimbursement. Significant charity care is also provided, some of which is compensated for by a State appropriation. In addition, research and educational activities represent about 20 percent of UBHC's faculty efforts, and are done in collaboration with the University's medical schools.

UMDNJ's Board is a group of dedicated civic leaders and professionals. While the Board members have a clear commitment to the university and hospital, the UMDNJ board does not include the prominent business and civic leaders with regional or national reputations available in New Jersey. As well, there are few health professionals on the board with significant experience outside the UMDNJ system.

The UMDNJ central administration, located in Newark, is responsible for academic and operational management of the University (Appendix 1). The senior leadership roles and reporting relationships are as follows:

- ¶ The President provides academic and administrative leadership across the three campuses. The President sets the vision for the university and plans, develops, and establishes policies consistent with this vision. He is accountable to the Board of Trustees.
- ¶ The Senior Vice President (SVP) for Administration and Finance serves as the senior administrative officer for operational functions (e.g., physical plant, utilities, human resources, information services, communications, legal, purchasing, payroll) and reports to the President.
- ¶ The SVP for Academic Affairs is the Chief Academic Officer and reports to the President; responsibilities include: determining and coordinating policies, bylaws, accreditation issues and certain academic functions (e.g., student affairs, faculty affairs, research administration, program development, libraries).
- ¶ The deans of UMDNJ's eight schools report centrally to the SVP Academic Affairs in Newark. The deans are responsible for day-to-day academic issues and administrative/financial operations and issues.

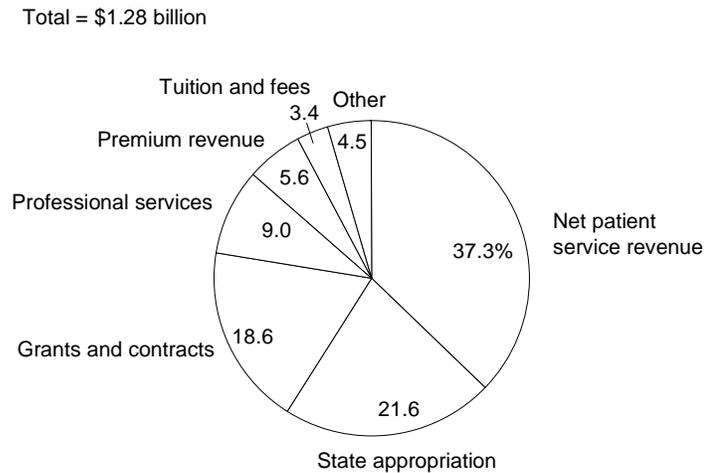
2.5 State funding

UMDNJ's eight schools develop budgets that they send to central administration. These budgets are reviewed centrally to assure their accuracy and responsiveness to institutional priorities, amalgamated with the budgets for the health care units and central support, and a single budget document is compiled. The annual budget request is filed and reviewed by the Office of Management and Budget (OMB) within the State Treasury Department and the Governor's Office. The Governor's Office makes recommendations to the State Legislature, which debates and gives legislative approval, and the Governor signs the budget into law. UMDNJ then allocates its appropriation to its schools and programs in accordance with the approved budget. In fiscal 2001, it received about \$286 million from the state,

including \$58 million for fringe benefits and \$10 million for capital projects. Since its inception in 1971, UMDNJ has received a total of \$4.3 billion dollars in state appropriations for education and general operating costs.⁷ UMDNJ's revenues from all sources totaled about \$1.28 billion in fiscal 2001. The distribution of revenues is as follows:⁸

EXHIBIT 2: UMDNJ REVENUES

FY 2001; percent



2.6 UMDNJ achievements

The Commission recognizes the magnitude of the task that the State of New Jersey undertook in 1971 with the creation of a state health science university – an endeavor whose growth and development demonstrated the dedication of its educational, government and community leaders to health education in the state. The successes of UMDNJ are also a testament to the abilities of its leadership, faculty, and students and to the commitment and spirit of the citizens of New Jersey. UMDNJ has made considerable progress from its humble beginnings three decades ago, and is today a broadly based health sciences university.

⁷ This figure does not include indirect appropriations for fringe benefits, which amounted to approximately \$1.3 billion (UMDNJ Central Administration).

⁸ *UMDNJ University Report 2000/2001.*

UMDNJ has been fortunate to have dedicated, determined and committed leaders. Dr. Stanley Bergen, who served as the founding President of UMDNJ, stood at the helm of the institution for 27 years, and can be credited for shaping the institution's evolution. Dr. Stuart Cook, President of UMDNJ from 1998, has continued to build on this foundation, developing strategic goals to guide and measure the institution's progress further in the academic, research and clinical areas. During their tenures, UMDNJ has achieved several key objectives. Specifically, UMDNJ has:

- ¶ Responded to the state's needs for medical and health education.
- ¶ Established a strong community health care system.
- ¶ Improved the quality, breadth and access to health education in the state.
- ¶ Developed a solid foundation of clinical and basic sciences research.

UMDNJ's commitment to ensuring access to health education for all New Jersey residents and promoting economic development in its communities is admirable. For example:

- ¶ UMDNJ has provided access to health education for New Jersey residents; more than 86 percent of current UMDNJ students come from within the state.
- ¶ UMDNJ has succeeded in promoting diversity among its students. Across all eight schools, 46.1 percent of students were non-white in 2001, and 19.9 percent were underrepresented minorities (African-Americans, Hispanics, and Native Americans).
- ¶ Alumni of UMDNJ total over 19,000 individuals; many of them hold leadership positions in the state's health care sector.
- ¶ UMDNJ campuses now cover about 167 acres with nearly five million square feet. Most of these facilities have been constructed since 1971 when there were no campuses in Newark or Southern New Jersey. The state made substantial capital investments in the 1970s to develop the campuses. For example, the state invested \$190 million for the Newark campus and invested heavily in the other campuses.⁹
- ¶ UMDNJ estimates that it creates \$7 worth of economic activity for every State dollar it receives.¹⁰

⁹ Briefing book provided by UMDNJ to Commission; *UMDNJ Annual Reports* of 1973, 1979 and 1980.

¹⁰ *UMDNJ Annual Report 2001*.

- In Newark, UMDNJ's University Heights campus has played an important role in revitalizing the community and providing health care to its residents. It has served as an anchor for the continuing economic and cultural renaissance and revival of the city (e.g., New Jersey Performing Arts Center, Newark Museum, Newark Economic Development Corporation). UMDNJ collaborates on local initiatives with other academic universities through, for example, the Council for Higher Education in Newark (CHEN).
- UMDNJ has contributed to economic development in the New Brunswick and the Stratford campuses as well with development and expansion of its facilities that provide education and employment opportunities for New Jersey residents.¹¹
- The University currently provides employment to over 12,500 New Jersey residents.

In addition to establishing a solid foundation for health education in New Jersey, UMDNJ has excelled in specific academic and research areas. Below is partial list of educational and research achievements:

- ¶ Between 1971 and 2000, UMDNJ substantially increased its total research funding (total grants and contracts funding in 2001 was \$219 million, up from \$11 million in 1971).¹²
- ¶ UMDNJ established several centers of excellence which have attracted top faculty and federal research dollars, and have provided high quality educational opportunities and cutting-edge patient care, including:
 - The Cancer Institute of New Jersey (CINJ).¹³
 - The Center for Advanced Biotechnology and Medicine (CABM) in collaboration with Rutgers.
 - The Environmental and Occupational Health Sciences Institute (EOHSI) in collaboration with Rutgers.

¹¹ The New Brunswick campus occupies 71 acres and includes 19 buildings with 1.2 million square feet; the Stratford campus is on 32 acres and includes four buildings with 228,000 square feet.

¹² Includes educational and research grants and contracts – governmental (\$153.1 million in 2001) and private (\$65.9 million in 2001) from UMDNJ Consolidated Financials 2001; For 1971, includes educational and research grants and contracts of \$11.3 million (1971-72 *Annual Reports*).

¹³ CINJ was designated a Comprehensive Cancer Center by the National Cancer Institute and experienced extraordinary demand for its services; the facility designed for 16,000 annual patient visits now accommodates over 50,000.

- The Center for Aging, a multidisciplinary geriatrics research, teaching, and treatment center.
 - The Center for Children’s Support, specializing in prevention, detection, and treatment of child abuse and post-traumatic stress disorder.
 - The François Xavier Bagnoud (FXB) Center, specializing in care of children, women and families affected by HIV/AIDS.
- ¶ In addition to free-standing centers, several pockets of national excellence have flourished at UMDNJ led by nationally recognized faculty; these include:
- Trauma, ophthalmology, multiple sclerosis, and infectious disease in Newark.
 - Neurosciences, biochemistry, structural biology and cardiology in New Brunswick.
 - Primary care in Stratford.

The Commission wants to make special mention of the contribution that UMDNJ has made to its communities across the State. We were impressed by the role that UMDNJ plays in its communities and the resulting degree of support for UMDNJ that we heard at the public hearings. UMDNJ’s collaborations with other state colleges and community colleges strengthen the offerings of both sets of institutions. UMDNJ’s commitment to responding to community needs such as low income immigrant populations in Stratford and Camden, and underserved minority groups in Newark, and providing convenient and cost-effective continuing education through its statewide Center for Continuing and Outreach Education (CCOE) is laudatory. This Report and its recommendations seek to respect UMDNJ’s rich history and achievements. In short, although the Commission’s Report is focused on areas for improvement and the best model to achieve this, the Commission wants to unambiguously recognize and commend UMDNJ for its significant strides over the past three decades.

The Commission is united with the leadership of UMDNJ and the people of New Jersey in the goal of building on its foundation to create excellence in health education while continuing to serve its communities.

3.0 COMMISSION'S APPROACH

The Commission was asked to assess quality and competitiveness of health education in New Jersey. To this end, we present data on the current quality of UMDNJ's schools and programs, the main success factors identified at top state schools, and the recommendations for a structure that we believe will lead to New Jersey's goal of high quality, highly competitive health education while having a positive impact on the quality of higher education in general.

Historically, allopathic medical schools have tended to be the primary driver of the reputation of health science universities. For this reason, as well as the greater availability of nationally comparable metrics for the allopathic medical schools, the Commission's assessment of New Jersey Medical School (NJMS) and Robert Wood Johnson Medical School (RWJMS) is more detailed than that of the other health schools.

The quality and competitiveness assessment and resulting recommendations are based on the following sources:

- ¶ Benchmarking of major quality related measures with national norms and top 10 state schools, where possible.¹⁴ Oregon Health & Science University, which ranks 13th among state medical schools, was used for benchmarking as it is a health science only university established relatively recently.¹⁵
- ¶ Visits and interviews with officials at top state schools: The Commission visited the University of California-San Francisco (UCSF), University of California-San Diego (UCSD), University of Texas Southwestern (UTSW), Oregon Health & Science University (OHSU), University of Washington, and University of Maryland at Baltimore¹⁶ and conducted extensive telephone interviews with officials at University of Michigan to qualitatively identify best practices in building a university system that fosters excellence.
- ¶ Site visits and interviews with key stakeholders at UMDNJ including leaders, administrators, faculty, and students.

¹⁴ The top 10 state medical schools (research) as ranked by *U.S. News & World Report Best Graduate Schools 2003*, in rank order, are: University of California-San Francisco (UCSF), University of Michigan, University of Washington (UW), University of California-Los Angeles (UCLA), University of Texas Southwestern (UTSW), University of California-San Diego (UCSD), University of North Carolina-Chapel Hill, University of Virginia, University of Alabama-Birmingham, University of Iowa.

¹⁵ OHSU was established in 1974. University of Colorado and University of Wisconsin-Madison rank 11th and 12th respectively.

¹⁶ Selected for visit as the urban health focus in Baltimore is similar to that of NJMS in Newark.

- ¶ Input from the public hearings held in Stratford on September 17, and in Newark and New Brunswick on September 18, 2002.
- ¶ Broad range of expertise of Commission members with leadership experience at health education institutions and hospitals within and outside New Jersey.

On the request of the Governor, we also assessed national trends and best practices in the relationship of teaching hospitals and their affiliated medical schools and make some recommendations regarding University Hospital in Newark.

The Commission undertook an abbreviated examination of the quality and systems at Rutgers with strong emphasis on its health-related educational activities, primarily in order to examine potential synergies available across institutions in New Jersey. In addition to reviewing quality data compiled by Rutgers, we conducted interviews with Rutgers leaders, administrators, and some health science faculty to gain an understanding of the effectiveness of the current system and the relationships with UMDNJ. The Rutgers section of the Report is not intended to be an exhaustive analysis and should be viewed as a targeted overview.

Finally, it is important to recognize what this Report is not. The goal of the Commission was to provide recommendations on the best strategy for building excellence in health education in New Jersey. Our recommendations outline the vision and framework of what we believe will be the basis for a nationally reputed educational system in New Jersey. We do not attempt to present a detailed blueprint for how to achieve this. If these recommendations are accepted, an Review and Implementation Task Force should be assembled to create a detailed plan specifying the leadership, campus visions and structures, stakeholder implications, costs, timeline, and a staged work plan to achieve the vision.

4.0 UMDNJ QUALITY AND COMPETITIVENESS ASSESSMENT

The Commission believes that New Jersey should aspire to have a nationally recognized health science university, with its medical schools ranking among the top 25 state schools in the country. The ground is fertile. New Jersey is a wealthy state; it is well-positioned at the core of the pharmaceutical corridor; it has created a strong infrastructure in the health sciences; it has a relatively stable history of state funding of health education at meaningful levels; and the graduates of its universities have assumed leadership positions in the public and private sectors. In assessing UMDNJ's performance today, we used publicly available data from the top 10 state health science schools in the country and Oregon Health & Science University (OHSU), as well as national averages.¹⁷

The Commission's assessment reveals that UMDNJ, despite significant strides over the past decade, has not reached its goal of excellence. While this section necessarily points out the gaps between current performance and future aspiration, the Commission again commends the progress that UMDNJ has made in establishing a solid infrastructure for New Jersey.

4.1 Allopathic medical schools

The allopathic medical schools of UMDNJ are New Jersey Medical School (NJMS) and Robert Wood Johnson Medical School (RWJMS). Academic quality at the allopathic medical schools approximates or falls below the national average (for all schools and state schools) and falls significantly below that of the top 10 state medical schools. Although state schools below the top 21 are not ranked, this would imply that among the 74 state schools in the country, UMDNJ's schools today rank no better than the middle of this group. On several metrics detailed below, RWJMS tends to perform better than NJMS. The community service component of the medical schools' missions is a source of justifiable pride. As well, the schools have continued to keep up with national trends in medical education such as small group learning and computerized instruction. Below, we provide an overview of the medical schools and highlights of the findings along the four dimensions of their missions: education, research, patient care, and community health. The Commission's mandate did not include examining the quality of patient care in the state. Instead, we looked at patient care only as it interacts with education (i.e., quality of residents, residency training). We used widely accepted

¹⁷ Data for all top 10 medical schools (research) as ranked by *U.S. News* 2003 edition was used where available – we indicate the comparator schools used in the following sections. The top 10 schools are: University of California-San Francisco (UCSF), University of Michigan, University of Washington (UW), University of California-Los Angeles (UCLA), University of Texas Southwestern (UTSW), University of California-San Diego (UCSD), University of North Carolina-Chapel Hill, University of Virginia, University of Alabama-Birmingham, University of Iowa.

metrics, many of which contribute to the schools' overall ranking.¹⁸ Comparisons include top 10 state medical schools, OHSU, and national averages, where available.

¶ *Overview.* The allopathic medical schools are the Robert Wood Johnson Medical School (RWJMS) in New Brunswick and Camden, and the New Jersey Medical School (NJMS) in Newark.¹⁹

- NJMS had 698 students in Fall 2001. The entering class profile in 2001 (170 students) was: 100 percent New Jersey residents, 51.8 percent non-white (20.6 percent underrepresented minorities²⁰), 43.5 percent female; 85 percent received financial aid²¹ for 2001-02.
- RWJMS had 634 students in fall 2001. RWJMS has campuses in Piscataway (first two years for all students), New Brunswick and Camden (final two years). The entering class profile in 2001 (152 students) was: 88.2 percent New Jersey residents, 53.9 percent non-white (19.8 percent underrepresented minorities), 45.4 percent female; 82 percent in Piscataway and 77 percent in Camden received financial aid for 2001-02.

¶ *Rankings.* Neither NJMS nor RWJMS is ranked among the top 50 research medical schools by *U.S. News & World Report: Best Graduate Schools 2003 (U.S. News)*.²² However, RWJMS did rank 47th among top 50 primary care medical schools (state and private) and 31st within the subgroup of state schools (out of 99 total respondents).

18 Some of these metrics are cited on a school basis rather than per faculty member because 1) faculty counts can be unreliable, and 2) the National Institutes of Health (NIH) ranks funding per school, not per faculty. For informational purposes: American Medical Association (AMA) data for 2000-01 on full-time faculty number are: NJMS 668, RWJMS 742 (UMDNJ allopathic total 1,410), UCSF 1,421; U. Michigan 1,566; U. Washington 1,713; UCLA 1,955; UTSW 1,123; UCSD 681; UNC 1,052; U. Virginia 790; U. Alabama-Birmingham 953; U. Iowa 718; top 10 state average 1,197; OHSU 1,006; national average 829.

19 Briefing book for the Commission on Health Science, Education, and Training prepared by UMDNJ.

20 Includes African-Americans, Hispanics, and Native Americans.

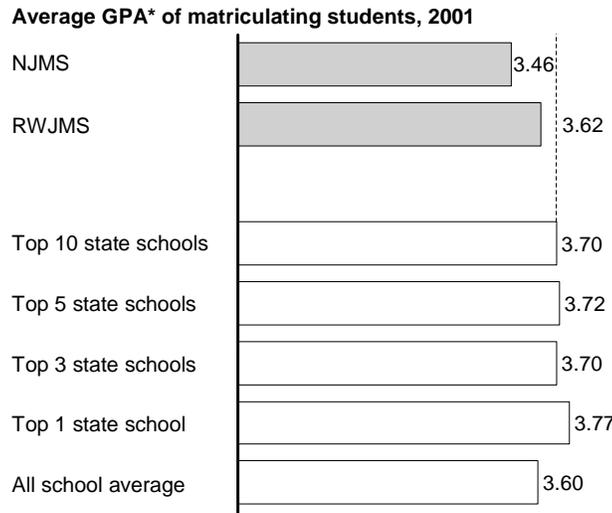
21 All sources of financial aid.

22 *U. S. News & World Report* rankings are cited throughout this Report. Data comes from the Premium Online 2003 Edition, published in 2002, and rankings in this edition were done between 2000 and 2002, as noted. *U.S. News* ranks research-oriented medical schools based on peer and residency director assessments of reputation (20 percent each), NIH research funding (30 percent), student selectivity – MCAT, GPA and acceptance rate (20 percent) and full-time faculty-to-student ratio (10 percent). In the primary care ranking, proportion entering primary care is used instead of NIH funding (30 percent), and student selectivity and faculty resources are 15 percent each. The Commission recognizes that this data source is not perfect because of response rates, halo effects and time lags. However, it is often the only source of rank data available, and it is widely used by students and schools to compare quality. Where possible, other sources were used to rank programs and schools.

¶ *Education.* The quality of education at the medical schools is comparable to national averages but ranks well behind leaders, particularly in the area of faculty quality and reputation.

- Students: Overall, student metrics are comparable to national averages and have improved in line with a national rise in scores. However, acceptance rates are high.
 - Overall acceptance rates are double those at top 10 state schools (16 percent at UMDNJ versus eight percent at top 10 state schools), according to the American Association of Medical Colleges (AAMC).
 - Grade Point Averages (GPA) and Medical College Admission Test (MCAT) scores are similar to national medical student averages but lag the top 10 state schools (*U. S. News*).

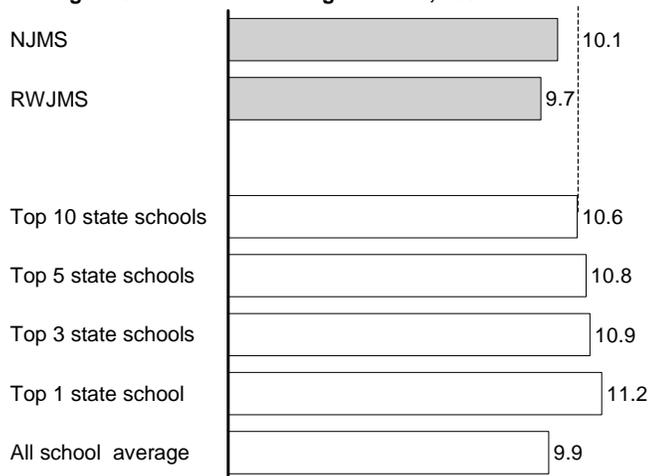
EXHIBIT 4a: QUALITY OF INCOMING STUDENTS – GPA



* Does not reflect the quality of the undergraduate institution
 Source: UMDNJ; *U. S. News & World Report* (2002)

EXHIBIT 4b: QUALITY OF INCOMING STUDENTS – MCAT SCORES

Average MCAT* of matriculating students, 2001



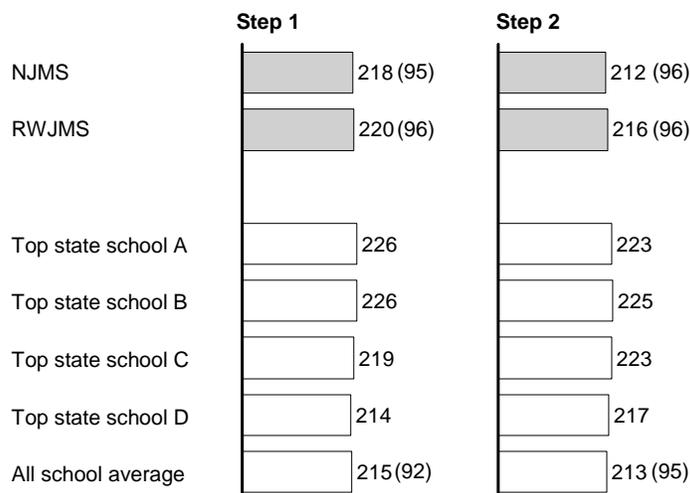
* Average of scores from three numerically scored MCAT sections; for MCAT takers in 2000 who matriculated, the mean scores (standard deviations) were Verbal Reasoning 9.5 (1.8), Physical Sciences 10.0 (2.0) and Biological Sciences 10.2 (1.7); actual breakdown of 2000-2001 scores available for NJMS (VR 9.7, PS 10.3, BS 10.5) and RWJMS (VR 8.7, PS 9.7, BS 10.0)

Source: UMDNJ; U. S. News & World Report (2002)

- United States Medical Licensing Examination (USMLE) board scores are at or above national averages, but lag slightly behind scores from selected top state schools.

EXHIBIT 4c: QUALITY OF STUDENT OUTCOMES – BOARD SCORES

USMLE exam performance for first-time takers, 2000-01
Score (percent passing)



Source: UMDNJ; case study schools

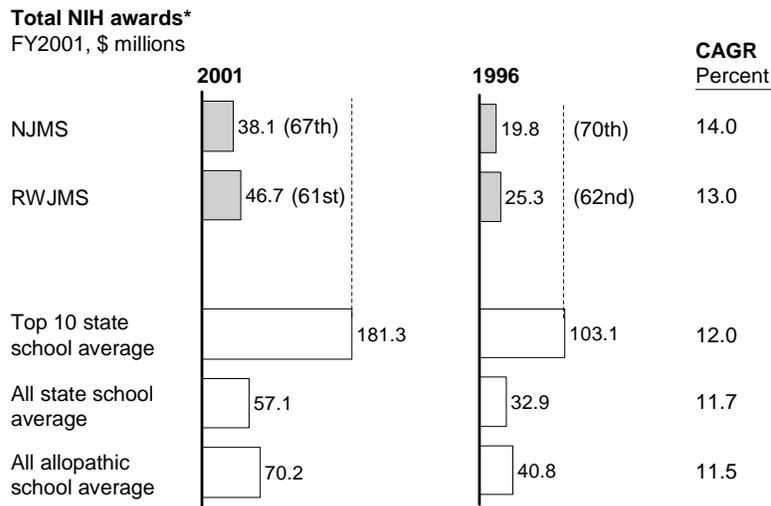
- Faculty: The Commission has decided not to focus on faculty numbers or faculty-to-student ratios due to the unreliable nature of medical school faculty numbers (e.g., counting clinical faculty). Instead, the Commission has focused on faculty distinction, as measured by selected honorary memberships. This is not meant to provide a comprehensive picture of all faculty at UMDNJ. Nonetheless, UMDNJ has low numbers compared to selected top state schools:²³
 - Institute of Medicine (IOM): one member (RWJMS) versus 12 to 47 members at top state schools. OHSU has five members.
 - National Academy of Sciences (NAS): one member (RWJMS) versus 12 to 38 members at top state schools. OHSU has one member.
 - American Society for Clinical Investigation (ASCI): NJMS has nine members, and RWJMS has six members versus 38 to 75 members at top state schools. OHSU has 12 members.
 - Howard Hughes Medical Institute (HHMI) Investigators: two investigators (RWJMS) versus five to 18 investigators at top state schools. OHSU has none.
 - In addition to honorary memberships mentioned above, Dr. Sidney Pestka, Professor and Chair of Molecular Genetics, Microbiology and Immunology at RWJMS, received the highly prestigious National Medal of Technology.
- Curriculum: UMDNJ’s medical curricula appear competitive in terms of responding to national trends. NJMS and RWJMS have been making changes consistent with those made by other schools.
 - There has been increasing use of case-based learning, small group teaching, computer-assisted instruction and standardized patients in student teaching and assessment. The schools are also moving toward Web-based availability of course materials.
 - Many dual-degree programs exist (e.g., MD/PhD, MD/MPH, MD/MBA, MD/JD), and many second degrees are free to students.

²³ Schools used for comparison were: UCSD, UCSF, U.Michigan, UTSW, U.Washington. Publicly available data from IOM, NAS, ASCI, HHMI as of September 2002.

¶ *Research.* UMDNJ’s research enterprise lags significantly behind the top schools and most national averages, in terms of funding, publications, and patents.

- Research funding: NJMS and RWJMS receive less than half the NIH grant dollars that top 10 state schools received.
 - NIH awards: The National Institutes of Health (NIH) reported that from 1996 to 2001, NJMS improved from 70th to 67th among medical schools in NIH awards while RWJMS improved from 62nd to 61st. In total, NJMS and RWJMS grew from \$45.1 million in FY1996 to \$84.8 million in FY2001.²⁴ Both are significantly below both the top 10 state school average and the average of all medical schools.

EXHIBIT 4d: RESEARCH FUNDING – NIH FUNDING



* Median figures are for top 10 state schools, all state schools and all allopathic schools are \$170.6 M, \$38.2 M and \$46.5 M, respectively

Note: Figures reflect NIH awards to medical schools for NIH fiscal year (October 1-September 30); NIH awards exceed total awards in some cases because of differences in fiscal year dates.

Source: National Institutes of Health (NIH)

- Research outcomes: Publications, patents, and patent revenues are low compared to those of top state schools. Citations per paper – a measure of recognition of the work – are somewhat lower than top schools.

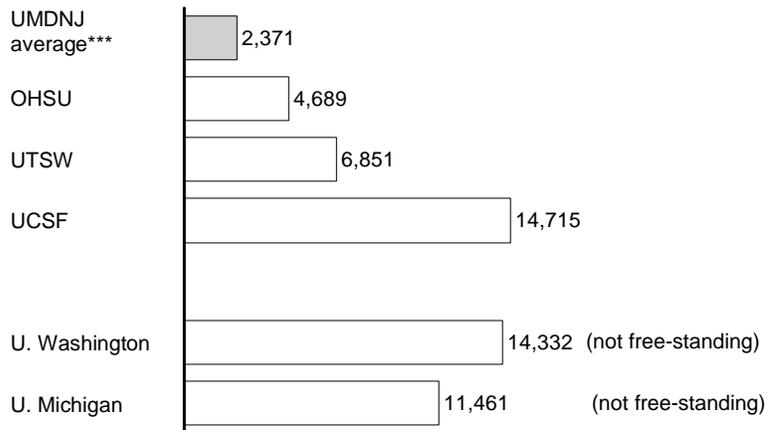
²⁴ UMDNJ reported total direct research awards of \$36.5 million for NJMS and \$53.8 million for RWJMS in FY2001. For comparison: top 10 state school average \$150.9 million, all state school average \$50.1 million, all school average \$65.8 million. (The academic fiscal year is July 1 to June 30 while the NIH fiscal year is October 1 to September 30. Awards received between June 30 and September 30 would be included in NIH figures but not in UMDNJ figures.)

- Over the past five years, there were 4,742 publications for all UMDNJ schools, or roughly 2,371 per allopathic school, compared to 6,851 for UTSW and 14,715 for UCSF, both of which are top freestanding state health science schools. The number of publications is also high at comprehensive universities that include engineering and other schools according to the ISI.

EXHIBIT 4e: RESEARCH ACTIVITY – PUBLICATIONS

Publications per allopathic medical school*, 1997-2001

Number of papers**



* Includes biology and biochemistry, clinical medicine, immunology, microbiology, molecular biology and genetics, neurosciences and behavior, pharmacology

** The percentage of papers cited are in the same range (71-77%) for all schools

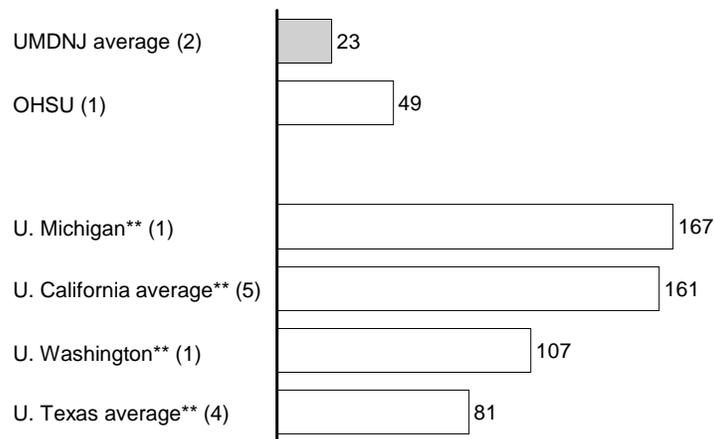
***Average of NJMS and RWJMS

Source: ISI

- Citations per paper are lower, with UMDNJ at 7.4 compared to 9.4 to 13.0 for selected top state schools (ISI).
- Patents: Patent data from CHI Research was not easy to interpret as patents are counted at the university rather than school level. Nevertheless, the number of medically related patents is very low compared to top schools with a total of 46 patents at UMDNJ over the past five years, many fewer than those at selected top state schools. Of the schools mentioned, UCSF, OHSU and the UT health science campuses are freestanding health schools. Only UMDNJ and OHSU data include patents only from health schools. The others are comprehensive university systems that include engineering and other schools that may have more patent activity.

EXHIBIT 4f: RESEARCH ACTIVITY – PATENTS

Medically related* patents per allopathic medical school, 1997-2001
 Number (number of allopathic schools)



* Pharmaceuticals, biotechnology, medical equipment and medical electronics

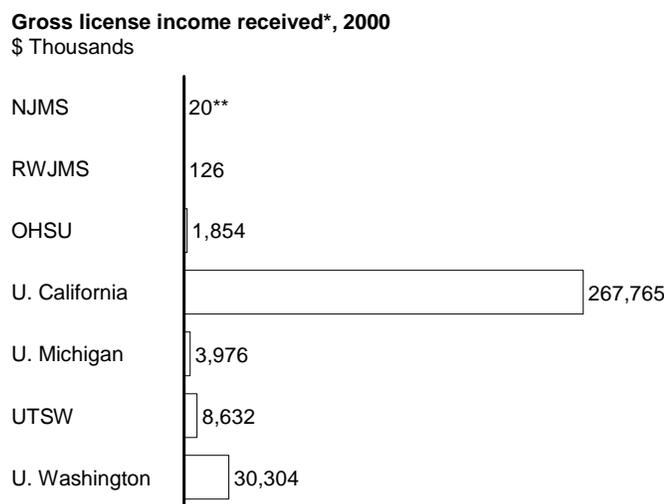
** Data for Michigan, California, Washington and Texas includes patents from all schools within these comprehensive university systems (e.g., engineering)

Source: CHI Research

- **Gross licensing revenues:** Income from licensing in FY2000 was minimal at UMDNJ, with RWJMS receiving about \$126,000,²⁵ compared to \$4 million for the University of Michigan, \$8.6 million for UTSW, \$30.3 million for the University of Washington, and \$267.8 million for the University of California system, according to the Association of University Technology Managers (AUTM). Data for NJMS was not available for FY2000, but it did receive about \$20,000 in licensing income in FY2001.

²⁵ Includes running royalties, cashed-in equity, and all other licensing income.

EXHIBIT 4g: RESEARCH ACTIVITY – LICENSING INCOME



* Includes running royalties, cashed-in equity and all other licensing income

** 2001 figure

Source: UMDNJ; Association of University Technology Managers (AUTM)

- Share of clinical trials:
 - According to the Healthcare Institute of New Jersey, UMDNJ received \$6 million for clinical trials in 2001, which is approximately 0.1 percent of the estimated \$4.5 billion of clinical trial grant spending²⁶ in the U.S. in 2000, according to the Pharmaceutical Research and Manufacturers Association (PhRMA), NIH and Centerwatch. In light of New Jersey’s reputation as a pharmaceutical center, UMDNJ has a small share of clinical trials.
 - Schools do not appear to have a standardized way of tracking clinical trial funding, but some blinded comparisons from top 10 state medical schools are described here.²⁷ One school received a total of \$25.6 million for 116 clinical trials in FY2001. A second school reported \$11.2 million for 228 industry-sponsored clinical trials in FY2001. Another school reported \$14 million for approximately 900 clinical trials in FY2001.
- ¶ *Patient care.* Patient care-related metrics examined here indicate that the overall quality of residency programs appears below average in terms of

²⁶ The 1999 figure was \$3.9 billion.

²⁷ Blinded at the schools’ request.

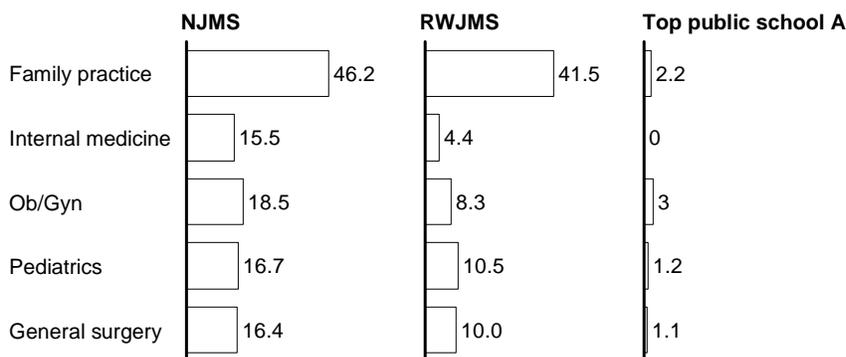
outside rankings, accreditation status, match results, the quality of incoming house staff, and the pass rates on internal medicine board exams. However, several residency programs are in demand.

- Hospitals: Core UMDNJ teaching hospitals (i.e., University Hospital-Newark, Robert Wood Johnson University Hospital, Cooper Hospital) did not rank in the top 205 medical centers assessed by *U. S. News*.
- Residency programs:
 - UMDNJ residency programs did not make *U.S. News*'s rankings of eight specialty areas. Nearly one-third of UMDNJ's 39 residency programs do not fill by match day according to the National Resident Matching Program (NRMP).
 - Because schools primarily compete to attract U.S.-trained medical school graduates, one measure commonly used as an indicator of residency program quality is the proportion of foreign medical graduates. UMDNJ residency programs train many more foreign medical graduates (as a percent of trainees) than do top schools (one school's blinded data is provided here for comparison, and other schools confirmed this difference but did not share specific data).²⁸

²⁸ In using this metric, the Commission does not intend to make any statement on the quality of Foreign Medical Graduates and explicitly wishes to recognize the significant contribution to health care provision and education these physicians make in the U.S. and New Jersey.

EXHIBIT 4h: QUALITY OF RESIDENCY PROGRAMS – FOREIGN MEDICAL GRADUATES
2001-2002

Foreign medical graduates in residency programs
Percent



Note: Percent of housestaff from osteopathic medical schools are: NJMS 0-16.4%, RWJMS 0-7.9%, Top public School A 0%

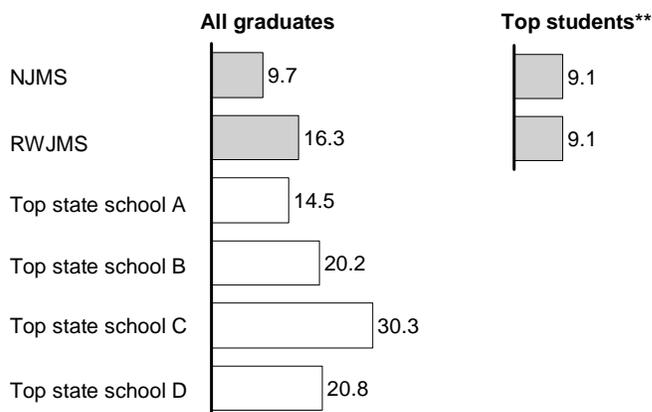
Source: UMDNJ; *U. S. News & World Report* (2002); Case study schools.

- The pass rates for internal medicine board exams for NJMS and RWJMS-Camden are significantly lower than top state schools but comparable to top state schools for RWJMS-New Brunswick (82, 81 and 97 percent, respectively, versus 94 to 99 percent for top state schools).²⁹
- The Commission examined the overall number of students staying at their medical school for residency training as an indicator of the quality of residency programs. NJMS and RWJMS are on the low end of the top state schools that were willing to share blinded data with the Commission. In addition, less than 10 percent of top students at NJMS or RWJMS stay at their own school for residency.

²⁹ UCSD (98 percent), UCSF (99 percent), U. Michigan (98 percent), UTSW (97 percent), U. Washington (94 percent); From American Board of Internal Medicine *Pass Rate Report on Internal Medicine Training Programs* aggregated for years 1999-2001.

**EXHIBIT 4i: QUALITY OF RESIDENCY PROGRAMS – GRADUATES
MATCHING AT SAME INSTITUTION***

2001-02; percent



* Residency programs associated with the same medical school

** As rated by school (NJMS: top 20% of class, RWJMS: top 25% of class)

Note: Number matching in same state: 19.4% for NJMS, 21.7% for RWJMS, 60.0% for School A, 42.1% for School B, 57.1% for School C, 30.9% for School D.

Source: UMDNJ; National Resident Matching Program (NRMP); case study schools

- Troubled residency programs can receive warnings or be placed on probation by the Accreditation Council for Graduate Medical Education (ACGME). As of July, 2002, 10.6 percent of NJMS programs have received warning letters (five programs), and 4.3 percent are on probation (two programs). 5.9 percent of RWJMS-New Brunswick programs have received warning letters (two programs), and 5.0 percent of RWJMS-Camden programs have received a warning letter (one program), while neither RWJMS campus has programs on probation. At selected top state schools, between 1.4 and 2.0 percent of programs have warning letters, and none are on probation.³⁰
- The extent to which applicants rank residency programs is an indicator of desirability of the program. Half of all residency programs fall below national averages in candidate ranking, according to the National Resident Matching Program (NRMP). However, selected UMDNJ programs exceed national averages in ranks per position³¹ including: dermatology, emergency medicine,

³⁰ UCSF (1.4 percent), UCSD (2.0 percent), UTSW (1.4 percent), U.M ichigan (1.5 percent), U.Washington (0 percent) according to the ACGME.

³¹ Number of times a residency program spot is ranked by applicants in a given match year.

and diagnostic radiology at Camden; internal medicine-Sabbath,³² surgery (preliminary) at Newark; and internal medicine (preliminary), orthopedic surgery, and diagnostic radiology at New Brunswick.

¶ *Community service.* Community service is a key strength of the allopathic medical schools at UMDNJ, which have been nationally recognized for its community medicine training programs and strong community outreach throughout the state. Both schools have gained national recognition for their efforts:

- Robert Wood Johnson Medical School was ranked second for community health programs by *U.S. News* in 2000.
- New Jersey Medical School receiving the Outstanding Community Service Award from the Association of American Medical Colleges (AAMC) in 1994.

4.2 School of Osteopathic Medicine

The UMDNJ School of Osteopathic Medicine (SOM) is the only school of medicine in Southern New Jersey.³³ SOM is among the top osteopathic schools in the country in terms of their research enterprise and federal research funding, in particular. While in the past few years, SOM has had some success in attracting research dollars, its main contribution has been training physicians for Southern New Jersey, much of which is a medically underserved area. This is a critical contribution to the health care needs of the state.

¶ *Overview.* SOM has 322 students in the DO program in fall 2001. The entering class profile in Fall 2001 (87 students) was: 82.8 percent New Jersey residents, 46 percent non-white (21.8 percent underrepresented minorities), 54 percent female; 89 percent received financial aid for 2001-02.

¶ *Rankings.* No formal rankings exist for osteopathic schools.

¶ *Education.* Student GPA scores are at the national average for DO students (3.46 versus 3.46) and the MCAT scores were slightly above national DO averages (8.7 versus 8.0 nationally) for 2001 matriculants.

³² The internal medicine residency program at Newark receives candidate ranks per spot at a comparable level to the national average for internal medicine. The Sabbath program accounts for one spot out of 22, and it is meant for residents who observes the Jewish Sabbath.

³³ It is the only 4-year medical school; RWJMS trains some of its third- and fourth-year medical students at Cooper Hospital in Camden.

SOM students score slightly better than national averages on both levels of the Comprehensive Osteopathic Medical Licensing Exam (COMLEX) (Level 1: 518 versus 505, Level 2: 514 versus 502) with comparable pass rates (above 90 percent) in 2000.

- ¶ *Research.* SOM is currently 2nd in NIH funding among osteopathic medical schools and has been in the top three over the past 16 years. It received \$4 million in 2002.
- ¶ *Patient care.* SOM has two regionally recognized centers:
 - Center for Aging is a multidisciplinary geriatrics research, teaching and treatment center. It placed SOM in the top 20 of academic geriatrics programs nationally in 2001, the only osteopathic school in this group (*U.S. News*).
 - Center for Children's Support is a center specializing in prevention, detection and treatment of child abuse and post-traumatic stress disorder in children. It functions as part of a statewide referral network and trains a host of different health care students.
- ¶ *Community service.* SOM has a strong presence in New Jersey, especially in primary care and in medically underserved areas.
 - 52 percent of SOM graduates practice in New Jersey. Of those, 38 percent practice in "medically underserved" counties, as defined by the Health Resources and Services Administration (HRSA).
 - 55 percent of graduates staying in New Jersey practice one of the primary care specialties.
 - SOM faculty support many local health care programs for disadvantaged populations such as St. Luke's Catholic Medical Services clinic that serves a primarily low income Latino population.

4.3 Graduate School of Biomedical Sciences

The Graduate School of Biomedical Sciences (GSBS) is unique in that it is comprised of faculty from other UMDNJ schools (NJMS, RWJMS, SOM, NJDS, SN) and does not have separate faculty associated only with GSBS. Overall, UMDNJ's graduate biomedical programs are average in quality, with a substantial gap between GSBS programs and those of top state schools.

- ¶ *Overview.* GSBS had 749 students, including 357 Rutgers-based students, in fall 2001. The entering class profile in fall 2001/spring 2002 for the

Newark division³⁴ (69 students) was: 69.6 percent New Jersey residents, 58 percent non-white (28.9 percent under-represented minorities), 58 percent female. At the Piscataway division³⁵ (31 students), it was: 22.6 percent New Jersey residents, 61.3 percent non-white (9.7 percent underrepresented minorities), 64.5 percent female. Financial aid data was not available.

¶ *Rankings.* The biological sciences program in Newark is ranked 75th among 138 programs ranked by *U. S. News* and the joint UMDNJ-Rutgers program (registered as Rutgers University) is ranked 54th among the 138 programs ranked. Using the National Research Council (NRC)³⁶ faculty quality ratings, biochemistry and molecular biochemistry is ranked 131 of 194 programs, cellular and developmental biology is ranked 110 of 179, pharmacology is ranked 95 of 127, and physiology is ranked 111 of 140.

¶ *Education.* GSBS programs are at national averages in quality as measured by the quality of incoming students, curriculum and faculty.

- Students: GSBS students in Newark and Stratford score at national average on the GRE, while Piscataway students score well above the national average (total scores: Newark/Stratford 1745, Piscataway 1899, national average 1705).
- Faculty: The excellence of graduate biomedical programs is a direct reflection of the quality of research faculty at an institution. The crux of graduate education is the research experience under the mentorship of a basic science faculty member. Since the faculty for GSBS biomedical programs is fully derived from the three UMDNJ medical schools and Rutgers (in joint New Brunswick and Newark programs), the assessment of faculty quality in the medical school section (above) reflects the quality of the GSBS faculty. UMDNJ is weak in faculty distinctiveness, as gauged by membership in prestigious national science organizations and total NIH funding.
- Curriculum: The course work differs significantly among programs located at the three divisions. GSBS has responded to the need for cross-disciplinary training and emerging national research interests, while embracing curricular innovation:

³⁴ Newark numbers include a small number of Stratford students (total enrollment of 17 as of fall 2001).

³⁵ Joint program with Rutgers University; Piscataway numbers do not include Rutgers-based graduate students.

³⁶ 1995 NRC Report: *Research-Doctorate Programs in the United States: Continuity and Change*.

- Newark: In addition to five departmental graduate programs, the joint neurosciences program with Rutgers, and Biomedical Engineering with NJIT, the Biomedical Sciences Ph.D. program combines several departmental programs. There is a common core course that covers Biochemistry, Molecular & Cellular Biology, Genetics, Cellular Physiology & Biophysics, Immunology, and Neuroscience. This program follows the national trend to consolidate multiple biomedical graduate programs (e.g., biochemistry, cell biology) into an umbrella graduate program (e.g., Division of Biology and Biomedical Sciences at Washington University, Biomedical Sciences at UCSF, Program in Biological and Biomedical Sciences at Harvard). This model brings together students who are interested in different areas of the biomedical sciences research in a single classroom setting at the beginning of their Ph.D. program and is likely to solidify Newark's graduate programs. In addition, new courses in Stem Cell Biology and Bioterrorism & Weapons of Mass Destruction reflect UMDNJ's responsiveness to evolving scientific issues of national interest.
- Piscataway: Joint Molecular Biosciences program students are enrolled in a common curriculum coordinated by UMDNJ-GSBS and Rutgers Graduate School (Life Sciences Division) faculty that covers biochemistry, molecular and cellular biology, microbiology and molecular genetics, and special topics. This unified molecular biosciences program has evolved to build a strong life sciences community on the Busch campus in Piscataway, encouraging students to explore opportunities in UMDNJ and Rutgers departments.
- Stratford: Students in the Cell and Molecular Biology program follow a core curriculum in their first year that consists of biochemistry (co-taught with medical students) and molecular biology of the cell. More specialized topics are covered in seminar classes, but the range of subjects is more limited than at Newark and Piscataway.

4.4 New Jersey Dental School

Overall, the New Jersey Dental School (NJDS) makes a critical contribution to the state's health education system, appears to attract students from diverse backgrounds and offers instruction at the cutting edge of technology.

- ¶ *Overview.* NJDS had 355 students in fall 2001. It is the only school of dentistry in the state. The entering class profile in 2001 (79 students) was: 93.7 percent New Jersey residents, 31.6 percent non-white (15.2 percent underrepresented minorities), 51.9 percent female; 92 percent of dental students received financial aid for 2001-02.
- ¶ *Rankings.* No formal ranking exists for dental schools. However, NJDS is one of only two schools in the nation to receive its 7-year re-accreditation from the American Dental Association (ADA) “without recommendation” (for improvement or changes) and with seven commendations.
- ¶ *Education.*
 - **Students:** The quality of incoming students appears to be above national norms, with an average Dental Admission Test (DAT) score of 18.1 versus the national average of 17.0. The graduating students’ performance on the National Board Dental Examination is similar to national averages with scores of 85.6 (Part I) and 81.5 (Part II) at NJDS versus national averages of 85.4 (Part I) and 82.2 (Part II).³⁷
 - **Faculty:** The school has 94 faculty including 38 tenured faculty; faculty include chairs/members of national organizations and editors of peer-reviewed journals.
- ¶ *Community service.* While there were 65.1 dentists per 100,000 population in New Jersey in 1998, well above the national average of 48.4 per 100,000, there continue to be shortages in some parts of the state. Over half of students stay in state for graduate work, and many of them remain in New Jersey to practice. Overall, one-quarter of practicing dentists in New Jersey are from UMDNJ.
 - Northeast Minority Oral Research Center is one of five sites in the region dedicated to studying disparities of oral health care among minorities.
 - Community-oriented dental education (CODE) offers senior dental students opportunities to work throughout New Jersey.

4.5 School of Nursing

The School of Nursing (SN) has developed a statewide system of articulated undergraduate and graduate programs through partnerships with other educational

³⁷ Briefing book provided by UMDNJ to Commission.

institutions. The school offers a comprehensive program of research, education and extensive continuing education opportunities. The school has added a joint UMDNJ/Rutgers/NJIT Ph.D. program in Urban Systems to its array of associate, baccalaureate, masters and post-master's certificate programs. The School of Nursing contributes to fulfilling a critical need for nurses in the state.

- ¶ *Overview.* SN had 604 students across the three campuses in Fall 2001 and offers programs in collaboration with Middlesex County College, New Jersey Institute of Technology, Ramapo College, Rutgers, NJIT, and Our Lady of Lourdes Medical Center. SN clinical partners include two UMDNJ units, UBHC and UH. The entering class profile in 2001 (239 students) was: 86.6 percent New Jersey residents, 39.7 percent non-white (23.4 percent under-represented minorities), 84.9 percent female; 52 percent received financial aid for 2001-02.
 - SN offers programs at the associate, bachelor's, master's, and Ph.D. levels as well as certificate programs (410 undergraduates, 148 master's, eight Ph.D.s, and five certificate students).
- ¶ *Rankings.* SN did not participate in the most recent *U.S. News* survey.
- ¶ *Education.* Graduate students in the program are above average nationally and faculty members are active participants in national nursing associations.
 - Undergraduate students: All undergraduate nursing students of UMDNJ are admitted through partner institutions (Ramapo College of New Jersey and NJIT for baccalaureate degree students and Middlesex County College for associate degree students). Thus, admission policies, procedures and reporting are pursuant to the policies of the partner institutions. Undergraduate students complete the clinical portions of their curriculum at UMDNJ facilities and with UMDNJ faculty.
 - Graduate students: For the entering class in the Master's of Nursing program in fall 2001, the GPA is 3.15 compared to a 3.56 GPA for entering students at Rutgers School of Nursing. Notably, neither SN nor Rutgers requires the GRE for admission into the Masters of Nursing programs so comparisons to national average cannot easily be made.³⁸

³⁸ GRE scores cannot be fairly compared because of their voluntary nature in the application process. Nevertheless, they are noted here for completeness. UMDNJ School of Nursing total average GRE is 1605, while national average is 1501. For comparison, Rutgers School of Nursing average is 1689 (GRE is also voluntary).

- Faculty: There are 38 full-time faculty members at the School of Nursing, of whom three hold tenure. Approximately 60 percent of faculty hold doctoral degrees and 20 percent hold offices in local, state, national or international associations. The François-Xavier Bagnoud (FXB) Center at the school is internationally recognized for the care of mother-to-child transmitted HIV disease.
- ¶ *Research.* The school ranked 56 among 83 nursing schools for NIH funding³⁹ in FY2001 with \$358,267; the average for top 25 nursing schools was \$3.7 million.
- ¶ *Community service.* In 1998, the last year for which data is available, there were 843 RNs per 100,000 people in New Jersey versus 798 for the United States. This is consistent with a national shortage of professional nurses; an American Hospital Association Survey⁴⁰ reports that the proportion of RN jobs currently unfilled is at 11 percent. Projections by New Jersey Colleagues in Caring predict that if present trends continue, New Jersey will have a RN vacancy rate of 18 percent by 2006.⁴¹ Partner institutions with UMDNJ nursing students have reported that all members of the graduating class of 2001 are currently working as nurses in the State of New Jersey.
- SN has demonstrated a strong commitment to integrate clinical training and community services at its FXB Center and outreach via Broadway House for Continuing Care, New Jersey's only special care facility for people living with AIDS.
 - SN offers the only Nurse Anesthetist program in the state, which is very competitive.

4.6 School of Public Health

The School of Public Health (SPH) is the only school of public health in the New Jersey offering graduate level degrees. This school is sponsored by UMDNJ in cooperation with Rutgers, and NJIT and in collaboration with the Public Health Research Institute⁴² (PHRI) – a public-private partnership. SPH is also closely associated with the Environmental and Occupational Health Sciences Institute

³⁹ National Institute of Nursing Research.

⁴⁰ *American Hospital Association Special Workforce Survey.*

⁴¹ Dickson, Geri L., "The Scope of the New Jersey Nursing Shortage and Recommendations to Address It"; testimony prepared for the New Jersey Senate Health Committee, February 26, 2001.

⁴² PHRI recently moved from Manhattan to the newly built International Center for Public Health (ICPH) in Newark

(EOHSI), which a joint effort between UMDNJ and Rutgers; in fact, many EOHSI members are faculty with their primary appointments at SPH, and many members teach in the public health curriculum. SPH offers a curriculum that has been designed to meet the health needs of the urbanized and industrialized state of New Jersey.

¶ *Overview.* SPH had 301 students in fall 2001. It operates across all three campuses (92 students in Newark, 198 in Piscataway, and 11 in Stratford). The entering class profile in 2001 (121 students) was: 84.3 percent New Jersey residents, 51.2 percent non-white (30.6 percent underrepresented minorities, 71.9 percent female; 18 percent received financial aid for 2001-02.

- SPH was initially started in New Brunswick as part of Robert Wood Johnson Medical School and became an independent school in 1998, offering courses jointly with Rutgers.
- The 92 students in Newark take courses offered jointly by UMDNJ, Rutgers, and NJIT. The Newark campus collaborates with the newly established ICPH.

¶ *Rankings.* SPH was established in 1998 and received accreditation from the Council on Education for Public Health in 2001. There are 32 accredited public health schools in the U.S., and SPH did not participate in the last ranking by *U.S. News* that was done in 2000.⁴³

¶ *Education.*

- Students: Average student GPA was 3.28 for the 2001 incoming class in Newark and 3.23 in Piscataway.⁴⁴ The composite GRE scores averaged 1537 for Newark students and 1717 for Piscataway students.⁴⁵ National data was not available for comparison.

⁴³ Of note, SPH's predecessor, the community health program at the New Jersey Graduate Program in Public Health (NJGPPH), was ranked second nationally, reflecting the high quality of the faculty and research. It was based within the Department of Environmental and Community Medicine at RWJMS and the Department of Urban Studies and Community Health at Rutgers University. SPH was created under UMDNJ in 1998, the Rutgers portions were transferred to the E. J. Bloustein School of Planning and Public Policy.

⁴⁴ Data received by the Commission includes GRE averages for 26 students for the Newark campus and 35 students for the Piscataway campus and GPA scores for 21 students in Newark and 32 students in Piscataway.

⁴⁵ Newark campus student average GREs were 452.7 Verbal, 533.5 Quantitative, 550.4 Analytical; Piscataway campus averages were 502.9 Verbal, 619.7 Quantitative, 594.6 Analytical.

- Faculty: The school has 39 faculty with primary appointments and 62 faculty with secondary appointments; faculty include chairs and members of international and national committees on public health, members of editorial boards of peer-reviewed journals, and recipients of national awards.⁴⁶
- ¶ *Research.* Funding has increased substantially since the inception of the school in 1998: grant and contract dollars for primary faculty members have increased nine fold from \$1.4 million in 1999 to \$13.4 million in 2002.
- ¶ *Community service.* The UMDNJ SPH offers programs to New Jersey residents who consider the other accredited schools of public health in the region to be too distant or expensive.⁴⁷ Fieldwork is required and most SPH students conduct projects in counties near the location of their schools (e.g., Newark, New Brunswick or Stratford). Since the fall of 1999, there have been 169 MPH fieldwork placements, 147 of which were in counties across New Jersey. Of the graduates of the MPH program, about one-third continue with further training (e.g., Ph.D. in Public Health, Law degree), one-third works in the field of public health (e.g., New Jersey Department of Health, epidemiologist at UCLA), and one-third enters medical school or medical residencies.

4.7 School of Health Related Professions

The School of Health Related Professions (SHRP) offers a large number of programs, to address the allied health needs in New Jersey. It has strong collaborations with other state and community colleges and offers New Jersey entry into a health care career. However, many programs appear to be small, which may have a detrimental impact on their ability to offer comparable quality to those institutions with more developed programs. Few top state health science universities have a stand-alone school of allied health professions.

- ¶ *Overview.* SHRP has 1,068 students in Fall 2001. It offers 11 certificate, four associate, seven baccalaureate, eight master's, and four doctoral-level programs in a broad range of health fields across all three campuses and in a small Scotch Plains campus. Many of SHRP's programs are available through joint efforts with other colleges and universities in New Jersey;

⁴⁶ Selected awards include the NIH Director's Award, President's Award, National Public Health Education Leadership Award, and the Distinguished Career Award, American Public Health Association.

⁴⁷ Columbia University Mailman School of Public Health, Johns Hopkins Bloomberg School of Public Health, Yale University School of Public Health, and University of Pittsburgh Graduate School of Public Health.

the undergraduate programs are mostly taught at affiliate institutions. The entering class profile for 2001 (504 students) was: 81 percent New Jersey residents, 45.4 percent non-white (26.2 percent under-represented minorities), 72.2 percent female. Eighty-eight percent received financial aid for 2001-2002.

- Few top medical schools are associated with full-fledged, allied health schools: only two of the top 10 medical schools and seven of the top 21 medical schools have independent allied health schools.⁴⁸ All top schools have at least a few allied health offerings (e.g., dental hygiene in the dental school).
- ¶ *Rankings.* Of the allied health programs ranked by *U.S. News*, SHRP's physician assistant program was 10th (among 29 programs ranked) in 2000, and its physical therapy program with Kean University and Seton Hall University was tied for 52nd, while its joint program with Rutgers University-Camden was tied for 61st (among 80 programs ranked).
- ¶ *Education.* Metrics on student and faculty quality are not readily available for most SHRP programs. Some of SHRP's faculty are members of distinguished organizations in the field. Many of SHRP's programs are small and many are given in conjunction at other institutions.⁴⁹
 - An average of 92 percent of graduates gain licensing/certification upon initial examination. Ninety-five percent of graduates are employed in the health field, and 95 percent obtain these positions within three months of graduation.
 - Faculty: There are 116 full-time faculty at SHRP, of whom 13 hold tenure. Faculty include members of editorial boards and boards of national organizations.⁵⁰
 - At least 16 of its 34 programs enroll fewer than 10 students; of those programs, five are offered by other colleges in New Jersey,⁵¹ while 11 are only offered at UMDNJ.

⁴⁸ UTSW, U. Alabama-Birmingham, U. Utah, Ohio State U., U. Cincinnati, U. Florida and Indiana U.

⁴⁹ Undergraduate students enter through articulation agreements with affiliated institutions that manage admissions and curricular requirements.

⁵⁰ Faculty are, for example, members of the Board of Directors for the Association of Schools of Allied Health Professions, the International Association of Psychiatric Rehabilitation Services and the American Association for Respiratory Care.

- ¶ *Curriculum.* The school has emphasized distance education for both practicing health professionals and for entry-level students. They initiated the first and only Master of Science in Health System program that is fully Web-based.
- SHRP received grants of \$1 million from Becton Dickinson and Company and \$1 million from Stillman Trust Fund built the Multimedia Health Care Teaching Center, a center for distance learning on the Newark Campus.
- ¶ *Community service.* Nearly 90 percent of SHRP's graduates since 1988 have stayed in New Jersey after graduation; other than for physician assistants, current levels of graduates seem to fill New Jersey's need for allied health professionals.⁵² SHRP has affiliations with local health care providers like the Camden Area Health Center to provide health care screening throughout the community.

⁵¹ Dental Assisting (certificate program), Emergency Medical Technology (associate), Healthcare management (master's), Medical Laboratory Technology (associate), Health Sciences (master's, doctorate). Data from SHRP and the New Jersey Commission on Higher Education *Certificates and Degrees Awarded*.

⁵² *State Health Workforce Profiles – New Jersey*, Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (2000).

5.0 UMDNJ System Assessment

In its visits and discussions with top health science schools, the Commission identified five elements of the University system that were most critical in creating excellence: strategic vision, structure and governance, leadership, processes, and funding. Visits and discussions with the top state schools including University of California-San Diego (UCSD), University of California-San Francisco (UCSF), University of Texas-Southwestern (UTSW), Oregon Health & Science University (OHSU), University of Washington, and University of Maryland were the sources of the best practices identified here, with a particular focus on the three schools (UCSD, UCSF, UTSW) which are part of universities with multicampus medical schools like UMDNJ.

5.1 Strategic vision

Since 1998, UMDNJ's vision has focused on building academic excellence and this has resulted in some major accomplishments highlighted earlier in this document. We should note that many faculty acknowledged the strong leadership of Dr. Stuart Cook, the University President, in clearly articulating a broad vision for the university, and noted that the aspirations embodied in that vision were highly motivational. However, the Commission's assessment revealed three issues that consistently emerged from our discussions and on which UMDNJ differed from the top state schools:

- ¶ *Strategic planning.* Because of UMDNJ's centralized structure, core strategic planning happens at the central administration level and, despite best intentions, results in a one-size-fits-all vision. This means that all schools are aspiring to the same goals that may not appropriately capture their identified strengths and reflect necessary future direction. This top-down process is at odds with the observation from top health science schools, where the vision for each campus (the chief organizational entity) emerges from local campuses with strategic plans created first by individual schools. In particular, at the top medical schools visited by the Commission, leaders singled out the criticality of their strategic planning process, the importance of engaging department heads in it, and the necessity of having clear strategic goals against which to align and measure progress. At UMDNJ, medical school leaders felt that despite their disproportionate contribution of government research funding, their share of voice in directing the strategic plan for the university does not reflect that. In the top schools, medical schools were acknowledged as the anchor of reputation and largest contributor to the budget and given

significant autonomy to determine their own direction and that of the campus.

- ¶ *Areas of focus.* The Commission heard that there was a tendency at UMDNJ to cast the net broadly in growing the university rather than focusing on specific areas that can vault the university to national attention. At top universities, at the campus level, the Commission frequently noted an explicit decision to focus on three or four areas of strength and to provide significant financial support for these areas. Over time, these areas formed the basis for the reputation for each campus. Examples include neuroscience, genetics, and oncology at UCSD, biochemistry at UCSF, and neuroscience at the Vollum Institute of Oregon Health & Science University.
- ¶ *Philosophy of fund distribution.* There appears to be a strong focus by central administration to allocate funds equitably among schools rather than base decisions on merit or specific strategic goals. This often frustrates the efforts of the schools to distinguish themselves. For instance, there was a desire to distribute support for state health schools geographically (New Brunswick and Newark) rather than focus on building up excellence at one school before considering expansion. At top schools, additional support is directed to schools that have demonstrated high quality science and research productivity and have the potential to further enhance the university's reputation.

5.2 Structure and governance

The separation of the Rutgers Medical School from its parent university and the creation of an independent College of Medicine and Dentistry in 1970 created a unique health education institutional structure. Today, UMDNJ is the only freestanding multicampus health science university in the country. The vast majority of medical schools in the country, and nearly all top schools, are affiliated with a comprehensive university. Inefficiencies ascribed to UMDNJ's large central administration and centralized nature of the governance processes emerged as an issue at UMDNJ and may hinder its goal of developing excellence. At top universities with medical schools on multiple campuses, governance is on a campus level and central administration at the system level is very lean.

- ¶ Among the 125 allopathic medical schools in the U.S., 21 are situated within a freestanding health science⁵³ university, while the rest are part of

⁵³ A university with at least one medical school that does not offer a comprehensive set of academic programs (e.g., liberal arts, engineering). Freestanding is defined by the AAMC as not related to a parent system.

a comprehensive system. Of these schools, 13 are private (e.g., Mayo Medical School, Baylor College of Medicine) and eight are public.⁵⁴ With the exception of Oregon Health & Science University, none of these eight freestanding state health science schools rank among the nation's top 50 state and private medical schools (research) as ranked by *U.S. News*. Strikingly, Robert Wood Johnson and New Jersey Medical School are the only schools that belong to a multicampus freestanding health science university in the nation.

- ¶ UMDNJ has a large central administration located in Newark, which does not appear to be as responsive or efficient as the campus-based administrations at top state schools.
 - UMDNJ central administration⁵⁵ employs over 1,800 people and has responsibility for allocating funds to schools, accounting, marketing and public relations, security, engineering, recruiting senior administration and deans, fund-raising, information technology/communications, purchasing, plant operations, insurance, libraries, legal/regulatory affairs, and human resources. In contrast, the University of California Office of the President serves as a policy making and coordinating body which provides minimal support services to the campus (legal/regulatory, audit, investing endowment, coordinating campus budget requests). To highlight the differences in service centralization, approximately 41 percent of UMDNJ's state funding goes to central support versus about three percent at the University of Texas; about seven percent in the University of California system remains at the Office of the President or the Systems Office.⁵⁶ While the size of central administration, in itself does not imply inefficiency, the Commission heard consistently that the administration system is opaque, slow, and not responsive to school needs. In contrast, the campus-based administrations at the top schools visited by

⁵⁴ *Health Science public universities:* Robert Wood Johnson Medical School, New Jersey Medical School, Oregon Health & Science University, Medical College of Georgia, Uniformed Services University of the Health Sciences, Medical College of Ohio, Northeastern Ohio College of Medicine, Medical University of South Carolina; *Health Science private universities:* Baylor College of Medicine, Loma Linda University School of Medicine, The Chicago Medical School (Finch), Rush Medical College, Mayo Medical School, Albany Medical College, New York Medical College, Jefferson Medical College, Ponce School of Medicine, Universidad Central del Caribe School of Medicine, Meharry Medical College, Eastern Virginia Medical School, Medical College of Wisconsin. Data from AAMC.

⁵⁵ Does not include school, hospital, or UBHC administrative and clerical employees or faculty.

⁵⁶ FY2001 state appropriations for UMDNJ central support, FY2000 state appropriations for UC (Office of the President) and UT (System Offices).

the Commission appeared to be more effective in supporting the educational enterprise.

- Many aspects of academic and financial decision making take place at the level of central administration in Newark. School deans at the campuses report to the Senior Vice President of Academic Affairs for the University who is the chief academic officer for the university with a wide range of responsibilities for academic issues. School deans have responsibility for day-to-day academic and operational issues and a more limited role in major academic and fiscal decisions. The Commission heard that this resulted in lack of responsiveness to school needs and inefficiency across many administrative processes from budgeting to purchasing. This is in contrast with all other top multicampus systems, where a campus chancellor or president has primary decision-making power over the majority of campus academic and administrative affairs. At these systems the university system leader (president at University of California, chancellor at University of Texas) controls system-wide planning, external relations, and coordinates and approves campus plans. The medical school dean often has the position of vice president of health affairs, overseeing all the health care schools and reporting directly to the campus chancellor or president.
- The Commission's consultations with the case study schools confirmed that there is compelling evidence that giving academic and managerial autonomy to the campuses is the optimal way to organize a multicampus institution. Key points in favor of campus-based governance were:
 - Campus leaders (i.e., chancellor or president) with a focus on their geographic area are best positioned to coordinate the strategy and the resources for the various schools co-located on the same campus;
 - Local leadership permits a real-time response to school needs;
 - Local accountability and competition with other campuses encourage a more entrepreneurial approach to building local excellence.

5.3 Leadership

The need for strong leadership at both the Board of Trustees level and the University and Campus levels emerged as a key theme in the Commission's discussions with top schools. Key lessons for the Board that emerged from those consultations included the need for members who are prominent in the business community and who can bring management orientation, liaise with industry and donors, and be politically independent. In the areas of university and campus leadership, the best practices included a strong nationally recognized leader with a passion for change who has demonstrated the ability to rally others around his or her vision. In administration, best practices include hiring leaders with significant external experience as well as those with local system knowledge.

Board of Trustees

- ¶ UMDNJ's board is a group of dedicated civic leaders and professionals. While the board members have a clear commitment to the university and hospital, the UMDNJ board does not include the most prominent business and civic leaders with regional or national reputations available in New Jersey. As well, there are few health professionals on the board with significant experience outside the UMDNJ system. In contrast, the University of California's Board of Regents has many senior leaders from law, financial, and entertainment business communities including Sherry Lansing, the CEO of Paramount Pictures, the University of Washington's Board of Regents has the Chairman of Costco, Jeffrey Brotman, and William H. Gates Sr., and the Oregon Health & Science University Board of Directors has former Governor Mark Hatfield and the Vice President of Intel. Inclusion of business and community leaders on the Board introduces a broader vision for success, stronger management orientation and rigor, lays the foundation for university-industry interactions, and increases effectiveness of fund-raising efforts.
- ¶ UMDNJ's Board of Trustees members have five-year tenures today whereas tenures are 12 years in the UC system and six years in the UT system. The Commission heard from these schools that longer tenures allow the members to become very familiar with the system, focus the board on a long-term strategic vision, and distance the board from undue political influence. Further, the Commission heard that staggered tenures permit better transmission of system knowledge and promote continuity.

University Leadership

The University leaders have done an admirable job of strengthening UMDNJ's quality and reputation. Most recently, in 1998, Dr. Stuart Cook, energized the University with his 5-year strategic intent. However, the Commission noted several issues in our discussions at UMDNJ and top schools:

- ¶ Majority of leaders at UMDNJ's central administration have extensive UMDNJ experience but little experience with other systems and models. Nearly two-thirds of the central administration leadership team, and seven of nine top leaders have been at UMDNJ for more than 10 years, with few having come from other academic health systems. In top state schools, academic and administrative leadership is recruited from among individuals with a national reputation and strong track records at other institutions. Leaders at top schools emphasized that a mix of internally promoted and external people was an essential ingredient in the formula for success.
- ¶ In general, despite some recent successes, faculty and leaders noted that it is difficult to recruit nationally recognized health science academics to the leadership of UMDNJ schools. This was emphasized as a critical driver of success throughout our discussions with top schools. The consistent finding at top schools was the importance of an individual leader with passion and charisma who crafted a vision that was widely shared and that became part of the cultural fabric of the institution.
 - At UCSF, the catalyst for excellence was the core team of Holly Smith (Chair of Medicine), Bill Rutter and Gordon Tomkins (Biochemistry) who declared that UCSF could be a national leader in health science research and organized an effort to bring in promising young faculty from the East (e.g., NIH, Harvard).
 - UCSD focused on building the quality and reputation of its medical school first by attracting strong chairs for Medicine, Pediatrics, and Surgery, who then hand-picked their faculty.
 - At UTSW, Don Seldin, Chair of Medicine, built the culture of excellence at the School of Medicine by selecting and mentoring top students who returned to the school in academic positions. This demonstrates that transformative leadership can arise from different levels in a system focused on excellence.

5.4 Processes

The Commission focused on how system procedures and overall functioning impacted academics and research. Our interviews with faculty, administrators and students highlighted the following issues:

- ¶ *Centralized structure.* Discussions with UMDNJ leaders and faculty revealed significant frustration with the centralized structure. Comments were made that having to deal with central administration in areas like grant management, purchasing, and budgetary reporting was unnecessarily slow and cumbersome. Central administration officials acknowledged that reporting requirements for the schools are “heavy” and that their task is often to respond first to those schools with the most pressing issues regardless of size (e.g., those starting new programs or closing programs) which creates a backlog for other schools. Some specific examples included:
 - **Purchasing:** Because purchase orders for all eight schools are processed through central support, resolution of problems that arise is often slow. In addition, faculty pointed to a general frustration with inefficiency of the purchasing system; for example, if one unit fails to pay a vendor, the other units cannot receive orders from that vendor until the account is cleared. At benchmark systems, purchasing is administered at the campus.
 - **Post-grant management:** Faculty members believe that the centralized group managing grants is too far removed from the principal investigators who have been awarded the grant to deal with fund disbursement and other issues in a timely manner. Again, at other universities, the post-grant management group is located at the campus level.
- ¶ *Collaborations.* For collaborations among the eight schools of UMDNJ as well as among UMDNJ and the co-located units of Rutgers University, UMDNJ has failed to capture benefits of a health science university and fails to capture benefits of a campus-based structure.

- UMDNJ schools: While the original impetus for separating the Rutgers Medical School from Rutgers was to permit greater collaboration with the other health science schools in the state, this has not materialized. Faculty at all three medical schools noted that there is minimal collaboration among the schools, largely due to distance and lack of institutionalized collaborative arrangements. Further, because deans of the eight schools report to central administration and not to a campus leader, co-located schools do not have a tradition of working closely together to realize potential synergies. At best-practice universities, co-located schools collaborate and work together; often these interactions are facilitated by campus administration.
 - Relationship with Rutgers: Most of the academic and research collaborations between UMDNJ and Rutgers have developed from individual faculty or administrator efforts. Academic benefits were deemed to be great, but most pointed to numerous administrative problems related to collaborations and joint programs. These included grant management (indirect cost assignment), student health insurance, parking costs, housing privileges and library access. Despite being made aware of these issues, faculty and students feel that central administration has not taken sufficient steps to resolve these important issues.
- ¶ *Transparency and information management.* Schools observe that central administration shares little information with them and that there is little sharing of information between schools on both administrative and academic issues as well. Some of the key issues that were noted are:
- Finances: Financial information is not readily available at UMDNJ. This data resides at central administration, and despite increased reporting requirements, even school leadership does not have ready access to data from other UMDNJ schools or units. At top state university systems, detailed financial information is readily available to the public on the Internet and monthly, quarterly as well as annual results were readily available to the Commission on request. Also, other universities placed an emphasis on clear and open communication between school, campus and university leadership on financial issues including how resources are allocated between schools and projects.

- Information sharing: The Commission heard that researchers often do not know that research in their area of interest is occurring elsewhere on campus or in the system. Other information such as financial and performance information was also difficult for schools to obtain.
- ¶ *Performance assessment.* The lack of rigorous performance assessment appears to constrain the ability to recognize and reward faculty excellence, although a performance-based initiative (e.g., PRIME 2005⁵⁷ at NJMS) is currently being implemented.
- The current evaluative process is the same for all eight schools, there are no specific evaluations tailored to specific schools as of yet other than NJMS which has developed PRIME 2005, a tool for consistent schoolwide metrics to evaluate and compensate faculty based on contributions. Full implementation is expected in 2005.
 - As a first step, central administration has developed a proposal called “Scholarship Counts” to evaluate and compensate faculty based on evaluations completed by their department chairs.
 - The Commission found that other universities measure and manage performance aggressively:
 - University of Washington, UCSF, and UCSD conduct a rigorous and systematic review and evaluation of faculty (every two to five years) and chairs (every five to seven years).
 - Many schools are moving towards mission-based management of faculty and offer strong incentives to generate clinical income and/or research grant dollars.
- ¶ *Other factors.* Faculty were concerned about the level of commitment of central administration to school goals. They felt that sporadic support from central administration gave them concern over intermediate and longer-term stability of their projects. For example, they cited central administration withdrawing support after launching successful programs and moving on to new projects, forcing deans to find replacement funds.

5.5 Funding

Adequate funding is integral to achieving excellence. In order to assess the adequacy of the operational funding to UMDNJ, the Commission looked at total

⁵⁷ Prioritize and Realign Incentives through Missions and Excellence.

state appropriations to UMDNJ and the medical schools and compared it to other state universities and price indexes. UMDNJ's dollars per student appear to be within the range of top state schools nationally. However, we noted that New Jersey funding has not kept pace with the growth of price indexes, and that New Jersey falls short of its own stated goals for funding educational operational costs for senior state institution students. Higher tuition makes up for this shortfall. Additionally, New Jersey contributes less to higher education as a percentage of its tax revenues than the national average and top state schools. However, the method by which New Jersey receives its funding is consistent with that of many states with top state systems, although this could be made more transparent and predictable.

Funding level

¶ *University.*

- Health science only universities: Since UMDNJ is one of the few health science schools in the country, the comparison group was limited. In comparing UMDNJ to other health science schools, the Commission found that the allocations per student place UMDNJ on the lower end of the group. UMDNJ receives approximately \$44,000 per student from the state, compared with roughly \$20,000 for OHSU, \$86,000 for UTSW and \$85,000 for UCSF.⁵⁸
- Comprehensive universities with medical schools: An analysis of publicly available data shows that in 2001, the comprehensive universities containing some of the top 10 state medical schools received approximately \$8,000 to \$20,000 per student in state appropriations with an average of \$12,200. On the low end were U. North Carolina (\$8,100), U. Virginia (\$8,500), and U. Washington (\$8,600), while U. California (\$17,100) was on the high end. To create an equal basis for comparison (a comprehensive university), we assessed total funding of UMDNJ and Rutgers, which together received below the average – about \$10,000 per student.

⁵⁸ Grapevine Center for Higher Education and Educational Finance – A National Database of Tax Support for Higher Education compiled by Illinois State University. Direct comparison is difficult due to accounting differences, different student compositions, and differences in hospital ownership. Latest data available, 2000-2002 data.

- State funding to UMDNJ has not kept up with institutional costs. Over the past 11 years, UMDNJ's annual state appropriations have grown from \$180.4 million to \$213.3 million, an 18.2 percent increase. Over the same period, the Consumer Price Index (CPI) has grown by 37.7 percent, and the Higher Education Price Index (HEPI), an indicator of price changes for goods and services consumed by higher education institutions, rose by 46.6 percent.⁵⁹

¶ *Medical schools.* In 2001, NJMS received about \$75,000 per student, and RWJMS received \$85,000 per student,⁶⁰ compared to an average of \$78,000 for five top schools (UTSW \$50,000; UCSF \$108,000; UCSD \$116,000, U. Washington \$47,000 and U. Michigan \$70,000). Using any metric, the California system funds its universities at a much higher level than the rest of the top schools analyzed. California's level of funding was initially based on a loose formula intended to fund the long-standing aspiration for tuition-free education to all California residents, reaffirmed in its 1960 *Master Plan for Higher Education*.

¶ *Use of tax revenue.* New Jersey spends fewer tax dollars on higher education than U.S. average and much less than states with top schools.

- According to the Research Associates of Washington, in FY1998, New Jersey spent four percent of its state and local tax revenues on higher education, compared to six percent for the U.S. overall. States with top 10 state schools spend between 5.7 percent and nine percent.⁶¹ Oregon spends six percent.
- Illinois State University's Center for the Study of Education Policy's latest Grapevine survey for FY2002 placed New Jersey at 32nd in the U.S. in per capita spending of state tax funds for higher education operating expenses and 41st in spending per \$1000 of income.⁶² As one comparison, Oregon is 33rd in per capita spending and 29th in spending per \$1,000 of income.

⁵⁹ Rutgers administration figures.

⁶⁰ NJMS received \$29.6 million in state appropriations and \$22.3 million of central support was attributable to NJMS. RWJMS received \$32.3 million in state appropriations and \$21.8 million of central support was attributable to RWJMS. Assumption was made that appropriations were attributable to schools in the same proportion as central support.

⁶¹ North Carolina (9.0%), California (8.4%), Alabama (7.9%), Iowa (7.8%), Michigan (7.5%), Texas (7.5%), Washington (5.7%) and Virginia (5.7%).

⁶² Per capita spending of tax funds: Alabama (16th), California (11th), Iowa (8th), Michigan (25th), North Carolina (6th), Texas (20th), Virginia (23rd) and Washington (24th). Spending of tax funds per \$1,000 in income: Alabama

- ¶ *New Jersey funding goals versus actual funding.* State funding falls short of stated goals, with higher tuition making up for the shortfall.
- According to the 1995 *Report of the Commission on Higher Education on Funding and Tuition Establishment*, New Jersey aims to fund two-thirds of educational and general⁶³ costs for students at senior state institutions. The goal for UMDNJ is 90 percent of funding. The New Jersey Commission on Higher Education (CHE) reported that New Jersey’s senior state institutions are falling increasingly short of this goal – the state covered 63.8 percent of educational and general costs in FY1994 while in FY2001, it covered only 56.6 percent. The Task Force further found that UMDNJ’s funding in 1995 covered 86 percent and in FY2001, it was only 82.9 percent of educational and general costs.
 - Tuition at UMDNJ was among the highest among state supported medical schools in 1995, according to the 1995 report, and it continues to be high. Tuition and fees for state residents totaled over \$18,000 for NJMS and RWJMS in 2000-01 while top 10 state schools averaged about \$10,500. Out-of-state tuition and fees were also higher – almost \$28,000 for NJMS and RWJMS, compared to nearly \$24,000 for top 10 state schools, according to AAMC data.

Funding method

Institutions of higher education in New Jersey currently receive state allocations by historical precedent with annual operating budgets subject to changes in the overall state budget. Most state systems operate in a similar manner. However, many use a formula-based system in some capacity to determine state funding – some to determine the majority of state funding (including the base amount), and some to determine only year-to-year increases in budget. Formulas help to guarantee the stability and predictability of state allocations.

- ¶ *Historical funding.* Until the early 1980s, New Jersey used a funding formula to determine state appropriations at its universities. Administrative leaders at Rutgers noted that these formulas were not fully funded, and specifically, the physical plant funds were significantly below formula standards. There were separate formulas to fund instruction based

(13th), California was (22nd), Iowa (11th), Michigan (24th), North Carolina (7th), Texas (21st), Virginia (28th) and Washington(27th).

⁶³ Total of state appropriation and tuition and fees per student, as defined by the New Jersey Commission on Higher Education in its 1995 *Report on Funding and Tuition Establishment*.

on FTE-to-faculty ratio and physical plant based on square footage and libraries.

- ¶ *Current funding.* Current targets for New Jersey are outlined in the 1995 *Report of the Commission on Higher Education on Funding and Tuition Establishment*. They call for the state to provide two-thirds of educational operating costs while students and their families provide for one-third in senior state institutions. UMDNJ is an exception with special funding circumstances – the target for state medical schools is 90 percent state funding. New Jersey universities currently receive state allocations by historical precedent with annual operating budgets subject to changes in the overall state budget (capital projects are line items in the university budget request).
- ¶ *Case study findings.* At case study schools, most operated by the same model of requesting incremental changes to the previous year's budget with additional separate requests for special appropriations like capital projects. Some schools use a formula to determine state appropriations based on the number and type of students, either for the majority of state funds (including base amount) or for incremental increases in budget. These formulas are often based on educational operating costs and take into account student type, number of credit hours, infrastructure support, and other factors.
 - Formulas for determining base funding.
 - The Texas Higher Education Coordinating Board adopted a formula system about 40 years ago, which has been modified over the years. Over 80 percent of its state funding is appropriated based on formulas while the remainder consists of special appropriations that must be approved by the legislature.⁶⁴
 - . The general formula takes into account instructional/operating costs based on credit hours, infrastructure support based on square footage and supplemental items such as one for tenure-track faculty teaching.
 - . The health science formula takes into account instructional/operating costs based on a base amount, student FTEs and weights for student type, infrastructure support as above, research

⁶⁴ Texas Higher Education Coordinating Board's Formula Funding Recommendation for the 2004-5 Biennium, April 2002.

with a base amount plus an incentive amount of 2.5 percent of research expenditures, as well as supplemental items. The State University of New York (SUNY) system has a similar incentive for research efforts, allowing campuses to compete for 20 percent of state formula funds based on external research funding.

- The State Council of Higher Education for Virginia (SCHEV) recently reinstated its formula system after it had been abandoned during the recession in the late 1980s. However, these budget requests have not been fully funded due to state funding shortages.
 - . Virginia's formula takes into account instructional costs based on faculty-to-student ratios and support programs including academic support, student services, institutional support and operation/maintenance of physical plant based on statistical correlations with student types. Costs drivers are identified, and a percentage of costs are allocated to student types.
- Formula use for determining only year-to-year increases, such as for increased enrollment.
 - California's original funding targets were based on optimal faculty-to-student ratios by student type, although now it is based on historical allocations with adjustments, like most schools. However, incremental changes in budget are based on a formula, but according to U. California, these requests have not been funded for the past two years due to state funding shortages (e.g., ~\$24 billion deficit in the current year).
 - . Requests for budget increases for enrollment growth, for example, are based on calculating the marginal cost of an additional student. This calculation takes into account ideal ratios for instructional support, libraries, technology and student services.
 - . Health science funding is more difficult to characterize because calculations vary due to different factors specific to each student type and because enrollments have not increased significantly in the past 30 years.

6.0 RUTGERS TARGETED ASSESSMENT

As per the Governor's Executive Order No.14, the Commission's assessment of Rutgers focused on the quality of health sciences education. Our effort involved speaking with selected Rutgers leadership and science faculty and analyzing data from Rutgers and public sources. We did not, however, undertake a comprehensive assessment of performance or systems at Rutgers, which is a large, complex university. Rather, we briefly examined the quality of non-science Rutgers programs, particularly noting nationally recognized programs. Rutgers' educational programs appear solid overall and distinctive in several specific areas. The Commission found the widespread sentiment that it is possible for Rutgers to rank among the top tier of public universities in the next several years with the proper support and that addition of a medical school and/or other health-related schools may help Rutgers realize this aspiration.

6.1 Overview

Rutgers, the State University of New Jersey, is a comprehensive public research institution in the New Jersey system of higher education. First chartered in 1766 as Queen's College in New Jersey, it has grown from one of the nation's nine colonial colleges to a university that provides a broad array of educational programs. Rutgers has about 50,000 students (38,000 undergraduates and 12,000 graduate students) and 2,600 full-time faculty members across its campuses in New Brunswick/Piscataway, Newark, and Camden. The university has 29 degree-granting schools including 16 graduate and professional schools offering liberal arts and sciences and professional programs. It is centrally administered from New Brunswick, though Provosts at the Newark and Camden campuses hold significant autonomy for some academic issues. Governance rests with the Board of Governors and the Board of Trustees.

6.2 Quality and competitiveness

Academic quality at Rutgers appears to be above the national average, though below top state universities. In addition, several graduate programs rank among the best in the nation. Rutgers overall is competitive within the Association of American Universities (AAU) institutions – a group of 63 top public and private universities in North America – ranking 32nd among all academic institutions,⁶⁵ and

⁶⁵ Institutions with more than 15 programs ranked in the 1995 National Research Council's Report: *Research – Doctorate Programs in the United States: Continuity and Change*.

14th among the 34 state AAU institutions⁶⁶ based on the last National Research Council's (NRC) rankings which are based largely on faculty reputation.

Below are the highlights of the findings on quality of instruction, research and service⁶⁷ for the undergraduate and graduate programs at Rutgers University, based on interviews and publicly available data.

Undergraduate programs

¶ *Overview.* Rutgers offers more than 100 bachelor's programs in New Brunswick (28,351 students), Newark (6,118 students), and Camden (3,677 students).⁶⁸

¶ *Education.*

- **Rankings:** The New Brunswick campus is competitive and ranks among the top 20 state schools for undergraduate education, according to *U.S. News & World Report's America's Best Colleges 2003 (U.S. News)*, while the Newark campus is in the second tier of universities and the Camden campus is considered a Master's University⁶⁹ and ranks highly within that group of schools.⁷⁰
 - The New Brunswick campus is ranked 20th among state universities for undergraduate education and is in the second tier among all (state and private) universities for undergraduate education – 249

⁶⁶ From Webster, David, and Tad Skinner, "Rating Ph.D. Programs: What the NRC Report Says . . . and Doesn't Say," in *Change: The Magazine of Higher Learning*, May/June 1996; rankings are determined by taking the average ranking for faculty quality for all programs as ranked in the 1995 National Research Council/National Academy of Sciences Report.

⁶⁷ These are the three dimensions of Rutgers' mission.

⁶⁸ Student enrollment by campus for fall 2001 for undergraduates in colleges or in professional/specialized schools (Nursing in Newark; Engineering, Arts, or Pharmacy in New Brunswick) from Rutgers's Student Unit Record Enrollment Report (S.U.R.E.).

⁶⁹ *U.S. News & World Report America's Best Colleges* (2003 premium on-line edition) classifies schools into categories based on mission: 249 national universities (doctoral) offer a full range of undergraduate majors, plus master's and Ph.D. degrees, and emphasize faculty research; 573 universities-master's offer a full range of undergraduate programs and some master's degree programs but few, if any, doctoral programs. The universities-master's category is further subdivided and schools ranked by geographic region (North, South, Midwest and West). U.S. News rankings are based on data from colleges for peer assessment, retention, faculty resources, student selectivity, financial resources, graduate rate performance and alumni giving rate. These reputation-based rankings can be limited due to low response rates to surveys, significant time lags in respondents' knowledge of programs, and the varying number of programs rated.

⁷⁰ *U.S. News.* Each campus of Rutgers is evaluated and ranked separately.

state and private universities ranked.⁷¹ The campus has improved its ranking from 24th last year.

- The Newark undergraduate programs are ranked in the second tier of all universities.
- The Rutgers-Camden undergraduate campus is categorized as a Master’s University and is ranked third among 166 state Master’s Universities in the North.⁷²
- Students: Undergraduate students at Rutgers score above national averages on the SAT (mean combined score of 1191 for regularly-admitted incoming students at Rutgers day colleges, versus 1020 for the nation and 1011 for New Jersey⁷³) with specific groups of excellent students enrolled through merit programs such as the New Jersey Outstanding Scholars Recruitment Program (mean combined SAT score of 1380). Notably, *U.S. News* ranks Rutgers-Newark first in campus diversity with African-Americans (20 percent) and Asian-Americans (20 percent) constituting the largest minority groups.⁷⁴

Graduate education

¶ *Overview.* Rutgers offers more than 100 master’s and 80 doctoral and professional degree programs to 12,203 students on the New Brunswick, Newark, and Camden campuses. In New Brunswick, 7,299 students are pursuing advanced degrees within the Faculty of Arts and Sciences or at Schools of Arts, Engineering, Pharmacy, Education, Planning and Public Policy, Psychology, Communication, Information and Library Studies, Management and Labor Relations, or Social Work. In Newark, 3,484 are studying within the Faculty of Arts and Sciences or at Schools of Nursing, Management, Criminal Justice and Law. In Camden, 1,420 students are pursuing degrees within the Faculty of Arts and Sciences or at Schools of Business or Law. Some of these programs are offered in collaboration with other New Jersey institutions including NJIT (e.g., engineering), UMDNJ (e.g., biomedical sciences in New Brunswick and Newark), Western Monmouth Higher Education Center (e.g., nursing programs) and state colleges.

⁷¹ Second-tier schools are those schools ranked between 52nd and 130th by *U.S. News*. These are not individually ranked.

⁷² North region includes: PA, MD, DE, NJ, NY, CT, RI, MA, NH, VT, ME.

⁷³ The College Board’s SAT National and New Jersey State Reports.

⁷⁴ *U.S. News*.

¶ *Education.*

- Health-science rankings: Rutgers health-sciences programs are solid, and several non-health-science graduate programs are nationally recognized.
 - Among biological sciences programs, New Brunswick's are strong nationally (e.g., 54/121 ranked by U.S. News; 36/194 for biochemistry and molecular biochemistry by NRC rankings) while those at Newark rank lower (113/121 ranked by U.S. News; 145/194 for biochemistry and molecular biochemistry by NRC rankings).⁷⁵,
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 - The Rutgers School of Nursing in Newark is ranked 59/175 schools by *U.S. News*,⁷⁷ with its clinical nurse specialist in psychiatric mental health program ranked fifth among 10 ranked programs nationally.
 - The School of Pharmacy in New Brunswick is also nationally recognized: it ranks seventh in NIH funding among the 85 schools of pharmacy in the country.⁷⁸
- Notable health-science centers: Several Rutgers health-sciences institutes and departments are nationally renowned for the quality of their faculty and research. We highlight several of these, however, this is not an exhaustive list:
 - Center of Advanced Biotechnology and Medicine (CABM) was established in conjunction with UMDNJ. This competitive research program focuses on structural biology, cell and developmental biology, and molecular genetics. The Center was established with funding from the Commission on Science and Technology, UMDNJ, and Rutgers. CABM has been successful in attracting

⁷⁵ *U.S. News & World Report Guide to America's Best Graduate Schools* (2003 edition premium on-line version); the New Brunswick program ranked 54 is a combined UMDNJ and Rutgers program and rank.

⁷⁶ 1995 NRC/NAS Rankings of Faculty Quality at Graduate Research Programs for biochemistry and molecular biochemistry. In addition, the New Brunswick campus ranks 60 of 179 for cellular and developmental biology, 31 of 103 for molecular and general genetics, 46 of 102 for neurosciences, 37 of 127 for pharmacology and 36 of 140 for physiology; the Newark campus is ranked 57 of 102 for neurosciences and unranked for other programs.

⁷⁷ 12 members of the School of Nursing's faculty are fellows of the American Academy of Nursing.

⁷⁸ FY2001 NIH total funding, data from the American Association of Colleges of Pharmacy: Rutgers University School of Pharmacy total NIH funding is \$6.2 million.

significant federal funding for research⁷⁹ in structural genomics and continues to attract top faculty. One faculty is a member of the National Academy of Sciences.

- Environmental and Occupational Health Sciences Institute (EOHSI) operates in conjunction with UMDNJ. This is a national source of expertise for communities and government for environmental health, toxicology, and exposure assessment. EOHSI core work is interdisciplinary, involving faculty in environmental health, toxicology, occupational health, exposure assessment, public policy, and health education.
- The Waksman Institute of Microbiology is renowned for its leadership in microbiology-related research and its focus on recombinant DNA technology. Rutgers played a major role in developing streptomycin for the treatment of tuberculosis, and the Waksman Institute was funded by the compound's licensing income. Important new initiatives include computational and structural biology, molecular genetics of the regulation of gene expression and biomolecular interactions.
- Institute of Health, Health Care Policy, and Aging Research is a nationally respected interdisciplinary center for research on health-services research, federal and state health policy, and behavioral and social aspects of health and health care. Its programs in medical sociology, health psychology, mental health, medical history, and state health policy are highly regarded nationally and well funded by the NIH and various foundations. Four members of the Institute have been elected to the Institute of Medicine of the National Academy of Sciences and one member has been elected to the National Academy of Sciences.
- Department of Chemistry is eighth among chemistry programs for total federal funding among 238 state institutions and for total R&D expenditures; it is ninth among 273 state institutions.⁸⁰ Approximately half of the department's faculty is conducting health-

⁷⁹ For the start-up funds, the Commission on Science and Technology provided \$2 million and Rutgers and UMDNJ contributed \$20 million in bond issues for the CABM building. Total federal grants and contracts to CABM in FY2001 was \$13.7 million including \$10.3 million in federal funding (NIH, NSF and DOD).

⁸⁰ Federal financed R&D expenditures for 2000 was \$8.1 million and total R&D expenditures for 2000 was \$12.4 million; NSF WebCASPR database.

related research reflecting the national trend of increasing interdisciplinary research.

- Non-health schools:
 - There are seven distinctive non-health graduate programs ranked by *U.S. News* in the top 25 among all universities: Library Science (6, with the subspecialties of Information Systems ranked fifth, School Library Media ranked 1st, and Services for Children and Youth ranked 1st), Drama/Theater (12), Mathematics (16), English (18), History (19, with the subspecialty of African-American History ranked 4th and Women's History ranked 1st), Applied Mathematics (21) and Physics (24).
 - There are 11 distinctive graduate departments, ranked by the National Research Council in the top 25 among all universities⁸¹: Philosophy (13), Geography (13), Statistics (17), English (17), Mathematics (19), Art History (20), Physics (20), History (20), Comparative Literature (22), French (22), and Materials Science Engineering (25).
 - Both Law Schools in Camden and Newark are ranked in the second tier (between 52 and 90) of law schools by *U.S. News*.
- Students: Rutgers graduate students in the health sciences are above average nationally
 - Nursing students in Newark and biomedical students at New Brunswick score slightly higher than national average on GREs⁸² while other biomedical students are at national averages.⁸³ Pharmacy students score significantly better on GREs than national averages.⁸⁴

⁸¹ 1995 NRC/NAS ranking of Graduate Research Programs – this is the most recent national rankings by the NRC, their next report is expected in 2003-04; in addition, the Philosophy program was ranked third by the Philosophical Gourmet Report (Brian Leiter; UT Austin).

⁸² Gap for nursing 188 points above national total GRE average (Rutgers-Newark: 1689; national average: 1501); 124 points for Biomedical Sciences at New Brunswick (1829 as compared to national averages of 1705).

⁸³ Biomedical Sciences program at Camden is 87 points above as compared to national composite GRE average (Camden: 1792; national average: 1705); Newark program is 20 points below composite national averages (Newark: 1685).

⁸⁴ Pharmacy students total GRE averages are 246 above national averages (Rutgers: 1896 as compared to national average of 1650).

- Faculty: While there are many distinguished faculty in areas characterized in our interviews as “pockets of excellence,” overall faculty distinctiveness is below top state schools. The Commission chose to compare the number of faculty members of a few selected organizations; this is not a comprehensive picture of all faculty at the institution:⁸⁵
 - National Academy of Sciences (NAS) members: 14 Rutgers faculty (versus 18 to 119 at top 10 state AAU schools).
 - American Academy of Arts and Sciences (AAAS) members: 17 Rutgers faculty (versus 24 to 204 at top 10 state AAU schools).
 - Institutes of Medicine (IOM) members: six Rutgers faculty (versus seven to 30 at top 10 state AAU schools).
 - Howard Hughes Medical Investigators (HHMI): three Rutgers faculty⁸⁶ (versus two to 18 at top 10 state AAU school).
- ¶ *Research:* Rutgers has made a strong effort to increase external research funding, which has more than doubled in the past 10 years. Most of this funding is awarded to the New Brunswick campus.
- Total research grants and contracts for all fields⁸⁷ awarded were \$222.4 million in 2001, compared to \$95.9 million in 1991, representing a 22.9 percent increase per year.
 - Of this amount, in FY2001, 89.9 percent went to the New Brunswick campus, 8.3 percent to Newark and 1.8 percent to Camden.

Service and community

- ¶ Rutgers has an active program in service education, linking its academic programs with each campus’s local community. Many of its programs that integrate community service into the curriculum are nationally recognized, among them: Citizens and Service Education (CASE), New Jersey Small Business Development Center, Elder Law Clinic, and the Center for Urban Policy Research (CUPR).

⁸⁵ From “*Rutgers Fact Book*” (2002) available on their website and publicly available information from NAS, AAAS, IOM, and HHMI; IOM faculty members exclude faculty associated with medical schools and professors emeritus.

⁸⁶ One of three members is located at the joint Rutgers-UMDNJ CABM.

⁸⁷ Includes all fields: biological sciences, engineering, professional schools, social & behavioral sciences, environmental sciences, agriculture, physical sciences, math & computer sciences, arts & humanities and others; Source is FY2001 Rutgers Annual Report on Federal research and sponsored programs and Office of the University Controller.

6.3 Strategic vision

Rutgers leadership adopted a comprehensive strategic plan, *A New Vision for Excellence* (1995), that set a framework for the development of innovative academic programs and the allocation of financial resources to build on Rutgers' strengths in instruction, scholarship, and service:

The strategic plan aims to focus energies and resources on strengthening the core academic programs and building on the strongest programs in the three campuses in Camden, Newark and New Brunswick. It emphasizes first and foremost academic excellence in instruction, scholarship, and service; it affirms the university's key role as generator of new knowledge through innovative research; it recognizes the importance of diversity and commits the university to the principles of access and affordability; it consciously fosters a sense of community and collaboration; and it identifies and responds to emerging needs in the state and the nation.⁸⁸

The strategic plan targeted a number of academic areas for growth including in the sciences: cognitive science and neuroscience, engineering, environmental studies, information science and related fields, and life sciences and agriculture. Additionally, the plan focused on administrative improvement (e.g., accountability, total quality management, and interinstitutional collaborations) and infrastructure development (e.g., computing and information technologies, libraries and facilities). Through these efforts, Rutgers hopes to achieve its stated goal of "joining the ranks of the top public research universities by 2010."

Based on the Commission's assessment of the fertile ground for higher education in New Jersey and the strong academic foundation that exists at Rutgers University, the Commission believes that Rutgers can improve the quality of its programs and schools. During its data gathering, the Commission identified several potential strategic challenges:

- ¶ Lack of a medical school has a significant negative impact on the ability of Rutgers to recruit top-flight health sciences faculty. Many of Rutgers' peer institutions (e.g., University of Virginia, University of Wisconsin, University of Michigan) have medical schools, which makes it difficult to compete for talent.
- ¶ Administrators and faculty noted that state funding for Rutgers is lower than university funding in other states, which may have a negative effect on its academic mission.

⁸⁸ *University Strategic Plan, A New Vision for Excellence* (1995); *University Strategic Plan Progress Report III* (1999) and *IV* (2001).

- ¶ Opportunities to build partnerships between Rutgers and New Jersey’s industries, especially pharmaceutical companies, have been underleveraged, despite the large number of graduates working in these industries. States with fewer pharmaceutical companies have often built closer partnerships between the state university and pharmaceutical companies.

6.4 Structure and governance

Rutgers, a comprehensive research university with a broad range of program offerings, has several health-related schools, including the School of Nursing in Newark, the School of Pharmacy in New Brunswick, and a joint UMDNJ-Rutgers physical therapy program in Camden. It has not had a medical school since 1970, when the Rutgers Medical School separated to become part of the College of Medicine and Dentistry of New Jersey. Of the top 20 undergraduate universities as ranked by *U.S. News*, six do not have associated medical schools.⁸⁹

Rutgers is organized into three campuses (Appendix 2). Despite some academic and operational autonomy on the three campuses, the Rutgers system remains highly centralized in New Brunswick. The Rutgers system of centralized control, contrasts with other multi-campus systems where campus-specific administrations are responsible for most academic, administrative, and operational issues. The Commission’s studies reveal the following themes:

- ¶ Leadership is receptive to faculty initiatives and plans, but has limited funding, particularly in the area of providing start-up packages for promising new faculty in the sciences.
- ¶ Perception among faculty is that the administrative leadership team is too large, top heavy, and bureaucratic in its reporting requirements, especially in activities such as purchasing and budgeting.
- ¶ Despite some campus autonomy for Newark and Camden campuses, many critical academic and operational functions require approval from or negotiations with New Brunswick leadership.
- ¶ Because Newark and Camden Provosts report to the University VP for Academic Affairs, who also serves as the *de facto* Provost of New

⁸⁹ Princeton University, California Institute of Technology, Massachusetts Institute of Technology, Rice University, University of Notre Dame, and UC Berkeley are top 20 undergraduate universities ranked by *U.S. News* without a medical school; UC Berkeley, Princeton University, Massachusetts Institute of Technology, California Institute of Technology, UT-Austin, and University of Illinois-Urbana-Champaign are top 20 universities ranked by the Gourmet Report (Brian Leiter, UT Austin; based on NRC and *U.S. News* rankings) without a medical school.

Brunswick, conflicts of interest may arise resulting in preferential treatment for New Brunswick. The Newark campus has grown to sufficient scale and research intensity such that it seems to have outgrown its current “satellite” status.

- ¶ The administrative leadership team operates largely independently of academicians and does not sufficiently engage Deans and faculty in its decisions. Moreover, faculty governance structures and representation have weakened in recent years.

6.5 Leadership

The Board of Governors holds overall responsibility and control for Rutgers University. The President of Rutgers, the core leadership team, and the central administrative offices are located in New Brunswick.

- ¶ *Rutgers boards.* Rutgers governance rests primarily in the Board of Governors (BOG) with the Board of Trustees (BOT) serving as an advisory group. Board members are New Jersey business and community leaders including many Rutgers alumni.
 - Board of Governors: The BOG serves as the principal decision making body of the University in a similar capacity to the boards of other universities (e.g., Board of Regents for the UC or UT systems). The Rutgers BOG consists of 11 voting members, six appointed by the Governor and five elected by the BOT to serve six-year terms. The Chair is elected by members of the BOG. Non-voting members include the Rutgers President, and two faculty members and one student elected by the University Senate. Three committees conduct most BOG activities: educational planning and policy, budget and finance, and buildings and grounds. Its members include prominent New Jersey business and community leaders (e.g., CEO of the Bank of NY, CEO of the CIT Group, a major New Jersey philanthropist, VP at Becton Dickinson and Co., former CEO of Merck & Co., Inc.) and many members are Rutgers alumni. The University can only benefit from inclusion of even more prominent members who have made significant accomplishments managing and leading organizations and are committed to enhancing academic excellence.

- Board of Trustees: The BOT serves as an advisory group to the BOG⁹⁰ and consists of 59 voting members. Of the 59 members, there are 28 charter trustees elected by the BOT, 20 alumni elected by the BOT, three students, and 11 public members, including six appointed by the Governor. The Chair is elected by the BOT. Additionally, there are two faculty and two student non-voting members, elected by the University Senate.
- ¶ *Administrative leadership.* The Rutgers leadership team provides academic, administrative, and operational guidance and support.
- The Rutgers core leadership team includes the President, the University VP for Academic Affairs (also serves as the New Brunswick Provost), the provosts in Newark and Camden, VP for Research, VP for Institutional Research and Planning, SVP and Treasurer, and the VP for University Budgeting.
 - The provosts in Newark and Camden have some latitude for directing academic programs. Many other areas are managed centrally in New Brunswick or require approval/support from central administration (e.g., allocation of resources, admissions, foundation, recruiting of high profile faculty).

6.6 Processes

The Commission has not undertaken a through assessment of Rutgers administrative and operational processes, but has focused on functions related to the health-science departments and interactions with UMDNJ. The Commission has found several issues of concern:

- ¶ *Interactions with UMDNJ.* There are many academic collaborations between Rutgers-New Brunswick/Piscataway and UMDNJ; there are interactions on the other campuses as well. Most collaborators experience some degree of administrative obstacles in managing joint programs or grants
- Academic collaborations: Numerous partnerships and shared interests exists between departments and faculty on research; key themes emerging from data gathered are:

⁹⁰ In addition, the Board of Trustees hold fiduciary responsibility for assets the university held prior to becoming a state university in 1956.

- Life sciences faculty consider the Rutgers-UMDNJ/RWJMS relationship to be critical for research efforts at both institutions.
- With few structural means to support or facilitate information exchange, most partnerships are created through grassroots efforts by individual faculty members.
- Administrative obstacles: Numerous differences in UMDNJ and Rutgers processes and requirements often make joint efforts cumbersome; some themes that the Commission found are:
 - With no uniform administrative process to guide cross-institutional research, all issues are resolved independently and in an *ad hoc* manner. A particularly thorny issue has been the building of new facilities where disagreements between Rutgers and UMDNJ on responsibility for capital costs, debt servicing, maintenance, etc., have slowed progress and hindered collaborations.
 - Students in joint programs often have different benefits (e.g., Rutgers provides housing, recreation services, and parking, UMDNJ does not; Rutgers students pay student and computer fees, UMDNJ students do not, but often use Rutgers services).
- ¶ *Interactions with NIH and Federal agencies.* Federal agencies appear to be confused by the separate administrative structures at UMDNJ and Rutgers. This puts both institutions at a disadvantage in competing for federal program project and training grants. Faculty emphasized that their interactions with funding agencies were “awkward” given the lack of other institutions with a comparable “bizarre” structure and that reporting to federal agencies was much more complex for two institutions involved in a single project.
- ¶ *Grant management.* A number of faculty cite an overly bureaucratic and slow grant-management process; they noted that less centralization and a more responsive grants-management group would be welcome. For example, decisions on the rate of indirect costs returned to various units are not made transparent.
- ¶ *Hiring of new faculty.* Faculty recruitment is a challenge, in part because health-sciences recruits express a strong desire to be affiliated with a medical school and are concerned that collaborations with UMDNJ will be administratively complex.

- ¶ *Student issues.* Centralization has created problems for students and administrators; for example, conducting admissions for some programs centrally in New Brunswick has led to confusion for students and delays in processing. Also, having a single registrar located in New Brunswick has made cross-registration with UMDNJ and NJIT difficult to manage.

6.7 Funding

The Commission's analysis indicates that state support for Rutgers is at the low end of state universities, lags the Higher Education Price Index, and is a decreasing share of the state budget.

- ¶ State support for Rutgers is somewhat lower than top state schools.
- The state appropriation was \$6,097 per student (FY2002); total state appropriation was \$307 million for 50,349 students (total enrollment).⁹¹
 - State appropriations at selected state universities without an affiliated medical school per student for FY2001 were \$17,512 at UC Berkeley, \$11,648 at UC Santa Barbara, \$6,176 at UT-Austin and \$13,740 at University of Georgia.⁹²
 - State appropriations per student at selected Northeast state universities without an affiliated medical school \$10,518 at University of Maryland-College Park, \$4,425 for University of New Hampshire-Durham. For the University of Connecticut appropriations, excluding those for the medical school, were \$8,128.⁹³
- ¶ State appropriations have fallen short of the rate of inflation and the Higher Education Price Index (HEPI).⁹⁴
- ¶ The FY2001 state appropriation to Rutgers was \$311 million, compared to \$235 million in FY1990,⁹⁵ representing an annual growth rate of 2.6

⁹¹ Excludes appropriation to Rutgers Agricultural Experiment Station.

⁹² UC Berkeley (ranked first by *U.S. News* for undergraduates) has 31,401 students and receives \$549.9 MM in state appropriations; UC Santa Barbara (ranked 15) has 20,373 students and receives \$237.3M; UT-Austin (ranked 15) has about 49,000 students and receives \$302.6 MM; University of Georgia (ranked 18) has 31,288 students and receives \$429.9M; State appropriation amounts were obtained from the Grapevine Center for Higher Education and Educational Finance at the Illinois State University.

⁹³ University of Maryland-College Park has 34,160 students and receives \$359.3 MM in state appropriations; University of Connecticut (without the Health Center) has 23,178 students and receives \$188.4 MM; University of New Hampshire-Durham has 12,317 students and receives \$54.5 MM; State appropriation amounts were obtained from the Grapevine Center for Higher Education and Educational Finance at the Illinois State University.

⁹⁴ HEPI is an indicator of price changes for goods and services consumed by institutions of higher learning.

⁹⁵ State appropriation as stated in Rutgers financial reports.

percent. Over this same period, the Consumer Price Index (CPI) increased three percent annually and the HEPI increased 3.5 percent annually.⁹⁶

- ¶ The Rutgers share of the state budget has steadily decreased from 2.2 percent in 1990 to 1.55 percent in FY2001. The percentage of education and general costs supported by the state has decreased from about 63 percent to 57 percent between 1994 and FY2001, reflecting a statewide decline in funding for higher education.

⁹⁶ Enrollment increases and salary increases, based on state contracts, outpaced both the HEPI and CPI growth over this time.

7.0 RECOMMENDATIONS

7.1 Summary

The Commission was directed by the Governor to assess the quality and competitiveness of health education in New Jersey and pave the way for excellence. The Commission believes that New Jersey should aspire to be among the top 25 state health education systems given its wealth, spending on health education, and the great concentration of health science industry in the state. Based on the Commission's assessment, UMDNJ has made significant progress in establishing a health education infrastructure in New Jersey. However, it has not achieved excellence. The Commission's recommendations for how UMDNJ should move toward the goal of excellence focus on structure, leadership, strategic vision setting, processes, and funding.

With respect to structure, having carefully assessed the available options, the Commission believes that the best foundation for building excellence is a new state university system with three distinct and quite independent universities in Newark, New Brunswick/Piscataway, and Stratford/Camden. Throughout this document, we will refer to this new state university system as the University of New Jersey (UNJ) and its three universities as UNJ-North, UNJ-Central, and UNJ-South. The important task of selecting the name of the university system and the universities belongs to the university leadership and stakeholders. UNJ would not be a merger of one entity into another; rather it would be a restructuring of the three current research universities – UMDNJ, Rutgers, and the New Jersey Institute of Technology (NJIT) – into a single state university system.

The Commission's vision is to create a UNJ system with three highly autonomous universities. Each university would be led by a president who would have most governance and administration powers at that university. The three presidents would report to a chancellor who would have oversight over the entire system. Some of the chancellor's responsibilities would include hiring university presidents, writing the budget requests, approving new schools, system-wide planning, and relations with government and other external parties. The chancellor of UNJ would sit in a neutral location (e.g., Trenton).

In this model, the communities of Newark, New Brunswick/Piscataway, and Stratford/Camden would have their own independent universities. This model would increase university entrepreneurship and strategic control, enhance accountability and decision-making speed, guarantee ongoing local community linkages and stimulate economic growth in the local communities.

The Commission recognizes that a new structure is not enough. To build a foundation for excellence, the new university system must have inspirational

leaders. Further, it must incorporate the best practices with respect to strategic vision setting, processes, and funding that characterize the great schools. Indeed, these best practices are essential irrespective of the final structure of the university system.

We believe that this vision, although significantly shifting the status quo, will maximize the quality and competitiveness of health education while also improving the higher education system in New Jersey. While our initial focus was on the health sciences, the Commission believes that programs outside the health sciences will not experience negative effects from the restructuring. On the contrary, they have much to gain from this restructuring in terms of improved administrative processes and increased prominence of the university system. Further, we believe this vision is feasible given the foundation already existing in New Jersey. Clearly implementation of this vision will require extensive support and ongoing commitment from the Governor, legislators, and all other stakeholders in New Jersey. Given the tremendous potential benefits to all stakeholders (e.g., students, faculty, local communities, the broader New Jersey community, etc.) we believe that such support will be forthcoming.

This Report provides the Commission's guidance on elements of the vision for the new university. We have not attempted to create a blueprint for implementation. That should be the task of a Review and Implementation Task Force. We offer our thoughts on the composition of this Task Force and key issues for it to address in the final section of this Report.

7.2 Rationale

With respect to UMDNJ's structure, the Commission considered a range of options to improve the quality of health science education. These ranged from retaining and strengthening the current UMDNJ structure, to reorganizing UMDNJ, to merging UMDNJ into Rutgers, to creation of UNJ as a campus-based university. After due consideration of all the facts and views, and drawing upon the Commission members' expertise, the Commission concluded that the creation of UNJ would be the best solution for creating the foundation for a nationally reputed system. The Commission believes this solution will also have additional benefits for what is now Rutgers University in both its health and non-health related disciplines. More specifically we found that:

- ¶ UMDNJ's health education, training, and research quality is solid but not distinguished. Given New Jersey's resources and health care industry this should be significantly improved to give New Jersey the quality university system it deserves.

- ¶ The Commission does not believe that excellence can be achieved with the current structure in which centralized governance of most academic and operational university functions creates a one-size-fits all vision and inefficient administration.
- ¶ The Commission noted that there are many interactions between Rutgers, UMDNJ and NJIT faculty, in Newark, New Brunswick, and Camden but that these are hindered by differing administrative processes and requirements at the three institutions. These interactions and collaborations have occurred because the campuses of Rutgers and UMDNJ, and NJIT in Newark, are co-located in the same geographic area. These cross-school relationships are far stronger than the interactions among UMDNJ schools on the three campuses. Reorganizing the three current research universities into UNJ with universities in the North, Center, and South, would make for a far more effective deployment of resources being invested into these three institutions.
- ¶ Increasingly, interdisciplinary collaboration and flow of ideas (both within the life sciences and between life sciences and other disciplines) is essential to driving excellence in education and to creating a vibrant educational environment. The majority of top health science schools are affiliated with a comprehensive university where they can take advantage of such interdisciplinary collaborations and flow of ideas and most top comprehensive universities have medical schools.
- ¶ There are strong synergies in health and non-health areas to be gained from combining Rutgers, UMDNJ, and NJIT, particularly given the proximity of Rutgers and UMDNJ across the three geographic areas, and the close proximity of NJIT to both Rutgers and UMDNJ in Newark. Complementary graduate programs, faculty, and students, similar infrastructure (e.g., labs, equipment), and Rutgers' and NJIT's large undergraduate student pool make these three institutions natural partners.
- ¶ Campus-based governance appears to be essential to creating the institutional identity and competitive spirit necessary for academic excellence. The best state universities with multiple campuses are governed at the campus level (e.g., UC and UT systems). This system is also likely to attract the more entrepreneurial leaders who will see their university roles as significant.

7.3 Benefits

In addition to promoting academic excellence, the structure of UNJ would also address many of the system issues the Commission identified at UMDNJ. Below we list some of the main benefits that UNJ offers.

Benefits accruing to the entire university system include:

- ¶ Interdisciplinary synergies
- ¶ More robust graduate-undergraduate interactions
- ¶ More responsive administration
- ¶ More effective use of resources
- ¶ Stronger community relations
- ¶ Stronger corporate links
- ¶ Institutional identity, scope, and excitement

Benefits primarily impacting the health sciences include:

- ¶ Enhanced collaboration within health science disciplines
- ¶ Concentration of health sciences faculty
- ¶ Creation and enhancement of centers of excellence
- ¶ Increased attractiveness to New Jersey students
- ¶ Increased opportunity for attracting research funding

We discuss below in more detail each of the listed benefits.

Interdisciplinary synergies

Each university gains by being part of a comprehensive academic institution with offerings in both science and non-science fields. Increasingly, the sciences are reaching into the arts and social sciences and vice versa. The sharing and subsequent cross-pollination of ideas that pervades the top comprehensive universities is impossible to mimic in an institution focused narrowly on the health sciences. Similarly, the arts and social sciences stand to gain from this idea sharing through direct cross-disciplinary programs as well as more generally through being exposed to cutting edge scientific ideas.

- ¶ Most medical schools are part of a comprehensive university that teaches arts and social science in addition to the sciences – only eight of 74 public

medical schools are in freestanding health science universities and no medical school in a freestanding health science university ranks among the top 10 state schools.⁵⁴ In addition, 14 of the top 20 state universities have a medical school.⁸⁹

- ¶ Schools in disciplines other than health also benefit from having a health science component. Most tangibly, this is through the opportunities for interdisciplinary research – a trend which is gaining momentum nationwide – in areas like medical ethics (philosophy department), medical anthropology, history of medicine, social medicine, biostatistics, applied mathematics, computer science, artificial intelligence and others. Faculty have also expressed that being part of a university with a medical school increases the external stature of the university, which benefits their careers, faculty recruitment, and research opportunities.
- ¶ Based on its findings from top schools, the Commission believes that tenure and promotions processes that involve faculty from multiple disciplines introduced a degree of objectivity into the decision process. This objectivity serves to improve faculty quality. For example, one health sciences school leader commented that “there needs to be objective data that the faculty member is making substantial contributions, in a way that is understandable to an English or History professor, not just to a physician.”

More robust graduate-undergraduate interactions

Whereas today, UMDNJ offers largely graduate education, UNJ would bring together undergraduates and graduates in the same system. The 1998 Boyer Commission Report *Reinventing Undergraduate Education – A Blueprint for America’s Research Universities*⁹⁷ pointed to graduate-undergraduate interactions as one of the key building blocks for excellence. These interactions would have the beneficial effects on both student groups.

- ¶ Undergraduates would obtain more research opportunities earlier in their training, and all students could benefit from interdisciplinary programs. For example, at many comprehensive universities medical schools provide a significant proportion of laboratory space for undergraduate teaching.
- ¶ Undergraduate students would have increased summer and part-time work opportunities in laboratories and hospitals, earning money but more importantly, valuable experience.

⁹⁷ Commissioned by the Carnegie Foundation for the Advancement of Teaching.

- ¶ The Boyer report notes that today, even at comprehensive universities: “research faculty and undergraduate students do not expect to interact with each other, and both groups distinguish between teachers and researchers as though the two experiences were not inextricably linked. Even those students who encounter an introduction to research technique in one narrow field too often remain ignorant of how diverse fields overlap and intermingle.” The report goes on to conclude that:

The basic idea of learning as inquiry is the same as the idea of research; even though advanced research occurs at advanced levels, undergraduates beginning in the freshman year can learn through research. In the sciences and social sciences, undergraduates can become junior members of the research teams that now engage professors and graduate students. In the humanities, undergraduates should have the opportunity to work in primary materials, perhaps linked to their professors' research projects.

- ¶ Graduate students benefit from a comprehensive university through increased mentoring and teaching opportunities. These are critical in creating future scientists who are also inspiring teachers.

More responsive administration

Under the new system, the administration and support services would be more responsive to school and program needs, given geographic proximity and local university governance. This reduces inefficiencies for faculty and students that currently result from dealing with a distantly sited administration.

- ¶ Faculty would benefit from a speedier and more responsive process for grant administration and enhanced communications with administrators.
 - Each university would establish its own grants and contracts management office (with Institutional Review Board) and its own indirect cost rate.
 - Grants applications from faculty principal investigators would be processed through the university office for approval, rather than through the grants office in central administration. Grant monies would be disbursed directly to and managed at the university level. This process would increase transparency of services between administration and researchers.
- ¶ Knowledge sharing would be facilitated in a local university. School deans would have better access to information on budgets, faculty performance,

and research interests across all the schools as the university administration would be more focused on local need for information.

- ¶ Students at both institutions would benefit from having uniformity in academic requirements and services. For instance, graduate students would need to fulfill the same requirements (e.g., coursework, teaching) and would obtain the same benefits (e.g., health care, parking, library access, housing). Today the existence of two sets of rules on proximate campuses is particularly confusing to graduate students in joint programs.

More effective use of resources

State appropriations would be more effectively used in the UNJ system than they are today in supporting the three research universities. A single unified university administration would simplify processes for students and faculty across disciplines. Operations would also be more transparent to the faculty and deans. More effective resource use would allow for more focus on academics and less on administration. Some specific examples include:

- ¶ A single institution would bring greater efficiencies to services like security, purchasing, information technology, library, parking, etc. Where appropriate, the better of the two systems would be adopted. Shared services could be established where these avoid unnecessary duplication (e.g., inter-library loans system instead of duplicating full holdings).
- ¶ The physical plant would be used more efficiently through improved utilization and scheduling of teaching laboratories, and classrooms. Planning for new buildings and purchasing new equipment would also be more rational and significantly easier to coordinate. This would eliminate the current situation in which some expensive technology is going underused and thus more effectively deploy scarce state resources.

Stronger community relations

Three good universities with local governance may assist in community revitalization and may help increase the community's commitment to and support of the institution.

- ¶ A local university would stimulate economic investment in the community. The public hearings reiterated the economic importance of UMDNJ to the economies of the various communities that its schools touch. The Commission sees this impact as even greater under UNJ given that each university will be almost entirely independent with its own administration and services. On its visits, the Commission heard the

sentiment that a great school can be the pillar of its community by stimulating investment in infrastructure, encouraging small business, and creating jobs. UMDNJ estimates that it creates \$7 worth of economic impact for every \$1 of state appropriations.

- As one example, UNJ-North will continue to support the University Heights community and continue to contribute to local initiatives such as Council for Higher Education in Newark (CHEN).
- ¶ The community's voice would have greater resonance in a campus based system through representation on the Board of Advisors for each university which would include community representatives, business leaders, academic experts and alumni.

Stronger corporate links

The Commission's interviews of corporate leaders in the health sciences industry, revealed that UMDNJ's current academic status does not place it high on the list as an academic partner. Further, most of the corporate leaders were not fully aware of UMDNJ's capabilities and assets. However, they believed that an excellent health science facility would be quite likely to benefit from significant corporate relations. They also highlighted the need for such a university to identify clear areas of excellence in the life sciences to ensure strength in these areas.

- ¶ A clearly articulated focus on excellence at each university would over time create the quality of medical education and health care that pharmaceutical and biotechnology companies demand. In addition, UNJ will need to make an effort to understand business needs and structure value added arrangements to address these if it seeks to gain a larger share of R&D related dollars directed to academia than UMDNJ attracts today. In many top schools, joint ventures between science departments and pharmaceutical companies result in state-of-the-art laboratories and equipment, benefiting both parties.
- ¶ While pharmaceutical companies have global reach and do clinical trials in all parts of the country, UMDNJ attracts a total of only \$6 million dollars of clinical trial funds. The Commission believes that this could be substantially higher with a clearer, more determined focus on excellence in medical schools and residency programs.
- ¶ A corporate liaison and technology transfer office could be set up at each university to coordinate relationships between pharmaceutical and biotechnology companies and UNJ. This would be a "one-stop shop" for

industry-UNJ interactions. For example, there should be contract templates for clinical trials and other joint ventures, which could speed their launch.

Institutional identity, scope, and excitement

In UNJ's campus-based system, the local university, guided by its own mission and vision, would raise the level of identification with the institution among faculty, students, and community. With larger size and more comprehensive offerings as well as a system more comprehensible to outsiders, the universities would be able to establish their own unique identities and communicate this more effectively externally, much as in the UC and UT systems. Further, the campus-based system would promote healthy competition among universities spurring the drive to excellence.

- ¶ A local university vision would ideally energize the faculty and students and help attract quality faculty and ambitious administrators who may see a clearer path for advancement at a locally governed university.
- ¶ Campus-based systems promote healthy competition among campuses thereby contributing to long term enhancement of quality at UNJ. The examples of California and Texas, among others, illustrate the value of competition in building excellence as universities differentiate themselves by building on unique strengths and marketing their distinctiveness.

Enhanced collaboration within health science disciplines

Health sciences departments would benefit from further enhancement of existing interdepartmental collaborations and potential new collaborations. Departments offering the same programs and/or conducting research in the same areas could combine efforts.

- ¶ Over time, departments with similar research agendas would likely move closer together both academically and administratively. Over the longer run, these departments may choose to merge and relocate to a common space.
- ¶ With a unified university administrative structure, collaborations between faculty, which today are hampered by logistical and administrative problems, would be easier and hopefully, more frequent.
- ¶ Working with other scientists in close proximity promotes sharing of equipment and resources and provides more opportunities for training and knowledge building. State awards for equipment could be combined into

a larger pool that can be used to purchase state-of-the-art equipment that would be too expensive to purchase individually. While this occurs occasionally today, it is done on an *ad hoc* basis rather than systematically. In addition, faculty could hold joint seminar series, develop inter-departmental programs (e.g., joint graduate programs) or recruit students and faculty jointly.

Concentration of health sciences faculty

Bringing together the science departments of UMDNJ, Rutgers, and NJIT in this reorganization would improve the faculty profile for UNJ by creating a larger faculty with deeper expertise, which would attract quality scientists and students to the new University system. In addition, over time, faculty ranking would improve.

- ¶ A deeper pool of expert faculty would serve as a catalyst for recruiting new faculty. As the reputation of the programs grows, they would be more competitive in attracting top graduate students. Both these factors would positively impact educational and research quality and thus the university's reputation.
- ¶ In the near term, the union of UMDNJ, Rutgers and NJIT would increase the number of distinguished faculty at each university. However, the overall rank of health sciences faculty within the Association of American Universities (AAU) would not change. In New Brunswick, the combined UNJ faculty would be unchanged at 6th out of 34 public AAU institutions for number of Howard Hughes Medical Institutes investigators⁹⁸. UNJ-Central's ranking on the number of members in the National Academy of Sciences, a more general measure of faculty quality in the sciences would be unchanged at 13th out of 34 public AAU institutions.⁹⁹ Over time, we would expect these rankings would rise to reflect the increasing depth of the faculty.

Creation and enhancement of centers of excellence

The Commission heard consistently about the importance of developing several strong areas of focus. This means that each university would assess its strengths and local needs to create centers and areas of excellence. In particular, the

⁹⁸ Rutgers has three HHMI investigators and UMDNJ has two HHMI investigators; AAU is the Association of American Universities, consisting of the top 63 public and private universities in North America; membership is by invitation

⁹⁹ UNJ-North and UNJ-South would not have any faculty members in the NAS, IOM or HHMI within the health sciences community. UNJ-North would have one faculty member in the AAAS. In addition, there are faculty who have been awarded distinctions such as the Burroughs-Wellcome Award and the Pews Scholar Award.

Commission would urge each university to seek out its own core strengths and to identify cutting edge areas in which it would aim to be exceptional.

- ¶ Several centers of excellence exist today at some of the campuses of UMDNJ and Rutgers (e.g., Center for Advanced Biotechnology and Medicine, Cancer Institute of New Jersey, Institute of Health, Health Care Policy, and Aging Research) – these centers would be strengthened in a campus-governance model as the resources and attention of the university would be focused on those pillars of its reputation.
- ¶ New centers or areas of excellence should be identified in the strategy setting process with a detailed plan to ensure that the university actually attains its goals. For example, UNJ-North might develop a cross-disciplinary center in urban studies, UNJ-Central might identify cutting edge pharmacology aimed at leveraging the newest thinking in genomics based sciences, and UNJ-South might expand and build on its cross-disciplinary research effort on aging.

Increased attractiveness to New Jersey students

A new university offering the full spectrum of undergraduate studies and graduate medical and other health science education would draw those high school high achievers interested in a career in medicine or health science research. The aspiration should be to keep New Jersey's best and brightest in the state. The Commission believes that UNJ with its focus on excellent can accomplish this in time.

- ¶ Today, 57 percent of NJ's high school graduates who choose to go on to four-year colleges, leave the state. New Jersey ranks third in the nation for outmigration of high school students, following Alaska and Connecticut.¹⁰⁰ While some of this may be due to a lower than average number of university entering class slots for the population of high school graduates, it also appears that there is a perception of low quality of university education in the state is often the critical reason for the decision to leave the state.
- ¶ Nearly 80 percent of medical students leave the state for residency.¹⁰¹ While this is not solely related to quality (i.e., other factors may play a role such as availability of programs and personal preferences) – quality does play a critical role in medical graduates' choice of residencies. The

¹⁰⁰ New Jersey Commission on Higher Education – Office of Research and Policy Analysis.

¹⁰¹ Schools with data available for comparison are: UCSD, U. Washington, UTSW, U. Michigan.

Commission believes that an excellent medical school is the lynchpin of a great residency training program which attracts the most competitive students to stay in state. Those top students go on to become quality clinicians and researchers with loyalty to their home institution – a critical factor in retaining this group and in attracting external talent.

- ¶ Having a medical school as part of a comprehensive university would expose more undergraduate students to faculty and researchers in the health sciences and thus promote increased interest in these careers.

Increased opportunity for attracting research funding

The creation of separate universities bringing together two or three institutions will result in greater critical mass of faculty and should encourage greater inter-faculty collaboration. Over time, this should improve academic quality and attract NIH funds.

- ¶ The UNJ structure, would improve success in applying for funding from the federal government, particularly for program-project grants and training grants. UNJ would address this in two ways:
 - Critical mass: Joining faculty at Rutgers and UMDNJ into one institution would bring together related expertise and make for more successful applications for grants. The NIH requires a single sponsoring institution for program-project and training grants and today often neither Rutgers nor UMDNJ alone have sufficient depth of expertise and required track record to qualify individually. The result is that training grants today at NJMS and RWJMS average ~\$240,000¹⁰² while the top 10 state schools average \$7.2 million. NIH does not understand or make exceptions for “bifurcated” institutions, which puts UMDNJ-Rutgers collaborations at a disadvantage in the grant award process.
 - Administrative hassles: When collaborators at the two institutions apply jointly for grants, they encounter bureaucratic hassles at the university level (e.g., grant application process at two administrations) and competing priorities (e.g., which school receives credit, proper division of indirect costs generated) which sometimes lead to application delays and failures.

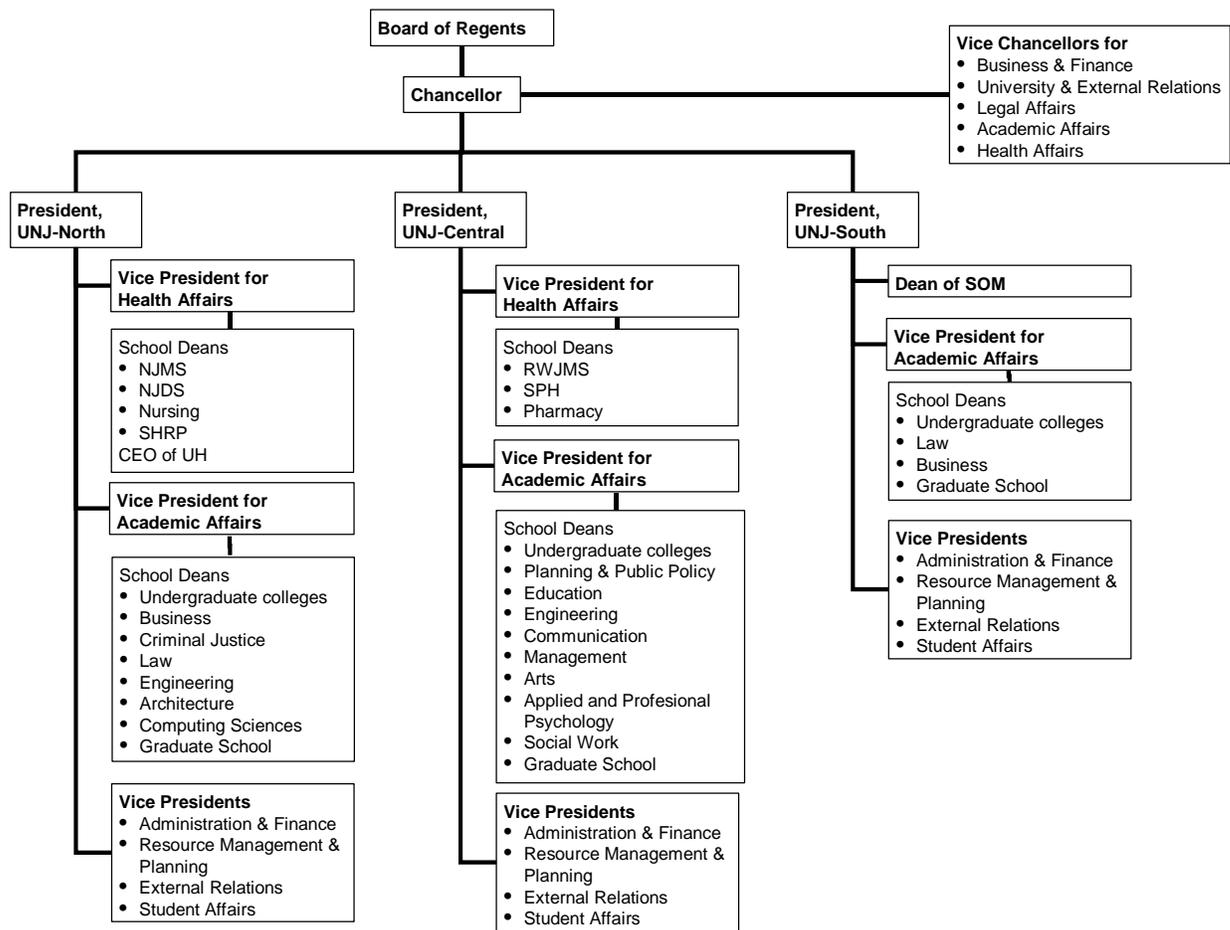
¹⁰² In FY2001, RWJMS received \$222,087 and NJMS \$251,804 (ranks 81st and 80th respectively) in training grants according to the NIH.

- Financial disincentives: When faculties from two institutions apply for a program project grant, the lead institution receives direct and indirect grant funding. It then keeps the indirect portion for its administration, and shares the direct component with its partner. However, this partner must use their share of the funds for both direct and indirect costs, thereby reducing funds going directly to the researchers. This creates a significant economic disincentive for the partnering institution to participate in what is a complex and administratively onerous grant process.
- ¶ The short-term impact on UNJ’s rank and reputation would not be significant. UNJ-Central would fare best among the three universities, at about 48th among all research institutions for federally financed R&D expenditures. This rank improves somewhat on the current ranks of 74th for UMDNJ and 71st for Rutgers (includes all three campuses).¹⁰³ UNJ-North would benefit from the combined funding of UMDNJ, Rutgers, and NJIT, improving its ranking to 98th (NJIT today is 162nd). Over time, the expectation is that NIH ranking would improve.

7.4 Structure and governance

Based on the example of other top schools such as UC and UT, the Commission recommends that the three universities of UNJ have significant academic and administrative autonomy. The primary reporting would be to the university President with oversight from the Office of the University Chancellor on system-wide and major university issues. A Board of Regents would have ultimate governance authority over the system. We would advocate that the Office of the University Chancellor be located in Trenton to be closer to the legislature and to maintain neutrality *vis à vis* the universities. A potential structure for UNJ is shown below:

¹⁰³ The current ranks are for all eight UMDNJ schools and the three campuses of Rutgers. Current federally financed R&D expenditures for UMDNJ (FY2000: \$75.3 million) and Rutgers (FY2000: \$79.7 million) were allocated to UNJ campuses as follows. For UMDNJ, total R&D expenditures for each of its eight schools was assigned to the campus where the schools central offices stand (e.g., North: NJMS, NJDS, SHRP, SN and GSBS; Central: RWJMS-Piscataway and SPH; South: RWJMS-Camden and SOM). For Rutgers, total federal R&D expenditures for each campus in FY2000 were about \$6.6 million in Newark, \$71.7 million in New Brunswick, and \$1.4 million in Camden. Based on this, UNJ-North federal R&D expenditures would be about \$38.2 million, placing it at 115th. UNJ-Central would be about \$111.7 million, placing it at 48th and UNJ-Camden would be about \$5.2 million, placing it below 200 among all research institutions. Data is from UMDNJ Treasurer and Rutgers University Budgeting.



To highlight the difference in the proposed campus-based governance from today’s structure, we outline the potential roles and responsibilities of the central administration (Office of the Chancellor) and the universities. A final decision on allocation of responsibilities, including the important power of raising capital funds through issuance of bonds, should be made by the Review and Implementation Task Force.

¶ *System Administration (Office of the University Chancellor).* This central administration office would be responsible for system coordination and external relations functions that could include some or all of the following:

- Hiring university presidents.
- Making final determination on major university proposals such as new schools, large capital investments, or significant budgetary increases.
- Auditing of university and system budgets.

- Coordinating among universities on system wide issues (like negotiating system wide labor contracts, administering/overseeing system wide policies like intellectual property policies, etc.).
 - Investment of endowment (most fundraising and development activities would be held at the university level).
 - Providing legal services for system, universities, and schools.
 - Representing the system in statewide academic initiatives or partnerships.
 - Maintaining external relations including relations with state and federal government, and accreditation bodies.
- ¶ *University administration.* The three universities would each have leadership teams and administrative offices and would hold academic and operational autonomy for the following:
- Setting and implementing academic strategy through committees comprised of university/school leadership and faculty.
 - Allocation of resources based on priority areas and longer-term strategic planning.
 - General administrative services, including decision-making on processes that best suit needs of university/schools.
 - Overseeing compliance with variety of laws and university policies such as discrimination, harassment, affirmative action, record keeping policies as well as accreditation requirements.
 - Maintenance of operations and plant, and investments for capital improvements.
 - Relationships with industry, specifically cultivation and management of partnerships with pharmaceutical, technology and business enterprises.
 - Philanthropic activities through university-specific Board of Advisors/Overseers consisting of community and business leaders.
 - Development of community partnerships and support.

7.5 University profiles

In this section, we briefly describe each of the universities in terms of their size and composition of schools and programs. We have also tried to highlight the health

science related implications and synergies. However, we leave it to the Review and Implementation Task Force to define the specifics.

UNJ-North (Newark)

¶ *Description.*

- Total campus enrollment (combining UMDNJ, Rutgers, and NJIT) would be 21,442 students with 8,681 undergraduates and 12,761 graduate students.
- The campus would be 145 acres and consist of 69 buildings; former UMDNJ, Rutgers, and NJIT campuses are located in close proximity in Newark.
- Schools may include Architecture, the Faculty of Arts and Sciences, Business, Computing Science, Criminal Justice, Dentistry, Engineering, the Graduate School, Law, Medicine, Nursing, and Health Related Professions.
- The Commission sees UNJ-North as building on and enhancing the historic Newark agreements by giving the Newark community a larger and more robust autonomous campus comprising the current UMDNJ, Rutgers, and NJIT.

¶ *Impact of NJIT.* At UNJ-North, UNJ will greatly benefit from strong synergies with NJIT. NJIT is an important partner due to increasing interactions between the fields of biology, engineering and computer science. As well, there are several existing academic partnerships between UMDNJ, Rutgers, and NJIT. The following brief profile of NJIT¹⁰⁴ highlights some of the many contributions NJIT will make to UNJ-North.

- NJIT, a state research institution, would bring a diverse array of programs in engineering and applied sciences and a competitive pool of students; its 8,862 students include 3,164 graduate students in engineering and applied sciences. NJIT's organizational structure is outlined in Appendix 3.
- NJIT currently offers a number of joint programs with Rutgers (in biology, history, applied physics, and mathematical sciences) and UMDNJ (in nursing and biomedical informatics) and with both institutions (in public health).

¹⁰⁴ Publicly available and NJIT-provided data.

- NJIT would add about 200 graduate students in health-related science programs (e.g., bioengineering, chemical engineering, public policy).
- Undergraduate student quality appears roughly comparable to Rutgers: acceptance rates of 57 percent for undergraduates and average SAT score of 1145 (versus an average SAT score of 1180 for Rutgers).
- NJIT would contribute \$191 million total revenues (FY2001) to UNJ including \$67 million in state appropriations and \$48 million in grants and contracts.

¶ *Implications and issues for health sciences.*

- The key strength of this university in the near term would be science, technology and health with an emphasis on urban studies (e.g., from health to urban studies in law to criminal justice).
- Program synergies between UMDNJ, Rutgers and NJIT: Schools and programs with similar offerings could capitalize on academic synergies, could build on existing collaborations and would have a single administrative and operational umbrella under the unified structure. Potential school and program implications are discussed below:
 - Biomedical sciences: Graduate programs and departments with research synergies could develop closer and more frequent collaborations. These could potentially be re-organized within the health affairs enterprise (under the relevant health science school) rather than being in a separate school.
 - . The Integrated Neurosciences graduate program that is currently jointly administered between UMDNJ and Rutgers could be fully integrated under UNJ.
 - . The Federated Department of Biological Sciences between Rutgers and NJIT could be fully integrated under UNJ.
 - . Non-joint programs could initially be kept separate, and later would likely merge organically. For instance, the research interests of faculty and students in the Department of Biological Sciences at Rutgers-Newark partially overlap with the basic science departments at New Jersey Medical School (e.g., neural modeling).

- . Given the growing ties between the fields of health sciences and computer sciences and engineering (e.g., informatics and bioengineering), joint initiatives between UMDNJ, Rutgers, and NJIT in these areas could be brought together under UNJ.
- . The single administrative umbrella could also promote research collaborations and the sharing of resource and equipment between UMDNJ and Rutgers health science departments.
- Nursing: University leaders should consider merging the UMDNJ and Rutgers Schools of Nursing in Newark, and the programs of NJIT and should evaluate duplicate program offerings and courses. Currently some programs are offered by both institutions:
 - . The master’s program for advanced practice nurses in specialties such as family care, women’s health and psychiatric/mental health nursing.
- School of Health Related Professions: Allied health programs at Newark should be evaluated by university and school leadership. Some SHRP programs may be judged as too small to permit high quality education (e.g., fewer than 10 students).
- School of Public Health: The current administrative center for the school is located in New Brunswick. UMDNJ, Rutgers and NJIT offer a joint Master’s in Public Health program in Newark. While the Review and Implementation Task Force should make the final determination on whether the State of New Jersey needs two (or three, counting the small program in Stratford) schools of public health, the Commission reiterates its belief that to create excellence, it is essential to build critical mass and a full breadth of program offerings in one location before considering new schools.

UNJ-Central (New Brunswick/Piscataway)

¶ *Description.*

- Total university enrollment (combining UMDNJ and Rutgers) would be 36,793 students.
 - 28,351 undergraduates and 8,442 graduate students.

- The campus would be 2,203 acres and consist of 650 buildings; some former UMDNJ and Rutgers campuses would be co-located (e.g., Busch campus in Piscataway and New Brunswick programs) and others would be about three to five miles from one another.
- Schools include Arts, the Faculty of Arts and Sciences, Applied and Professional Psychology, Communication, Information and Library Studies, Education, Engineering, the Graduate School, Management and Labor Relations, Medicine, Pharmacy, Planning and Public Policy, Public Health, and Social Work.

¶ *Implications and issues for health sciences.*

- The key strength of this university would be basic sciences research building on existing strengths in the health sciences (e.g., medicine, pharmacy, basic sciences) and other academic disciplines that benefit the health sciences (e.g., public policy, engineering).
- Program synergies between UMDNJ and Rutgers: Schools and programs with similar offerings could capitalize on academic synergies by further developing existing collaborations and would have a single administrative and operational umbrella under the unified structure. For example:
 - Biomedical sciences: Without the administrative challenges imposed by two institutions, faculty and students would benefit from enhanced research and educational partnerships. This could be done under the umbrella of the health science schools or in the cases of basic non-health related research under the aegis of the Graduate School, without a separate School of Biomedical Sciences.
 - . The joint Molecular Biosciences, Physiology and Neurobiology, Toxicology, and Biomedical Engineering graduate programs in New Brunswick could be fully integrated administratively and academically under UNJ. Currently students enter into a joint program, but have different regulations (e.g., teaching assistantships, fellowships) and derive different benefits (e.g., parking, housing) based on the choice of a Rutgers or UMDNJ advisor for their thesis laboratory.
 - . UMDNJ and Rutgers health science departments could build on existing collaborations and proximity (e.g., Rutgers and UMDNJ buildings are co-located on the Busch campus). The Rutgers

Division of Life Sciences (Dept. of Genetics, Cell Biology and Neurosciences, Molecular Biology and Biochemistry) could work even more closely with the RWJMS departments (Biochemistry, Molecular Genetics and Microbiology, Pharmacology, Physiology and Biophysics, and Neuroscience and Cell Biology).

Overlapping departments (e.g., Biochemistry, Cell Biology) could be operated separately (e.g., own Chairs, administrative offices) but may evolve into a unified department with time.

- Pharmacy: Medical school and UMDNJ basic science faculty could develop more and closer interactions with the Rutgers School of Pharmacy enhancing this program's focus on cutting-edge pharmaceutical technologies and enabling potential partnerships with the pharmaceutical industry.
 - . The Pharmacy program offers competitive undergraduate and graduate programs and has several departments conducting basic sciences research in areas of overlap with RWJMS faculty (e.g., chemical biology, pharmacology).
- School of Public Health: Currently UMDNJ's SPH centered in New Brunswick administers programs in Newark and Stratford as well. University leadership will need to resolve the status of the programs located at other universities within the re-organized structure. Public health faculty and students can build on current interactions between institutions (e.g., program run by UMDNJ currently, but has 15 Rutgers faculty and 21 Rutgers students).
- Nursing: Rutgers operates a nursing program in New Brunswick that is administered from Newark. The Review and Implementation Task Force should consider whether in aiming to create excellence in nursing education and therefore in nursing care in the state, it should focus its scarce resources on one school rather than spreading resources over two schools.

UNJ-South (Camden/Stratford)

¶ *Description.*

- Total university enrollment (combining UMDNJ and Rutgers) would be 5,656 students.
 - 3,677 undergraduates and 1,979 graduate students.

- This university is much smaller than the other UNJ universities and smaller than most campuses at top universities, which range from 15,000-50,000. However, there are small successful campuses like Washington and Lee University which has just over 2,000 students, the University of Texas-Tyler campus has 3732 students, the University of Alabama-Huntsville campus with 6754 students, and the University of Washington-Bothell campus has 1688 students.¹⁰⁵
- The campus would be 59 acres and consist of 35 buildings; former Rutgers Camden and UMDNJ Stratford campuses would be located about 20 miles from one another; in Camden, the former Rutgers campus and UMDNJ affiliated Cooper Hospital would be located about two miles apart.
- Schools would include Osteopathic Medicine, Law, Business and Faculty of Arts and Sciences, and the Graduate School.

¶ *Implications and issues for health sciences.*

- The key strengths of this university would be primary health care for health science and targeted areas of the liberal arts and professional schools (e.g., law and management).
- Program synergies between UMDNJ and Rutgers: Schools and programs with similar offerings could capitalize on academic synergies by further developing existing collaborations and would have a single administrative and operational umbrella under the unified structure. For example:
 - Biomedical sciences: The current Rutgers-Camden and UMDNJ-Stratford graduate biomedical programs (Rutgers-biology, chemistry, UMDNJ-molecular and cell biology) are small (e.g., 10 to 15 total students per year, with eight to 10 faculty in each department) and, at minimum, would need to work collaboratively to begin building critical mass. The reorganization would allow UNJ-South to be more competitive in attracting, developing and retaining top scientists since the university would offer them collaborative relationships across health and academic fields. Again, as in the other sites, these programs could be administered by the health sciences school – in this case, the SOM.

¹⁰⁵ 2001 figures.

- School of Health Related Professions: Joint Rutgers-UMDNJ physical therapy program in Camden would be administered by single entity, offering benefits in education and administration.
- Small programs: The University president and school deans could consider restructuring small programs at Stratford.
 - . Programs that are small in size (e.g., Public Health, SHRP, and Nursing currently with 10-15 students each in Stratford) should be reassessed. These could be expanded, moved to another campus, or administered by another campus.
- School of Osteopathic Medicine and Robert Wood Johnson Medical School-Camden: Today some students from Robert Wood Johnson Medical School do their 3rd and 4th year clinical rotations at Cooper Hospital and other institutions in Camden and southern New Jersey. While the intent of the campus-based model is to derive synergies from geographic proximity, the future of the current Camden satellite campus for Robert Wood Johnson Medical School would need to be carefully considered by the Review and Implementation Task Force and the campus Presidents. The Review and Implementation Task Force would need to fully assess the impact of its decision on the communities of Stratford and Camden, which today obtain essential health services from both schools.

7.6 Strategic vision

A key observation from the Commission's visits to top state schools was that they were led by strong visions both at the state and university level.

State level

A key to the success of the leading education systems is a rational plan for coordinating and funding the various levels of state schools from research universities to community colleges. New Jersey has a similar comprehensive education plan – *New Jersey's Plan for Higher Education* – last updated in 1999. If UNJ is to succeed, this plan needs to be adhered to.

- ¶ The Commission recommends that the New Jersey Commission on Higher Education have a stronger role in enforcing mission differentiation among the state universities and colleges in New Jersey and in setting the vision for education in New Jersey.

University level

The Commission believes that the excellence of top universities it visited began with a specific vision articulated at the individual university level. In many cases, this vision came from one or a small cadre of educators and/or leaders. Over time, all of these universities have institutionalized many of the practices and behaviors underlying the vision (e.g., strategic planning processes, mechanisms for retaining best students). Faculty and school deans at each university should have a fundamental role in strategic planning for their local university.

- ¶ The Commission recommends that each university of the University of New Jersey system assess its areas of current and future research strength upon which it will begin to build its reputation over the next decade.
- ¶ The Commission recommends that each UNJ university should begin by building the quality of its medical schools, as this will be the main driver of the Universities' reputation in the health sciences and have the largest impact in drawing top faculty and research funding.
- ¶ To ensure that appropriate strategies are being identified, the Commission would urge that strategic planning be done with full participation of school and department leaders at each university.

7.7 Leadership

The experiences of the top schools reinforced the need for leaders that are exceptional and not merely solid at the board, university, and school levels. It is also desirable to reduce the influence of politics in the system. Visionary and entrepreneurial leaders would be more likely to be attracted to the campus-based system where they can make their mark. Therefore, the Commission recommends that:

- ¶ *Board of Regents.* A Board of Regents for University of New Jersey should be created. It should include very prominent, highly accomplished community and business leaders with a commitment to higher education. These individuals should be appointed to a minimum eight-year term to promote knowledge and continuity in the system and to reduce undue political influence on the system. A portion of the board might be self-perpetuating to maintain political independence. In other top systems, Boards of Regents include chief executives of financial, telecommunications, retail and other businesses as well as prominent leaders in the professions like law, medicine, and academia. The Board should include alumni representation.

- ¶ *System Chancellor.* The chancellor of the UNJ system, selected by the Board of Regents, should be a senior, nationally recognized leader with strong academic credentials. For example, the current UC president is a former Director of the National Science Foundation and former chancellor of UCSD. At UT, the chancellor (system leader) was President of University of Minnesota and a prominent legal scholar.
- ¶ *University Presidents.* The university presidents, identified through national searches and selected by the chancellor with Board of Regents approval, should be nationally recognized leaders with a strong administrative record and significant academic accomplishments. For example, the UCSD Chancellor was previously Senior Vice Chancellor for Academic Affairs at UCSD, the Physics Department Chair, and Department Head at AT&T Laboratories. The UCLA Chancellor was previously Provost at Harvard and Dean of the Kennedy School of Government.
- ¶ *Deans of schools.* The deans of schools should be selected on the basis of their academic and administrative accomplishments and passion for motivating people to rally around their vision for the school. They will ideally have demonstrated transformational leadership ability at other schools. We cannot overemphasize the need for visionary school deans in the UNJ system.
- ¶ *University Advisory Boards.* A Board of Advisors (or Overseers or Visitors) should be formed to represent the voice of the community, external academic experts, business leaders, and alumni in the university and potentially in some schools. This board would not have governance responsibility. This board can be an important liaison to the community, a source of fundraising leadership, and a test bed for strategic thinking for the university and its schools. Most campus-based academic institutions have Boards of Advisors or Boards of Overseers to provide community and expert input to the university, offer introductions to potential donors, and promote the institution among the community.

7.8 Processes

To resolve some of the issues identified by the Commission in its assessment of UMDNJ's systems and selected Rutgers' systems, we recommend that the Review and Implementation Task Force consider the adoption of the following process reforms, as informed by best practices at top state schools:

- ¶ At the system level, create common reporting, budgeting, and record-keeping system to facilitate information access and sharing.
- ¶ Design a system-wide knowledge management function to allow fast and easy access to information (e.g., budgets, performance tracking, on-going research initiatives).
- ¶ On the university level, focus on recruiting high quality faculty with a strong track record of past accomplishment or demonstrated academic potential for the areas of research focus identified in the university and school visions.
- ¶ Create opportunities for faculty interaction to enhance knowledge sharing and collaboration (e.g., organize campus-wide seminars to share research findings).
- ¶ Enhance quality of UNJ applicants by closely tracking and seeking to attract top New Jersey high school and college performers.
- ¶ Retain/attract back top graduates by proactively forging bridges to such students prior to graduation and through regular follow-up afterwards.

7.9 Funding

Excellence in higher education begins with adequate funding. The state should consider the funds spent on education as a critical investment that will yield a two-fold return: a high quality workforce for the state, and over time, significant increase in federal and private research dollars for the state. The principles for state funding of the University of New Jersey should include adequacy, stability, predictability, and transparency. NJ should consider increasing spending for higher education and moving to a formula system to increase stability and reduce political influence over appropriations.

- ¶ *Funding level.* The Commission endorses the state's existing objective of funding two-thirds of educational operating costs for NJ students in state research universities¹⁰⁶ and 90 percent of costs for health science students.¹⁰⁷ This would, at minimum, reduce the tuition burden on UNJ

¹⁰⁶ Research universities which are to receive 2/3 of educational costs are Rutgers, and NJIT, while UMDNJ is to receive 90% of educational costs as outlined in the 1995 *Report of the Commission on Higher Education on Funding and Tuition Establishment*.

¹⁰⁷ The estimated cost of increasing funding to these levels would be approximately \$70 million if the tuition was reduced to covering 10 percent of total costs for health science students and 33 percent of total costs for general students and total current funding (tuition + state appropriations) remained unchanged. The state appropriation would be higher if there was a desire to increase total funding to the university.

students, and depending on state resources, may provide a guideline for increasing overall funding. In addition, the Commission recommends that the existing schools should not experience a decline in funding as a result of the restructuring.

¶ *Funding method.* Many top state schools originally determined their budgets with a formula that used the number of students, faculty-to-student ratios, local labor costs, infrastructure size and other inputs. Today, many of these schools base their annual budget requests on this historic amount plus an increase based on price indices and growth in student number.¹⁰⁸ Additionally, the universities request special appropriations for capital expenditures, and program expansions. The state appropriations are allocated to universities then schools based on their budgets with some discretion on the part of the system chancellor and university president to channel funds to reinforce strategic priorities. In general, the Commission supports the use of formulas to introduce an element of transparency and stability in the funding process and to minimize political influence. However, we recognize that funding requests are always subject to political realities such as state spending priorities and budget constraints. The decision on whether formula-based funding is the best option for UNJ should be made by the Review and Implementation Task Force. If a formula is chosen, it should be carefully constructed to incentivize the right priorities in the system.

7.10 Costs and Savings

The Commission's mandate was to recommend a model that improved quality of education. However, the Commission believes that while UNJ will likely require additional up-front funding, we recognize state resources for education compete with many other budget priorities. Therefore, our recommendations focus on the basic fundamentals of a new system that would accomplish the goal of excellence set out by the Governor. The detailed assessment of costs and savings should be the responsibility of the Review and Implementation Task Force, once a blueprint for UNJ is finalized.

¹⁰⁸ Universities of California, Michigan, and Washington base their budgetary requests on historic budgets plus formula supported increments while University of Texas and University of Virginia use a formula to determine the majority of their base funding.

8.0 ASSESSMENT OF THE UMDNJ-UNIVERSITY HOSPITAL RELATIONSHIP

8.1 Introduction

The Commission has been asked by Governor McGreevey to investigate the optimal relationship between University Hospital (UH) in Newark and UMDNJ and specifically to address the question of whether UH should be divested from UMDNJ. This section deals only with University Hospital; the Commission has not assessed and therefore offers no recommendation on hospitals affiliated with Robert Wood Johnson Medical School or the School of Osteopathic Medicine.

The one key finding that has emerged from our investigation of medical school-hospital relationships is that medical schools need a close and collaborative relationship with their principal teaching hospital to achieve excellence in education and research. Further, the Commission believes that University Hospital's commitment to caring for Newark residents regardless of their ability to pay should be maintained and strengthened. Both these issues can and should remain central to the hospital's mission regardless of its ownership. The actual decision on ownership should be made after a full assessment of the priorities and needs of the university, the hospital, and other key stakeholders.

8.2 Best practices in the medical school-hospital relationship

While multiple successful models exist (e.g., common ownership of medical school and hospital, separate ownership of medical school and hospital) the best practices for this relationship are largely independent of the hospital ownership structure. Strong leadership at the medical school is essential to implementing these best practices.

- ¶ Create alignment of academic and hospital mission by giving the medical school dean the ability to make decisions on certain key issues concerning the hospital. For example, leaders of nationally recognized health science universities indicated that the medical school should have decision rights for appointing service chiefs and reviewing performance. Some schools go further, ensuring that the dean of the medical school has significant say in critical hospital matters, including governance (e.g., strategic planning), leadership (e.g., power to appoint CEO), and budgeting (e.g., approval for budgetary allocation among departments) matters of the hospital.

- Academic Medical Center (AMC) experts concluded in a recent article that “a single point of authority for the medical school and the clinical enterprise . . . facilitates integrated strategic thinking . . . permits the resolution of conflicts between clinical and core academic missions at the appropriate level in the university . . . and it places the AMC in a more visible position within the university administrative structure.”¹⁰⁹
 - In campus-based institutions, this alignment is achieved with the position of vice president or vice chancellor of health affairs, who has authority for the medical school and the owned hospital. This is the case at top schools like UCLA, UCSD, University of Michigan, University of Washington, and University of North Carolina (UNC). In many cases, the vice president or vice chancellor position is the dean of the medical school (e.g., UCLA, UCSD, University of Washington, UNC, University of Maryland). The Association of American Medical Colleges (AAMC) notes that there is an increasing trend toward creating a single point of authority for the medical school and hospital; four schools – Miami, UCLA, Michigan, and Emory – have added a vice president health affairs position in the past five years.¹⁰⁹
- ¶ Ensure coordination in certain strategic areas. Examples include:
- Building selected key tertiary care capabilities to provide robust learning opportunities to students and residents, to recruit star faculty, and to differentiate the university hospital from nearby community hospitals. These services should reflect need in the community and build on existing areas of faculty and departmental strength (e.g., the Tuberculosis Center, trauma services at University Hospital). This strategy concentrates recruiting and fund-raising efforts and avoids spreading scarce resources too thinly across multiple clinical areas.
 - Agreeing on how to compete for private patients in the local community to bolster this critical revenue stream.
- ¶ Ensure there is transparency of reporting around agreed metrics to improve accountability and alignment in health care delivery, academics, and financial performance.

¹⁰⁹Cited in *Academic Medicine*, January 2001. At UCLA the position is Provost, Medical Sciences (filled by the dean of the medical school).

- ¶ Establish a hospital advisory board composed of the medical school dean, department chairs, business leaders, patient advocates, and community leaders.
- ¶ Select a hospital CEO who is committed to academic medicine and the educational mission, as the University of Maryland, among others, has done.

8.3 Options for ownership structure

Hospital and medical school relationships can be structured in several ways, though there also appears to be a trend toward separate ownership

- ¶ There are four models for the medical school-hospital relationship, each of which can be successful as demonstrated by case studies:
 - Common ownership of medical school and hospital by the university. At nine of top 10 state medical schools, the primary teaching hospital is owned by the university system. This is the case at UMDNJ-UH today. The joint ownership model maintains unity of academic and hospital missions but leaves the university ultimately responsible for the hospital's financial situation. In five of these nine, the hospital CEO reports to the vice chancellor or vice president of health affairs (who may or may not be the dean of the medical school).¹¹⁰ This arrangement, which helps enhance the alignment between the missions of the medical school and hospital, is increasing among academic medical centers, as noted above.
 - The main academic hospital is a state-owned corporation. This model places financial responsibility for the hospital with the state (not the university) while assuring the hospital remains focused on the needs in the community.
 - The University of Wisconsin, for example, spun off the university hospital to the state (in the form of a public authority) to increase its competitiveness in the local market. The UW Hospital and Clinics (471-bed teaching hospital, \$430 million FY2001 operating revenues) is run by a not-for-profit public authority established by legislation in 1996 with 13-member board (with three members appointed by the Governor). UWHC attempts to balance

¹¹⁰ UCLA, UCSD, U. Michigan, U. Washington, UNC. At UCLA, UCSD, U. Washington and UNC, the vice-president position is the dean of the medical school.

operational performance with the charity and academic missions. Charity care is central to its mission with a “commitment to provide . . . care to the medically indigent.” Close ties with the medical school are incorporated in the strategic goal that seeks to “unify the clinical and academic enterprise to speak with a single voice.” To ensure these ties, the board includes the dean of medical school, the chancellor of the Madison campus, two faculty members, and three members of the board of regents. Additionally, the legislation spells out mandated areas of cooperation (e.g., the hospital continues to fund UW-Madison’s medical activities, both parties plan strategy and research direction, both use the Foundation for fund-raising and the public affairs office for external relations).¹¹¹

- The main academic hospital is a private, not-for-profit, or 501(c)(3) organization. This is the case at the primary teaching hospitals of the Robert Wood Johnson Medical School – RWJ University Hospital and Cooper Hospital. This model removes responsibility for hospital finances from the university and the state. The academic and charity missions may be partly preserved through contractual agreements.
 - An example is the University of Maryland, which spun off the University of Maryland Medical System in 1984 because of financial losses at the hospital and a belief that the university and the state were not effective managers of the hospital. The state transferred the assets of the hospital to a private 501(c)(3) corporation. Today, the board of the Medical System (6 hospitals, 1,591 beds, ~\$1 billion FY2001 revenue) is ratified by the Governor and must include the Dean of the medical school and the university Chancellor. In an effort to ensure a close working relationship, contractual provisions specify the powers of the medical school. For instance, the Dean of the medical school and the hospital CEO jointly appoint hospital service chiefs. The university has to approve the choice of hospital CEO. The Medical Center continues to pay the medical school for physician administration and supervision. There is a provision for collaborative strategic planning with arbitration procedures and veto powers in place in case of disagreement. However, effective collaboration is “about

¹¹¹ University of Wisconsin Hospitals and Clinics Board publicly available materials.

the people – you never want to rely on the veto to make decisions.”¹¹²

- The hospital is a private, for-profit institution. This model removes all responsibility for the hospital from the university and the state. It is also likely more difficult to fully incorporate the academic and charity missions into the core objectives of an investor-owned entity. None of the 21 state medical schools included in *U.S. News & World Report’s* list of the 50 top medical schools for research were owned by a for-profit organization.
- ¶ Over the past eight years, separate ownership has increase nationally, although the top public systems continue to own their hospitals.
 - In 2002, 34 percent of principal AMC teaching hospitals surveyed by the AAMC (42 of 125 hospitals) were owned by the same university system as the affiliated medical school. In 1994, 53 percent of hospitals (62 of 118) had common ownership.
 - In 2002, 41 percent of public principal AMC hospitals – 30 of 74 hospitals – had common ownership with the medical school, down from 66 percent in 1994, when 39 of 59 public AMC hospitals had common ownership.
 - The university systems of nine of the top 10 public medical schools, as ranked by *U.S. News & World Report* in 2002 own their principal teaching hospitals (i.e., UCSF, U. Michigan, UCLA, U. Washington, UCSD, UNC, UVA, UAB, U. Iowa); UTSW rounds out the top 10 public medical schools, but Texas law prohibits the university system from owning a hospital.¹¹³

8.4 Potential decision criteria and assessment of UMDNJ-UH situation

Given the existence of multiple successful models and the large number of stakeholders in AMCs, a decision on changing the ownership structure of University Hospital should be based on the following considerations:

- ¶ Financial risk at UH today and in future.
- ¶ University and state subsidies required by UH.

¹¹² Interviews and publicly available documents.

¹¹³ Galveston is the exception.

- ¶ Reporting structure vis-à-vis the Dean of New Jersey Medical School.
- ¶ Impact on UH charity care mission.
- ¶ Impact on medical school's educational mission.
- ¶ Capital investment required for divestiture.
- ¶ Impact on community employment.
- ¶ Time and management effort required for change.

A brief analysis of these issues at UH and NJMS reveals the following:

- ¶ *Financial risk.* University Hospital in Newark is profitable today but, like most hospitals in the nation, faces rising medical costs and constraints on key funding sources, which will create significant challenges.
 - In the past two years, UH has improved its bottom line and is once again profitable: after losses of \$10.9 million in FY1999 and \$6.3 million in FY2000, UH gained \$0.5 million in FY2001 and expects a \$3.3 million profit in FY2002; UH had total margins of 0.1 percent in FY2001 and forecasts margins of 0.9 percent in FY2002.¹¹⁴
 - UH's turnaround was largely because of improved financial controls and management, better billing and follow-up procedures, and improved documentation of and reimbursement for charity care, according to the UH CEO and CFO. These changes are expected to stabilize operations if external circumstances do not worsen.
 - Critical sources of revenue at UH are currently predicted to remain stable for the near future, though they are subject to future fluctuations in state spending on charity care.
 - Charity care and hospital relief fund subsidies accounted for 20 percent of revenue at UH in FY2001 and are expected to be 21 percent in FY2002. At UH, the self-pay portion of revenue has been 27 percent in FY1997, 24 percent in FY1998, 32 percent in FY1999, and 26 percent in FY2000.
 - The state charity care pool is about \$380 million for FY2002 (including the Supplemental Charity Care Subsidy fund)¹¹⁵ and is

¹¹⁴ Based on revenues of \$364 million in FY2001 and expected revenues of \$373 million in FY2002.

¹¹⁵ Charity care spending was ~\$355 million in FY2001 (2001-02 increase was seven percent).

expected to remain flat or increase slightly in the near future, according to the Department of Health and Senior Services. However, this funding could decrease based on the state's fiscal situation. In addition, UH's share could decrease if other New Jersey hospitals increase their share of providing documented charity care.

- Given pressures faced by providers nationwide (rising costs of pharmaceuticals, labor, and technology, as well as increasing constraints on Medicaid and Medicare payments), positive margins cannot be guaranteed in the future.
- Two of four Newark hospitals lost money in 2000. Operating margins for CY2000 were: 3.9 percent for Cathedral (includes St. Michael's and St. James), -13.5 percent for Columbus, -3.4 percent for Newark Beth-Israel, and 0.5 percent for UH.

¶ *Subsidies.* At present, UH is making a profit and does not receive operational subsidies from the state or UMDNJ.

- Amounts currently received from the state are:
 - UH received \$85 million for charity care¹¹⁶ and \$17 million for hospital relief¹¹⁷ in FY2002 – these amounts are determined by actual care provided and do not represent operational subsidies.
 - Today, UH receives two payments for services rendered from the state. These are not subsidies but funds that UH's competitors do not receive:
 - . Fringe benefits for UH employees (\$52 million according to the UH Chief Financial Officer), because UH staff are state employees (part of University)
 - . Appropriation of \$800,000 for Camden EMS program. This is a grant for providing ambulance services to the underserved Camden region.

¹¹⁶ Department of Health and Senior Services.

¹¹⁷ University Hospital figure for the amount received from the state's Hospital Special Relief Fund.

- UMDNJ has not had to subsidize UH since FY2000. UH expenses that are paid for by central administration are allocated back as costs to be paid for in full by UH. UMDNJ did subsidize UH’s losses in FY1999 and FY2000; additionally, UMDNJ or its successors risk having to underwrite the hospital were its financial performance to deteriorate.
- ¶ *Reporting structure.* As indicated earlier, the best practice is for the CEO of an owned teaching hospital to report to a Vice President or Vice Chancellor of Health Affairs, a title often held by the dean of the medical school. However, since UMDNJ does not have a vice chancellor position in its centralized structure, the UH CEO should report to the Dean of the New Jersey Medical School. (Until recently, the UH CEO reported to the Senior Vice President for Administration and Finance for financial matters and to the Dean of the New Jersey Medical School on academic matters). This dual reporting relationship did not foster alignment between the hospital’s educational and fiscal missions and hindered transparency on hospital finances and capital investments. This arrangement – rare at top schools – ended with the departure of the SVP for Administration and Finance.
- ¶ *Charity care.* The Commission feels that UH’s commitment to the community must be ensured and cannot be compromised by the ownership option chosen.
- UH provides 69 percent of charity care in Newark – which makes it by far the leading provider for the indigent population in the city – and 22 percent of charity care in New Jersey.¹¹⁸ On average, public academic hospitals provide 31 percent of charity care in their community, which underscores UH’s important role.¹¹⁹
 - Divestiture options that do not include significant state control of UH (e.g., selling UH to a private buyer) may lower the amount of charity care provided if hospitals eliminate unprofitable services or “stick to the letter” of law when it comes to charity care. National data indicates that private AMCs provide less charity care (13.8 percent of admissions in 1996) than publicly owned AMCs (36.4 percent of admissions).
- ¶ *Education mission.* Divesting UH would weaken the alignment in educational mission between the medical school and the hospital, although

¹¹⁸ Department of Health and Senior Services.

¹¹⁹ 1996 data from the Commonwealth Fund Taskforce on Academic Medical Centers (April 2001 report).

safeguards can be written into contractual agreements (e.g., dean of medical school appoints service chiefs, the hospital CEO has significant AMC experience).

- ¶ *Capital investment.* Regardless of ownership structure, UH will require a significant infusion of capital to improve its ability to serve the community under any form of ownership.
 - Capital investment in UH has been low compared to national standards:¹²⁰
 - FY2002 additions to Plant Fund were \$15.5 million, which is below the \$16.8 million depreciation level.
 - Average age of plant has increased to 12.7 years versus 8.7 – the 50th percentile nationally.
 - UH's ratio of Depreciation to Total Expense is 3.5 percent compared to New Jersey median for major teaching hospitals of 5.1 percent.
 - As one member of the medical school faculty said, “It’s a 1970s hospital. The recent purchase of new anesthesia machines was the first investment in years.”
- ¶ *Impact on community employment.* Today UH is a major employer in Newark and an important contributor to economic stability in the community. Changes in ownership structure would need to be assessed in light of their impact on total jobs in Newark.
- ¶ *Risk of distraction.* The time and management effort required for change may be significant, potentially distracting leaders from the academic mission. At the University of Maryland, divestiture of the hospital took 18 months to complete and required the use of consultants and an extensive appraisal of stakeholder impact.

8.5 Recommendations

The Commission recommends that UMDNJ (and later UNJ) retain ownership of UH for the time being and monitor how UH’s performance is affected by the new university and the change in reporting.

¹²⁰ Data from UH.

This recommendation reflects the key findings in our assessment of the current situation facing UH and UMDNJ:

- ¶ The proposed new university, with an autonomous university in Newark, will invigorate the University Hospital and the community.
- ¶ Nine of the 10 top medical schools' principal teaching hospitals are owned by a university system.
- ¶ Recent operational changes instituted by UH and UMDNJ leadership have improved the hospital's financial performance and it is currently profitable.
- ¶ Based on the national trend toward giving one person authority over the medical schools and its affiliated hospital, we would expect the new reporting arrangement at UH (CEO reports to Dean of New Jersey Medical School) to enhance clinical and academic performance of the hospital.

Importantly, the Commission recognizes that medical costs are rising and threatening hospital margins nationwide. We are therefore concerned about how the University of New Jersey-North would be affected by any future financial downturn at UH. We believe the state's commitment to the university must be steadfast; were losses at UH to mount, the university and the state should consider a separate ownership structure.

Under current ownership, the Commission further recommends the following:

- ¶ Formalize the reporting of CEO of University Hospital to the Dean of the New Jersey Medical School within the university structure for the time being. This will ensure consistency in the academic, community service, and fiscal missions of the hospital and the medical school. The leadership of the Newark university of the University of New Jersey should periodically review this reporting structure to ensure its effectiveness.
- ¶ Implement the best practices detailed above to improve medical school-hospital mission alignment, to distinguish University Hospital from community hospitals, and to increase accountability and transparency of decision making.
- ¶ Make the required capital investments to upgrade plant and invest selectively in specialty equipment to build on areas of clinical strength.
- ¶ Reassess ownership options should the fiscal situation at UH change or should the new state university request a reevaluation of the status quo.

If in the future, separating the hospital from the university emerges as the favored option, the following steps would need to be taken to ensure a robust solution:

- ¶ Create a dedicated group of experts to fully assess the options and impact on stakeholders.
- ¶ Ensure that best practices for medical school-hospital relationship are incorporated into the new structure through contractual arrangements (e.g., establish the NJMS educational mission at the forefront of UH's care delivery).

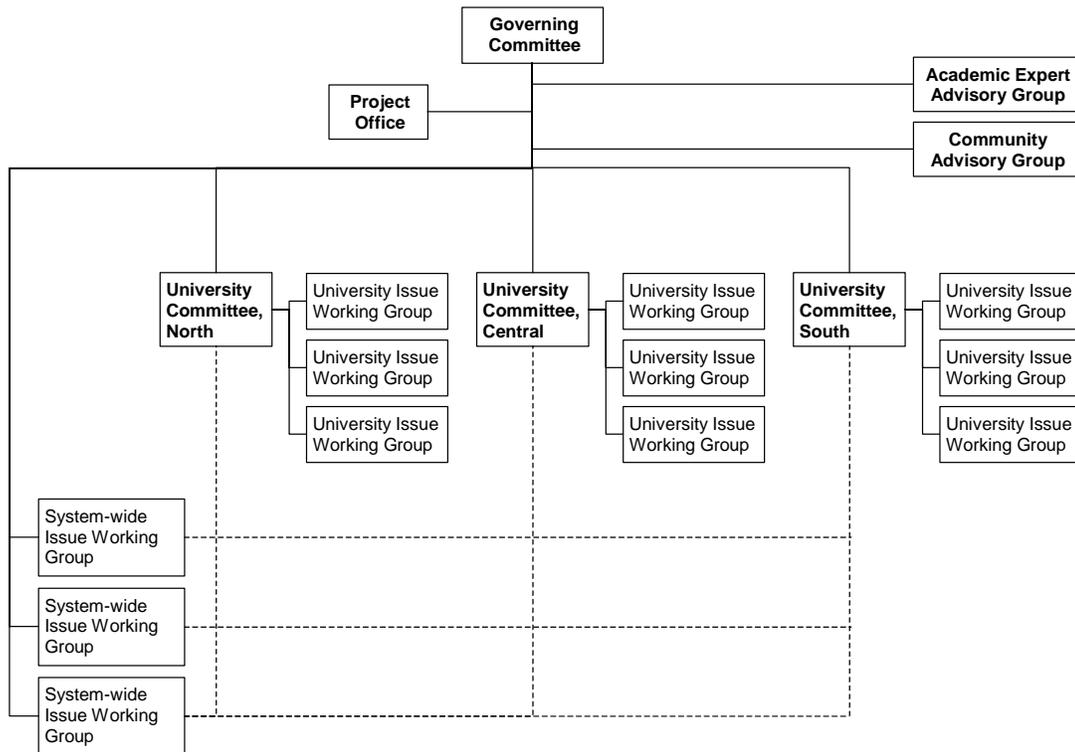
9.0 IMPLEMENTING THE VISION

The Commission has made recommendations to the Governor which frame the general principles for establishing the University of New Jersey (UNJ). Upon independent review of the recommendations, the Governor will decide whether further study is necessary before the vision can be implemented. If the recommendations are accepted, a detailed investigation will be needed to respond to the recommendations and to create a comprehensive plan for the restructuring. To this end, the Commission recommends the formation of a dedicated Review and Implementation Task Force (the Task Force) to consider the impact on all the participating institutions and draft a blueprint for the new university system. There will be barriers to overcome, which will require continued support from proponents of the vision and stakeholders. We propose a goal-oriented yet collaborative process to detail a vision that we hope will galvanize the citizens of New Jersey around the common goal of building the foundation for a public research university system of the highest caliber.

9.1 Review and Implementation Task Force

Because the intent of this Report is to provide a framework and guidelines for the structure of UNJ, should the Governor accept these recommendations, the Commission recommends the establishment of the UNJ Review and Implementation Task Force. The Task Force's charge would be to review the impact of the Commission's recommendations on the three institutions and their health and non-health schools and to create a comprehensive plan for the restructuring. The Task Force will be asked to deliver to the Governor a proposed work plan within thirty days of organization and the assessment and implementation plan within 12 months. The Commission recognizes that the actual restructuring will likely be a several-year effort. The Task Force should outline a staged plan including, actions required, a timeline for actions, specific milestones and responsibilities. We recommend a three-tiered structure for this Task Force, including a Governing Committee, which reports to the Governor, three University Committees, and two types of Issue Working Groups. University Issue Working Groups would support each University Committee while System-wide Issue Working Groups would address cross-cutting issues affecting the entire system. A Project Office would serve to coordinate the University Committees, University Issue Working Groups and System-wide Issue Working Groups. Advisory Groups of academic experts and community members will be formed to offer valuable perspective to the Committees.

The suggested composition of the Task Force is outlined in the following organizational chart. The roles are described below.



Governing Committee

The role of the Governing Committee would be to set the vision and mission for UNJ consistent with the guidance of this Commission, to monitor progress and to review and approve all recommendations of the University Committees and System-wide Issue Working Groups. This Committee would also advise the Governor on the governance of the new university and the transition from current governance structures at UMDNJ, Rutgers, and NJIT. The Governor should receive quarterly updates on findings and progress.

- ¶ Suggested members include the Presidents and Chairs of the Boards of Trustees of UMDNJ, Rutgers and NJIT, as well as the Chair of the Board of Governors of Rutgers. The Governing Committee should also include six to seven outside experts with extensive experience leading academic institutions.

University Committees

There will be three University Committees, one for each university: North (Newark), Central (New Brunswick/Piscataway) and South (Camden/Stratford). The role of each University Committee would be to:

- ¶ Select and manage the Issue Working Groups.
- ¶ Make recommendations to the Governing Committee.
- ¶ Prepare the academic and operational restructuring plan.
- ¶ Compile the final organizational and governance structure.
- ¶ Evaluate potential alliances at each university, including alliances with other educational institutions, non-profit entities and businesses.
- ¶ Communicate with key stakeholders to convey the progress being made, to make the process transparent, and to address concerns and questions.

Drawing on local leadership from UMDNJ, Rutgers, and NJIT at each location, each university committee should include three to five academic leaders (e.g., provosts, deans, top administrators) and three to five individuals with administrative and operational experience.

Project Office

A project office will be established to coordinate the day-to-day activities of the Task Force. This office would have staff to assist the Governing Committee, coordinate the University Committees and University Issue Working Groups and manage the activities of the System-wide Issue Working Groups.

Advisory Groups

These groups would provide *ad hoc* counsel to the Issue Working Groups, the University Committee and the Governing Committee. The Commission recommends setting up at least two advisory groups:

- ¶ An Academic Expert Advisory Group can provide guidance on organizational and governance structure; five to seven experts from benchmark university systems (e.g., UC and UT) could be asked to give input and facilitate any needed contacts at these systems.
- ¶ A Community Advisory Group can reflect the community perspective and concerns. Members would be drawn from community leaders at each campus location and should include student representatives. This group

could be brought in at a later stage to work with the issue working groups specific for each community.

Issue Working Groups

By definition, the UNJ structure will involve all university undergraduate and graduate programs. The Task Force, therefore, needs to carefully review how the proposed restructuring will affect all schools and programs to ensure optimal outcomes. Numerous processes differ between UMDNJ, Rutgers and NJIT, and these models, as well as *de novo* options, need to be evaluated to determine the best common standards for UNJ. The Issue Working Groups will be of two types: University and System-wide. The University Issue Working Groups will explore options and estimate costs and budgets at each university campus in order to create a restructuring plan for each location. The System-wide Issue Working Groups will be created by the Governing Committee to explore areas that may benefit from system-wide coordination (e.g., information technology). Working groups will be encouraged to communicate with other groups, where relevant, because recommendations to the Governing Committee may impact various parts of the organization.

- ¶ *Composition.* Four to six individuals with deep expertise in each of the topic areas from UMDNJ, Rutgers and NJIT will be called upon to serve on the Issue Working Groups.
- ¶ Issue working groups should be established for both academic and operational issues. Suggested groups might include the following:
 - Academic affairs (e.g., issues of programs unrelated to the health sciences).
 - Health affairs (e.g., health science program issues).
 - Faculty (e.g., performance measures and promotion criteria).
 - Students (e.g., admissions processes and standards).
 - Operations (e.g., purchasing and post-award grant management).
 - Finance/accounting (e.g., common accounting standards and reporting requirements).
 - Information technology/communications (e.g., platform for computer networks and telephones).

- Accreditation (e.g., evaluating gaps or duplications in degree offerings).
- Human resources (e.g., determining required support staff for campus administration and faculty).
- Physical plant (e.g., prioritizing needs for capital improvements, including renovations and new buildings).
- Community business (e.g., increasing linkages to statewide and local businesses).
- Alumni affairs (e.g., transitioning from old databases and alumni organizations to new ones).

9.2 Key implementation challenges

The most critical issue during the transition will be continuing operations of the existing universities. While the plan for University of New Jersey is being developed and the Review and Implementation Task Force deliberates specific recommendations, it will be critical to maintain operations of the University (e.g., education, research and patient care), to keep leadership motivated, and to manage faculty retention and recruitment.

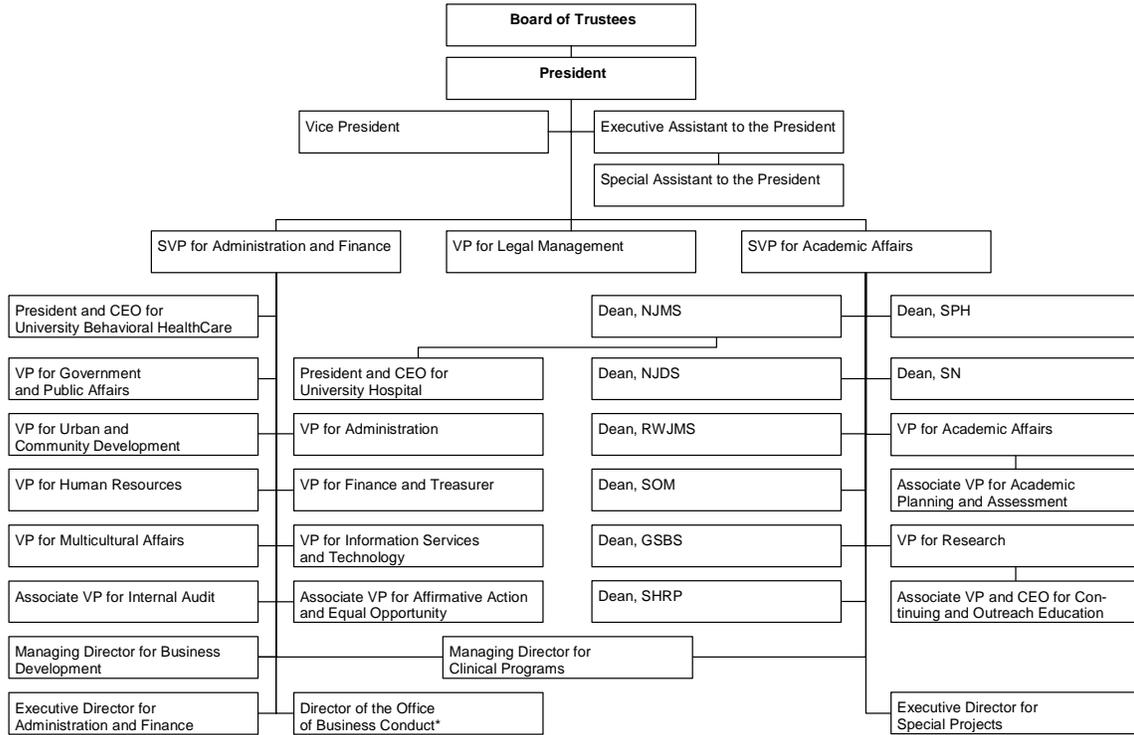
Creating the specific template and implementation plan while maintaining the university's work will be the largest task, but the Commission is aware that there will be other issues to resolve:

- ¶ *Community employment.* There is likely to be great concern over potential job losses, the economic impact on local communities and union issues for faculty and staff.
- ¶ *Finances.* Implementation of this vision will require a one-time investment in the new University system for each university as well as continued fiscal support to ensure an adequate funding level to build further quality.
- ¶ *Communication.* The appropriate frequency and depth of dialogue with the public, alumni, donors, faculty, staff, students (and prospective faculty and students) will be important in the successful implementation of UNJ.
- ¶ *Cultural differences between schools.* Whenever two disparate entities are brought together, cultural barriers – such as the perception of quality differences between the two institutions, differences between health and

non-health cultures and values, and institutional loyalties – must be overcome.

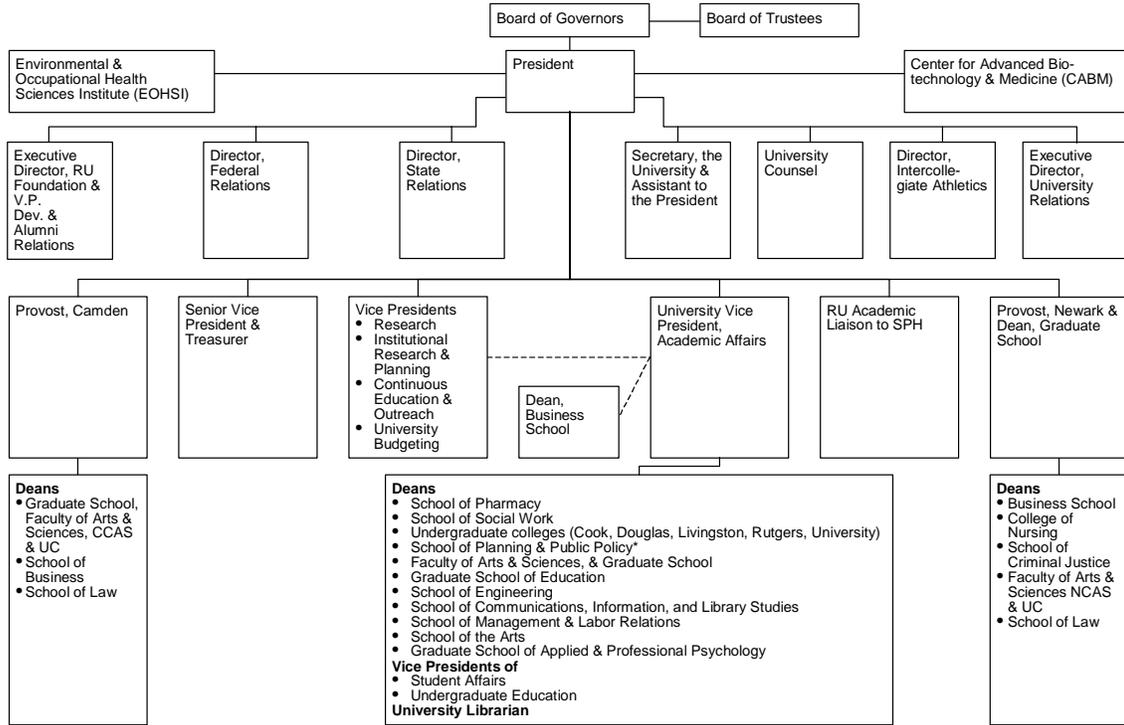
- ¶ *Legislative processes.* The establishment of UNJ will require substantial legislative debate and approval. Communication and information sharing is essential in all phases of the implementation process.

APPENDIX 1: UMDNJ ORGANIZATIONAL STRUCTURE



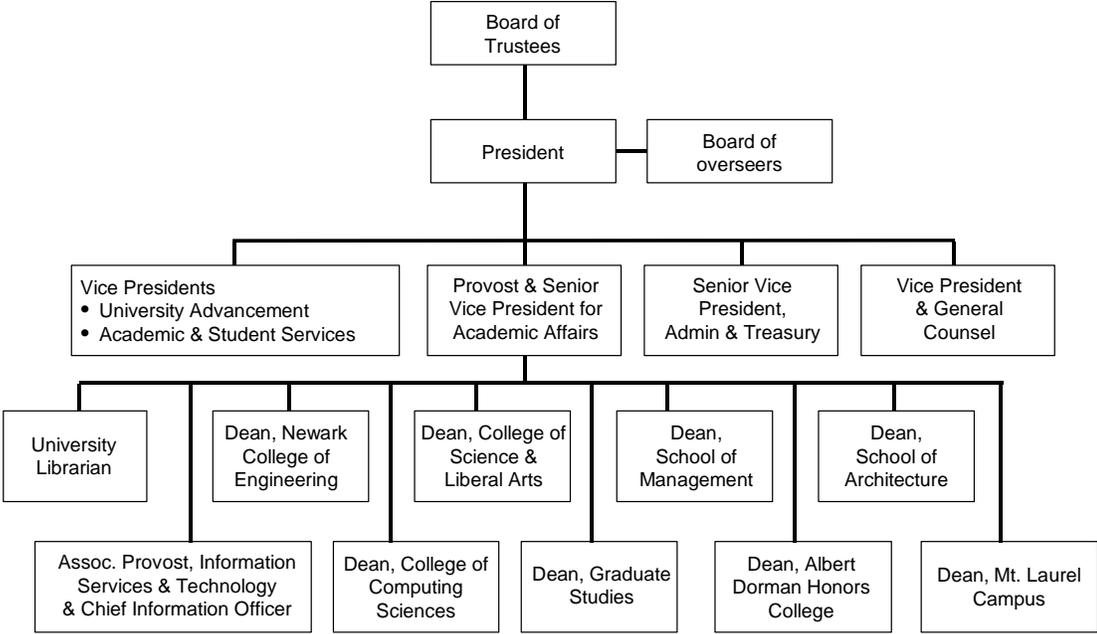
* Reports directly to President and Board of Trustees (BOT)
 Source: UMDNJ

APPENDIX 2: RUTGERS ORGANIZATIONAL STRUCTURE



Source: Rutgers (as of May 2002)

APPENDIX 3: NJIT ORGANIZATIONAL STRUCTURE



Source: NJIT (as of Fall 2002)

GLOSSARY OF ABBREVIATIONS

AAAS – American Academy of Arts and Sciences

AAMC – American Association of Medical Colleges

AAU – Association of American Universities

ACGME – Accreditation Council for Graduate Medical Education

ADA – American Dental Association

AHC – Academic Health Center

AMC – Academic Medical Center

ASCI – American Society for Clinical Investigation

AUTM – Association of University Technology Managers

BOG – Board of Governors

BOT – Board of Trustees

BS – Biological Sciences section of the MCAT

CABM – Center for Advanced Biotechnology and Medicine

CAGR – Compound Annual Growth Rate

CASE – Citizens and Service Education

CCOE – Center for Continuing and Outreach Education

CHE – Commission on Higher Education

CHEN – Council for Higher Education in Newark

CINJ – Cancer Institute of New Jersey

CMDNJ – College of Medicine and Dentistry of New Jersey (predecessor of UMDNJ)

CODE – Community-Oriented Dental Education

COMLEX – Comprehensive Osteopathic Medical Licensing Examination

CPI – Consumer Price Index

GLOSSARY OF ABBREVIATIONS (CONTINUED)

CUPR – Center for Urban Policy Research

CY – calendar year

DAT – Dental Admission Test

DoD – Department of Defense

EMS – Emergency Medical Services

EOHSI – Environmental and Occupational Health Sciences Institute

FTE – Full-Time Equivalent

FXB Center – François Xavier Bagnoud Center

FY – fiscal year

GPA – grade point average

GRE – Graduate Record Examination

GSBS – Graduate School of Biomedical Sciences

HEPI – Higher Education Price Index

HHMI – Howard Hughes Medical Institute

HINJ – Healthcare Institute of New Jersey

HMO – Health Maintenance Organization

HRSA – Health Resources and Services Administration

ICPH – International Center for Public Health

IOM – Institute of Medicine

ISI – A business of the Thompson Corporation

MCAT – Medical College Admission Test

MSU – Montclair State University

NACUBO – National Association of College and University Business Officers

NAS – National Academy of Sciences

GLOSSARY OF ABBREVIATIONS (CONTINUED)

NCI – National Cancer Institute

NIH – National Institutes of Health

NJCMD – New Jersey College of Medicine and Dentistry (predecessor of CMDNJ)

NJDS – New Jersey Dental School

NJGPPH – New Jersey Graduate Program in Public Health (predecessor program to SPH)

NJIT – New Jersey Institute of Technology

NJMS – New Jersey Medical School

NRC – National Research Council

NSF – National Science Foundation

OHSU – Oregon Health & Science University

OMB – Office of Management and Budget

PHRI – Public Health Research Institute

PhRMA – Pharmaceutical Research and Manufacturers Association

PRIME – Prioritize & Realign Incentives through Missions & Excellence

PS – Physical Sciences section of the MCAT

RWJMS – Robert Wood Johnson Medical School

RWJUH – Robert Wood Johnson University Hospital

SAT – Scholastic Assessment Test

SHRP – School of Health Related Professions

SN – School of Nursing

SOM – School of Osteopathic Medicine

SPH – School of Public Health

SUNY – State University of New York

GLOSSARY OF ABBREVIATIONS (CONTINUED)

SURE Report – Student Unit Record Enrollment Report (of Rutgers)

SVP – senior vice president

UAB – University of Alabama-Birmingham

UBHC – University Behavioral HealthCare

UC – University of California (system)

UCLA – University of California at Los Angeles

UCSD – University of California at San Diego

UCSF – University of California at San Francisco

UH – University Hospital (in Newark)

UM – University of Michigan-Ann Arbor

UMDNJ – University of Medicine and Dentistry of New Jersey

UNC – University of North Carolina-Chapel Hill

UNJ – University of New Jersey (placeholder name for the new university system)

USMLE – United States Medical Licensing Examination

UT – University of Texas (system)

UTSW – University of Texas Southwestern Medical Center at Dallas

UVA – University of Virginia

UW – University of Washington-Seattle

UWHC – University of Washington Hospitals and Clinics

VR – Verbal Reasoning section of the MCAT

WebCASPAR – NSF database