1. Raising the National Profile of the University’s Academic Health Sciences

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AGENDA ITEM: Raising the National Profile of the University’s Academic Health Sciences

□ Review  □ Review + Action  □ Action  X Discussion

□ This is a report required by Board policy.

PRESENTERS: Brooks Jackson, Vice President for Academic Health Sciences and Dean, Medical School
Trevor Ames, Dean, College of Veterinary Medicine
Leon Assael, Dean, School of Dentistry
Connie Delaney, Dean, School of Nursing
John Finnegan, Dean, School of Public Health
Marilyn Speedie, Dean, College of Pharmacy

PURPOSE & KEY POINTS

The purpose of this item is to discuss key highlights and strategic priorities for each of the schools in the Academic Health Center (AHC), with an emphasis on how a comprehensive academic health sciences program increases national competitiveness. This discussion will also include an update on planning efforts to develop a grand challenges research and training program focused on aging.

Strategic Policy Questions

- How can the University build on its current strengths and further enhance its national and international stature in health research?
- How do we determine strategic investments in research infrastructure, signature programs, and clinical research?
- How do we retain and attract talented researchers?
- How can the University meet the growing and rapidly changing health professional workforce needs in Minnesota?
- What strategic investments are needed to enhance inter-professional education?
- How do we address the growing debt levels of health professional students?
- How does the growing competitiveness of our schools impact enrollment?
- How do we leverage existing resources most effectively to impact the challenges of a growing aging population on families, communities and the state?

BACKGROUND INFORMATION

The Board has participated in the following discussions about the academic health sciences:
• Medical School Update – Academic & Student Affairs Committee, February 2016

• Academic Health Center Research: Overview & Update – Special Committee on Academic Medicine, May 2014

• Educating & Training Minnesota’s Health Workforce – Special Committee on Academic Medicine, December 2013

• Clinical Services & Operations – Special Committee on Academic Medicine, October 2013
Board of Regents
Work Session

Raising the National Profile of the University’s Academic Health Sciences
March 30, 2016
Innovative expertise in education and research leading to better health and vital economy in Minnesota.

**Academic Health Center**

**Meeting Expectations:**
- 70% of all health professionals working in Minnesota trained at the University

**Leading work in:**
- diabetes
- infectious diseases
- neuroscience
- cancer
- cardiovascular research

**Through our:**
- Schools and Colleges
- Centers and Institutes
- Clinics and Hospitals

**In Disciplines of:**
- Dentistry
- Medicine
- Nursing
- Pharmacy
- Public Health
- Veterinary Medicine

**Driving Initiatives in:**
- Education
- Research
- Clinical/Outreach
AHC Strategic Directions

• Increasing the Impact of Research on Health
  – Identify specific roles of AHC schools/colleges and leverage the competitive advance of six schools working together.
  – Maintain and enhance national prominence in priority areas
  – Ensure our priorities are aligned with Minnesotans
AHC Strategic Directions

• Innovation in Education to Enhance the Health Workforce
  – Promote the value and role of interprofessional health education
  – Meet evolving health workforce needs through innovative care models
  – Promote the scholarship of education across the AHC
  – Transform the learning environment
Today’s Presentation

• Update from College of Pharmacy, School of Nursing, School of Dentistry, College of Veterinary Medicine, School of Public Health

• Update on AHC-wide Grand Challenge on Aging

• Discussion
College of Pharmacy: Why We Are #2

- Ranked #2 by *U.S. News & World Report* (out of 135 pharmacy schools)
- “College of Pharmacy is strong in all three missions” – ACPE
- Innovative education across two campuses
- Emphasis on rural and underserved populations
- Interprofessional education is easier to do within a comprehensive AHC
- Collaborative practices
Why We Are #2

• Research strengths:
  – Drug discovery and development – cancer, Alzheimer’s, epilepsy, glaucoma, vaccines
  – Drug Delivery, e.g., crossing the blood-brain barrier, nanomedicines
  – Personalized/Precision medicine
  – Health equity – Native Americans, Hispanics, African Americans, Hmong, rural populations
  – Outcomes of new models of practice
  – Pharmacoeconomics
Why We Are #2

• National leadership – Alumni, faculty, preceptors, students

• Practice environment in Minnesota
  – All graduates get well-paying jobs that use their talents and skills
  – Pharmacy practice is exceptional thanks to our practitioners being trained with other professionals

Why not #1?

• UNC Eschelman School of Pharmacy is #1
  – $35M building and $100M innovation fund
Challenges

- Low salaries lead to retentions and inequities, some losses

Where CoP lands among Big 10 median salaries:
- Professor = 9th (same as last year)
- Associate = 8th (down from 7th last year)
- Assistant = 8th (same as last year)

- High tuition
Challenges

• Enrollment
  – Low application numbers nationally
    • CoP: 440 applications for 168 seats
  – Still able to fill class with high quality students
    • Incoming class: 3.53 average GPA

• Finances
  – Cost pool increases
  – State funding decreases
  – Tuition as percent of revenue is increasing

• “Discovery Teams” are only for Med School
Senior Care Pharmacy Facts

• Seniors represent just over 13% of the population, but consume 40% of prescription drugs and 35% of all over-the-counter drugs.
• On average per year:
  – People 65-69 years old take 14 prescriptions
  – People 80-84 years old take 18 prescriptions
• 15%-25% of drug use in seniors is considered unnecessary or otherwise inappropriate.
• Adverse drug reactions and noncompliance are responsible for 28% of hospitalizations in the elderly.
• 36% of all reported adverse drug reactions involve an elderly individual.
• Each year, 32,000 seniors suffer hip fractures caused by medication-related problems.
Aging Grand Challenge Initiative

CoP goal: Leverage existing small cohort of faculty focused on geriatrics by hiring 2 additional faculty to:

• Coordinate and focus efforts on an expanded IPE program to prepare students and existing pharmacists for the “Certification in Geriatric Pharmacy” exam

• Sponsor annual conferences for all health professionals on the optimal use of medications in the elderly

• Expand research:
  • in chronic disease prevention and treatment (Alzheimer’s, Parkinson’s, Epilepsy)
  • to reduce medication related adverse events in the elderly
  • to utilize databases to identify and intervene with suboptimal prescribing in geriatric patients
  • to develop practices focused on the transitions of care
  • to identify ways to improve the medication experience for individual patients
Nursing
protection, promotion, and optimization of health and abilities, prevention of illness and injury, facilitation of healing, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, groups, communities, and populations.

School of Nursing Vision
a world where nurses lead collaborative efforts to attain optimal health for all people

School of Nursing Mission
to generate knowledge and prepare nurse leaders who create, lead and participate in holistic efforts to improve the health of all people within the context of their environments.
School of Nursing

Health Promotion among Vulnerable Populations

Prevention and Management of Chronic Health Conditions

Symptom Management

Health/Nursing Informatics and Systems Innovation

Care Continuum:
Home, School, Primary Care, Acute Care, Long Term Care

Life Span Health – Vulnerable Populations
Children, Adolescents & Families, Immigrants/Refugees, Aging Adults
Research Making a Difference

New technology is aimed at keeping dementia, Alzheimer’s patients at home  Star Tribune – Dec. 2015

School of Nursing joins United Health Group - Optum Labs as inaugural partner  Star Tribune – Feb. 2014

Does it count as a family dinner if it’s over in eight minutes? Wall Street Journal Sept. 2013

Why solitude is bad for your health  Star Tribune – Oct. 15, 2013

Program Increases Teen Contraceptive Use  Center for Disease Control web news – May 2013.
Nursing Collaboratory

- Infrastructure for Fairview Health Services, UM SoN and UMP to work together in the generation, dissemination, and application of knowledge for the improvement of nursing practice and patient outcomes.

- An incubator for creativity and innovation that will engage, together, nursing faculty, nursing staff, and nursing students in the development of new products and services and models to enhance nursing education, research and practice.
National Recognition

- Ranked 12th in nursing graduate school rankings
  (US News & World Report 2017 best graduate schools)
- Ranked 2nd in nursing informatics
  (US News & World Report 2017 best graduate schools)
- Ranked 4th in nurse midwifery
  (US News & World Report 2017 best graduate schools)
- Creative, dynamic, growing, early adopters
Academic Nursing
Advancing Healthcare Transformation
2016 Report, American Association of Colleges of Nursing

1. Embrace a New Vision for Academic Nursing

2. Enhance the Clinical Practice of Academic Nursing
3. Partner in Preparing the Nurses of the Future
4. Partner in the Implementation of Accountable Care
5. Invest in Nursing Research Programs and Better Integrate Research into Clinical Practice
6. Implement an Advocacy Agenda to Support a New Era for Academic Nursing
Academic Programs

- Bachelor of Science in Nursing (435)
- Master of Nursing (127)
- PhD in Nursing (43)
- Doctor of Nursing Practice (348) Largest in USA
  - Adult Health/Gerontological Clinical Nurse Specialist
  - Adult Health/Gerontological Nurse Practitioner
  - Family Nurse Practitioner
  - Health Innovation and Leadership
  - Integrative Health and Healing
  - Nurse Anesthesia
  - Nurse Midwifery
  - Nursing Informatics
  - Pediatric Clinical Nurse Specialist
  - Pediatric Nurse Practitioner
  - Psychiatric/Mental Health Nurse Practitioner
  - Public Health Nursing
  - Women's Health Nurse Practitioner
Enrollment Opportunities

Nursing programs are highly competitive

- Bachelor of Science in Nursing (TC and Rochester Campuses) – GROWING
- Master of Nursing – GROWING
- DNP Program – GROWING
- PhD in Nursing - GROWING
Enrollment Opportunities

Relatively low student debt at graduation

<table>
<thead>
<tr>
<th>Program</th>
<th>% Students with Loans</th>
<th>Loans at Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Nursing (BSN)</td>
<td>72%</td>
<td>$33,161 *</td>
</tr>
<tr>
<td>Doctor of Nursing Practice (DNP)</td>
<td>74%</td>
<td>$68,104</td>
</tr>
<tr>
<td>Master of Nursing (MN)</td>
<td>90%</td>
<td>$45,410</td>
</tr>
<tr>
<td>Doctor of Philosophy in Nursing (PhD)</td>
<td>43%</td>
<td>$25,788</td>
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</table>

*Excludes PLUS loans
Enrollment Opportunities

Growth in students of color

All Programs/All Students

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>20%</td>
<td>20%</td>
</tr>
</tbody>
</table>
Challenges for meeting workforce

- Clinical placements
- Faculty recruitment
- Financial support for doctoral students
The School of Dentistry advances health through scientific discovery, innovative education, and the highest quality care for all communities.
Our works affects every Minnesotan

• We educate 73% of Minnesota dentists; 57.8% of Minnesota’s practicing specialists; and 49% of its dental educators;

• Researchers develop dental materials used by every dentist in the state;

• Clinics have >153,900 patient-visits annually;

• Innovative outreach programs serve thousands of low-income patients;

• State’s #1 provider of services to uninsured & working poor
A regional resource

Source: American Dental Education Association
Dean’s Briefing Book, 2015-16
Nationally Recognized
Gies Award for vision

An award so nice we won it twice

– Advancing new licensure standards (2010)
– Biomaterials and biomechanics partnership (2013)
– Advancing dental therapy education in the U.S. (2016)
– Outstanding achievement by a dental educator (2016)
School of Dentistry researcher helps identify mechanism in drug target that helps block HIV’s ability to spread.
Areas of research strength

- Biomaterials & biomechanics
- Bone biology & craniofacial development
- Oral Health disparities & community health
- Oral inflammation & cancer
- Orofacial pain and neuroscience
- Oral infections & microbiology
  - Breakthrough discoveries in viral DNA packaging
  - Nationally recognized for novel approach to HIV research
Research leader: Biomaterials & Biomechanics

- Multi-disciplinary center; early into robotics
- Develops & tests dental materials
- Fuel core analysis of graphite-moderated nuclear reactors
- Disrupt adhesion of biofilms to prevent colonization
- Develop microstructure to support combination of two medications into single tablet without separating or ‘delaminating’
- Food product reformulation
Artificial Mouth
One year of chewing in a single day
Micro CT Scanner

3D image of the inside of a structure

- Can view biological changes taking place
  - inside a tooth during de- or re-mineralization
  - Inside bone during resorption
  - Inside a piece of food as it collapses during eating
Micro CT Scanner
The nation’s first: Dental Therapy Education

University of Minnesota reviewing applications for nation’s first dental school-based dental therapy program

By Karen Fox

Minneapolis: Dr. Patrick M. Lloyd, dean of the University of Minnesota School of Dentistry, is pleased to announce the first group of students in the nation to undergo a dental therapy program. The program, which includes a dental therapist with additional education and training to perform oral health procedures under the general supervision of a dentist, will allow dental therapists to provide care for patients in a variety of settings, including hospitals, clinics, and private practices.

The program is designed to help meet the demand for dental therapists, who are trained to perform tasks such as taking x-rays, administering local anesthetics, and performing basic dental procedures. This is in line with the American Dental Association's recommendation to increase the number of dental therapists to help meet the needs of patients in underserved areas.

The University of Minnesota is committed to supporting the development of dental therapy programs and has worked closely with dental schools and dental organizations to ensure that the program meets the needs of patients and dental professionals. The University of Minnesota is proud to be the first dental school in the nation to offer a dental therapy program, and we look forward to continuing to support dental therapy education in the future.
Education & patient care

• 153,900 patient-visits/year
  – Clinics in Moos Tower, CSC, UMP, Fairview
  – 16 outreach clinics
• Team-based approach to education & patient care
• Partnering for success
  – UMP, community-based clinics, foundations, area hospitals, community colleges, FQHCs, corporate leaders, U of M administration and colleges/departments
Leader: Health Care Access Initiatives

Access to Dental Care: Solving the Puzzle

MINNESOTA'S DENTAL PROFESSIONALS STRIVE TO BALANCE SOCIAL RESPONSIBILITY WITH FINANCIAL REALITY.
A leader in rural placement of graduates

Source: JADA, Oct. 2015
Initiatives

- Pipeline programs
- Adjust admissions policies
- Increase class sizes
- New education programs (PASS, DT, MDH)
- Outreach required for graduation
- Expand outreach sites
- Build new clinics & partnerships: geriatric, pediatric and adult special needs patients
Statewide/Regional Outreach

15 outreach clinics

Urban: 3

Greater Minnesota (7)
Hibbing, Cass Lake, Cook, Cloquet, Red Lake, White Earth, Willmar

Out of state (5)
North Dakota (1), South Dakota (3), Montana (1)

On hold: UCare Mobile Dental Clinic
Plans going forward

• Rural track dental program
• Expand outreach sites
• Interprofessional education
• Infuse research into education programs
Current strengths in health research the UMN include should expand its definition to include individual care as well as health of populations, animals and environment.

~ Healthier Animals, Healthier Economy, Healthier People

**Animals**
Dogs ~ 1.3 million (780,000 homes), Cats ~ 1.5 Million (680,000 homes)
Horses ~ 200,000, Farm animals ~ 70 Million, Wildlife?

**Economy**
MN is 1st in turkey, 2nd in swine, 6th in dairy, 9th in beef and egg layers

**People**
Safe food, prevent zoonosis, ensure quality of life
College of Veterinary Medicine

CVM has targeted research investment in Signature Programs focusing on One Health at the interface of animals, humans, and the environment, with emphasis on integration of CVM Centers.
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College of Veterinary Medicine

Workforce Selection
- Grades
- Experience
- Interview
- Pipeline programs
  - rural food animal
  - diversity

Professional Development
- Clinical communication
- Teamwork
- Leadership
- Ethical behavior
- Small business management
- Personal finance
- Multicultural awareness, etc.

Behavioral Interview
- Communicate effectively
- Uses sound judgment
- Thinks innovatively
- Builds relationships
- Drives for results
- Demonstrates adaptability
- Acts autonomously and competently
- Demonstrates integrity
Excellent Professional and Clinical Training Programs

- Veterinary Medical Center
- Veterinary Diagnostic Laboratory
- The Raptor Center
- Leatherdale Equine Center
- Dairy Education Center
- Center for Animal Health and Food Safety
- Food Protection and Defense Institute
- Combined DVM/MPH (with SPH)
- Combined DVM/PhD
- Interprofessional Education
College of Veterinary Medicine

Veterinary Student Debt

- UMN CVM 4 year tuition ranks 5/30 ($133K) for resident and 2/30 ($240K) for non residents compared to other US CVM's
- Should not exceed starting salaries by more than a ration of 1:1.4*
- Applicants have dropped from 1,100/yr for 100 admissions to 900/yr over 8 year period (those not accepting offers cite high tuition)
- Addressed through the following:
  - Value graduates bring to employers
  - Limiting cost of attendance
  - Higher starting salaries
  - Post graduate loan management/forgiveness

*AVMA Veterinary Economics Reports
Strategic Policy Questions

• How can the University build on its current strengths and further enhance its national and international stature in health research?

• How can the University meet the growing and rapidly changing health professional workforce needs in Minnesota?

• How do we leverage existing resources most effectively to impact the challenges of a growing aging population on families, communities and the state?