The State of the Department

David A. Schwartz, MD
Departmental Vision

*Improve human health by fostering the development of outstanding interdisciplinary programs in patient care, education, and research that serve the community, region, and nation*
Departmental Vision

*Improve human health by fostering the development of outstanding interdisciplinary programs in patient care, education, and research that serve the community, region, and nation*

**Driving Principles:**
- Outstanding patient care
- Balance growth of competing priorities
- Foster interdisciplinary programs
- Build strong partnerships
- Enhance diversity

*Transparency and Accountability*
Departmental Vision

*Improve human health by fostering the development of outstanding interdisciplinary programs in patient care, education, and research that serve the community, region, and nation*

**Driving Principles:**
- Outstanding patient care
- Balance growth of competing priorities
- Foster interdisciplinary programs
- Build strong partnerships
- Enhance diversity

**Strategy and Tactics**

**Transparency and Accountability**
The State of the Department

• Accomplishments, Challenges, and Opportunities
  ❑ Clinical
  ❑ Education and Training
  ❑ Research

• Your Role in Our Future
Clinical Enterprise

“Our heart, soul, and sustenance”
Medicine Inpatient Volumes

<table>
<thead>
<tr>
<th>Year</th>
<th>Inpatient E&amp;M Visits (thousands)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2009</td>
<td></td>
<td></td>
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<tr>
<td>FY 2010</td>
<td></td>
<td>-2.6%</td>
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<tr>
<td>FY 2011</td>
<td></td>
<td>4.4%</td>
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<tr>
<td>FY 2012</td>
<td></td>
<td>18.5%</td>
</tr>
<tr>
<td>FY 2013</td>
<td></td>
<td>10.5%</td>
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</table>
Medicine Inpatient Volumes

<table>
<thead>
<tr>
<th>FY</th>
<th>Inpatient E&amp;M Visits (thousands)</th>
<th>Medicine Patient Days</th>
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<tbody>
<tr>
<td>FY 2009</td>
<td>80</td>
<td>-2.6%</td>
</tr>
<tr>
<td>FY 2010</td>
<td>86.6</td>
<td>5.5%</td>
</tr>
<tr>
<td>FY 2011</td>
<td>90.2</td>
<td>3.6%</td>
</tr>
<tr>
<td>FY 2012</td>
<td>100.0</td>
<td>10.1%</td>
</tr>
<tr>
<td>FY 2013</td>
<td>103.5</td>
<td>10.3%</td>
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Work RVUs

<table>
<thead>
<tr>
<th>Year</th>
<th>Work RVUs (thousands)</th>
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<tbody>
<tr>
<td>FY08</td>
<td>14.1%</td>
</tr>
<tr>
<td>FY09</td>
<td>0.7%</td>
</tr>
<tr>
<td>FY10</td>
<td>0.6%</td>
</tr>
<tr>
<td>FY11</td>
<td>6.0%</td>
</tr>
<tr>
<td>FY12</td>
<td>9.7%</td>
</tr>
<tr>
<td>FY13</td>
<td>14.5%</td>
</tr>
<tr>
<td>FY14 Proj</td>
<td>14.5%</td>
</tr>
</tbody>
</table>

Inpatient, Outpatient
Clinical Revenue

Dollars (millions)

FY08  FY09  FY10  FY11  FY12  FY13  FY14 Proj

More Admissions
More Patient Days
More Out-Patient Visits
Decreased Lengths of Stay

Patient Income  Clinical Contract Income
Clinical FTEs

- FY10: 1% MD CFTE, 10% Non-MD CFTE
- FY11: 1% MD CFTE, 19% Non-MD CFTE
- FY12: 1% MD CFTE, 19% Non-MD CFTE
- FY13: 10% MD CFTE, 10% Non-MD CFTE
Faculty Recruitment
Faculty Recruitment

<table>
<thead>
<tr>
<th>Division</th>
<th>Recruits</th>
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<tbody>
<tr>
<td>Cardiology</td>
<td>8</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>2</td>
</tr>
<tr>
<td>Gastroenterology/Hepatology</td>
<td>6</td>
</tr>
<tr>
<td>General Internal Medicine</td>
<td>32</td>
</tr>
<tr>
<td>Hematology</td>
<td>2</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>1</td>
</tr>
<tr>
<td>Medical Oncology</td>
<td>4</td>
</tr>
<tr>
<td>Personalized Medicine</td>
<td>2</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>1</td>
</tr>
<tr>
<td>Renal</td>
<td>1</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>61</strong></td>
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</table>
Clinical Programs and Patient Care

**Strategy:** Expand and enhance clinical areas of excellence that consequently drive the educational and research enterprise

- Clinical Programs of Excellence
  - Education/Training
  - Research Development
Clinical Programs and Patient Care

**Strategy:** Expand and enhance clinical areas of excellence that consequently drive the educational and research enterprise.

- Education/Training
- Research Development
- Pulmonary Vascular Disease Center
- Clinical Programs of Excellence
Clinical Programs and Patient Care

**Strategy:** Expand and enhance clinical programs of excellence that consequently drive the educational and research enterprise.

- **Clinical Programs of Excellence**
  - Pulmonary Vascular Disease Center
  - Refugee Health
  - Community

- **Research Development**
- **Education/Training**
Clinical Programs and Patient Care

**Strategy:** Expand and enhance clinical areas of excellence that consequently drive the educational and research enterprise.

- Education/Training
- Clinical Programs of Excellence
- Research Development
- Pulmonary Vascular Disease Center
- Zimbabwe Community
Personalized or Precision Medicine

- Prevention
- Prediction
- Prognosis
Center for Biomedical Informatics and Personalized Medicine

DOM Division
- Academic home
- SOM/DOM supported
- 1° faculty (N = 5-7)
- 2° faculty (N = 10-20)

Clinical Arm
- Clinical service
- DNA bank
- CLIA certified lab
- Disease-specific assays

Infrastructure
- Data warehouse (CREW)
- Informatics core
- Genomics facility
- Existing biorepositories
- Graduate training prgm
Challenges: Rapid Expansion of the Clinical Enterprise

Strategy: Deliver outstanding care while balancing our priorities

Tactics:
• Increase the clinical FTE to meet the need
• Balance clinical program development with innovative academic growth
• Minimize medical errors – quality assurance program
Challenges: Quality and Safety

Strategy
• Achieve superior clinical outcomes
• Engage and support providers
• Integrate these activities with educational and research opportunities

Approach
• Promote Safety Culture: Peer Review and Morbidity and Mortality
• Partner with other departments and the hospital
• Develop QI Infrastructure: Access to meaningful data through QI support
Division-Specific Dashboards
Challenges: Incentivize Patient Care

Strategy: Support physicians who are providing clinical care

Data:
- Delivery of patient care is not financially profitable for Allergy, Endocrinology, Hematology, Infectious Diseases, Renal, and Rheumatology
  - Annual cost to the divisions is $\approx 500K$

Tactics:
- Partnership between UCH, UPI, and the DOM
- $800K$ will be distributed to the ‘non-procedural’ divisions based on wRVUs and modest productivity goals
Challenges: Health Care Reform

Strategy:

• Consolidation
• Capitation
• Commodization

• Quality and Safety
• Health Outcomes
• Academic Priorities

Tactics:

• System – 7 hospitals and 15,000 employees spanning the front range
• UCH – new tower and outpatient facilities beginning to focus on bundled payment and capitated care
• Partnership between System and SOM: transfer a % of the bottom line profit to the SOM for academic development
Educational and Training Programs

“Our Jewel – Our Future”

Vision: Support highly competitive and diversified training programs that produce leaders in the practice of medicine and the discovery of new knowledge
Department of Medicine Trainees

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Female</td>
<td>40%</td>
</tr>
<tr>
<td>URM</td>
<td>10%</td>
</tr>
<tr>
<td>AOA</td>
<td>32%</td>
</tr>
<tr>
<td>Step 2 Score</td>
<td>95-99%tile</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>4%</td>
</tr>
<tr>
<td>Region</td>
<td></td>
</tr>
<tr>
<td>Midwest</td>
<td>37%</td>
</tr>
<tr>
<td>West</td>
<td>33%</td>
</tr>
<tr>
<td>Northeast</td>
<td>10%</td>
</tr>
<tr>
<td>South</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housestaff</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>Chief Residents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67</td>
<td>50</td>
<td>50</td>
<td>5</td>
<td>172</td>
</tr>
</tbody>
</table>

Fellows (N=113)

- Cardiology: 28
- Pulmonary: 21
- GI/Hepatology: 16
- Renal: 12
- Hem/Oncology: 10
- Endocrinology: 10
- Infectious Diseases: 10
- Allergy/Immunology: 9
- Rheumatology: 7
- Geriatrics: 5
- Gen. Int. Medicine: 5

(Chart showing distribution by specialty)
Challenge: Expanded Clinical and Educational Opportunities

Strategy: Program innovation to maintain and strengthen teaching services

Tactics:
- Develop a Medicine-Pediatrics Training Program that will begin July, 2014
- Joe Kay (director) and Dan Reardon (associate director)
- 4 housestaff per year
- Partnership between UCH, TCH, Department of Pediatrics, and DOM
Challenges: Career Development

Strategy: *Support trainees to become leaders*

Tactics:
- Physician Scientist Training Program
- Training approach based on career goals

<table>
<thead>
<tr>
<th>Clinical Training Tracks</th>
<th>Investigator</th>
<th>Clinician Educator</th>
<th>Health Care Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Categorical</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Academic Subspecialty Career (ASC)
Challenges: Diversity of our Trainees

Karen Shea
Groundbreaking Research

“The Bridge Between Science and Medicine”

Vision: Support physician-scientists and PhDs to develop new knowledge that may ultimately improve human health
NIH Support and Ranking

Top 20 requires an increase of $8M
Submissions have increased (≈ 25/year)
Endowed Funds in the Department

Approximately $99 M
30 Endowed Chairs (DOM)

Celeste and Jack Grynberg Chair in Diabetes
Tomas Berl Chair in Kidney Disease and HTN
Judith and Joseph Wagner Chair in Women’s Health
Kern Foundation Joel Levine Chair

Robert W. Schrier Chair of Medicine

Endowed Chairs in the Department

- Pulmonary
- Endocrinology
- Hematology
- Renal
- Oncology
- General Medicine
- Rheumatology
- Cardiology
- GI/Hepatology
- Allergy
- Geriatrics
- Healthcare Policy
- Infectious Diseases

DOM Chairs
Non-DOM Chairs
Departmental Research Support

FY09 FY10 FY11 FY12 FY13

Federal Industry Private Foundations CU Foundation AEF/DEF Other Gifts

Dollars (millions)
Recognition of our Accomplishments

• 32 American Society of Clinical Investigation
• 31 Association of American Physicians: Bryan Haugen and Marvin Schwarz
• 6 University Distinguished Professors
  - Paul Bunn
• Institute of Medicine
  - Bob Schrier
• National Academy of Sciences
  - Charles Dinarello
Challenges: Support of the Research Enterprise

Strategy: *Investment now will pay off in the future*

Tactics:

- Mentorship program for junior faculty
- Retain and recruit outstanding physician-scientists and PhDs
- Establish pipeline of career development
  - DREAM (DOM Research and Equity in Academic Medicine) Program
  - Physician Scientist Training Program (PSTP)
  - Outstanding Early Scholars Program
  - Bridging Research Program
- Support interdisciplinary program development
- Celebrate our accomplishments
  - DOM Research in Progress
  - DOM Research Day
Challenges: Support of the Research Enterprise

Strategy: *Investment now will pay off in the future*

Tactics:

- Reorient ourselves to the ‘New NIH’
  - Targeted research - listserv@list.nih.gov
  - Limited investigator initiated science
  - Constrained funding
- Diversify portfolio: VAMC, industry, foundations, philanthropy, and institutional
- Partnership between System and SOM: transfer a % of the bottom line profit to the SOM for academic development
  - Initiated discussions with the SOM to use some of these funds to support a portion of the salary for research intensive faculty in clinical departments
DOM launches Med-Peds Residency Program

BY LISA MARSHALL

The CU Department of Medicine and pediatrics have launched a new, combined program aimed at filling an unmet need for physicians schooled in both specialties.

"There is a growing number of conditions that span pediatrics to internal medicine and there is a need for primary care physicians and subspecialists who can care for these complex patients regardless of their age," said Dr. Suzanne Brandenburg, director of the Department of Medicine (DOM) internal medicine residency program. "There is also room in this part of the country for a highly regarded medicine-pediatrics training program."

The new four-year postgraduate program will accept four residents per year, who will become board eligible in both specialties upon completion. It will become the 78th combined Med-Peds program in the country, but one of the few in the West.

"It's been a long road," said Elan Hal, a fourth-year medical student who recently established a Med-Peds interest group for CU Anschutz Medicine. "When I was in high school, I was from Colorado. They always say they wish they had a program like this here."

Realizing that there was some overlap in the curriculum covered by these two internal medicine and three-year pediatrics training programs, the University of North Carolina and the University of Rochester launched the first combined Med-Peds training program in 1967.

"Today, it is the largest combined specialty offering available with roughly 1,200 interns in training at 77 schools across the country, and 4,000 graduates who have completed it, according to the National Med-Peds Residents Association (NMPRA). But the supply of training programs is not meeting demand. In 2012, 182 applicants nationwide vied for 60 Med-Peds spots."

Dr. Joe Ray, associate professor of medicine and pediatrics at CU, says he went into Med-Peds after graduating from medical school at State University of New York because he loved working with children and he loved the complexity of internal medicine. He also saw a lack of physicians able to take care of children with conditions like congenital heart disease, cystic fibrosis, childhood cancer, and early-life organ transplants once they reached adulthood.

"More children are surviving with complex disorders and I didn't want to be a doctor who, when my patient turned 18, had to give up their care because I wasn't qualified to take care of them as adults," said Ray, who did his training at University of Michigan and now specializes in congenital heart disease.

As intern director for CU's new program, Kay says Med-Peds-trained doctors can be particularly asset to rural communities, which might not have the population base to support a pediatric practice but need someone to work with more complex pediatric cases when they arise.

"Family physicians are very good at taking care of common problems, from gynecology to urology, but it is impossible to be in everything," he says. "The advantage a Med-Peds doctor has is that they are trained in all the complex pediatric conditions as well as the complex internal medicine conditions. They can work alongside family physicians and add a dimension of care that they would not have otherwise."

Programs vary and CU has not nailed down specifics yet. But Med-Peds typically include 24 months of pediatric training and four months of internal medicine training, with residents rotating between medicine and pediatrics rotations every 3-5 months. The program does not provide formal obstetric or surgical training. Kay stresses they are not intended to be a replacement for family medicine, but rather a supplement.

With 24 subspecialties and fellowships, from cardiology and infectious diseases to critical care and endocrinology, Med-Peds trainees have an array of post-residency options and potential career paths.

Historically, 50 percent go into primary care, with between 72 and 93 percent working with both adults and children. Twenty-five percent pursue fellowship and subspecialty training, and 15 percent become hospitalists, according to NMPRA. Nearly 45 percent remain involved in education.

"Having this type of training will bring a new depth to both the internal medicine and pediatric departments," says Kay. "And with the primary care doctor shortage that we now face in this country, having extra trainees like this will really help to meet patient needs. It's an exciting step to advance medicine in Colorado."

CU is currently conducting a national search for a director of the new Med-Peds residency program and hopes to welcome its first four residents in the summer of 2014. For more information, contact intern director Joe Ray, MD, at 720-848-0864.

The DREAM Program

Seven students who completed their first year at the University of Colorado School of Medicine spent this past summer participating in a hands-on research experience in a lab with a faculty mentor. They are part of the Department of Medicine Research and Equity in Academic Medicine experience also known as the DREAM program.

This program, started two years ago by the Department of Medicine, led by Rob Winn, MD, is now under the direction of John Repine, MD, the Waring Professor of Medicine, Associate Dean for Student Advocacy and Director of the Webb-Waring Institute for Cancer, Aging, and Antioxidant Research. The program’s objectives are twofold—to increase the number of research opportunities for medical students and to expand the opportunities for those in underrepresented categories.

The program was developed because of data showing a large decrease in the number of physician-scientists as well as the lack of underrepresented physicians in proportion to the numbers of minority patients. In 2002 a New England Journal of Medicine article reported that in 1963, physician-scientists represented only 4% of the 471,439 total physicians in our country. Fifteen years later, physician-scientists had dropped to only 2% of the nation’s 707,022 doctors. (AAMC, 2008). And a recent paper in Science (Science 2011; 333: 1015) indicates that this problem is pervasive and extends to the awarding of NIH grants. This dramatic decrease may be attributed to the longer training period required for the physician-scientist designation, the tremendous cost of the dual training as well as the racial biases that unfortunately exist in our culture.

Additional data shows that while only 20% of the physicians in our country are from the underrepresented category, the population of minority patients continues to grow rapidly each year. The DREAM program concept of introducing medical students from the underrepresented category to the role of research and medicine early in their career is intended to assist in filling both of these gaps. Director Repine states that even if young physicians do not choose the physician-scientist role, this exposure to medical research should make them better physicians.

The DREAM program, a two-month summer opportunity, supports each student with a $3,000 stipend from the Department of Medicine. Students submit applications and proposals which are reviewed by a selection committee and after they are chosen they choose a mentor or a specific research area. All the conclusion of the summer, each student presents an overview of their work to David Schwartz, MD, chair of the Department of Medicine and Program Director John Repine, MD.

Quan Bu is one of the DREAM students described his experience in this way: “The members of the (Mark) Geraci lab were so willing to teach me; overall it was a great experience. There is so much camaraderie in academic medicine; I discovered that research is my calling. It affirmed my goal of being in academic medicine, this is my passion.”

According to Director Repine, “For some of the students, like Quan, it truly is like a dream come true!”

2013 DREAM Students & Mentors:

Bianca Pollen—Mark Eremt, MD, PhD
and Angela Sorensen, MD, PhD
Brooke Brandt—Neda Resouli, MD
Sarodeh Raouf—Pentzio Kaul, MD
Quan Bu—Mark Geraci, MD
Tuan Vi Tran—Dan N. Doan, MD, PhD
Timothy Ung—Michael Griner, PhD
Quocan Nguyen—Carl Bartocci, MD
Salary by Gender – MD Faculty

- **Assistant Professor**
  - Female: 95% (FY12), 100% (FY13)
  - Male: 91% (FY12), 97% (FY13)

- **Associate Professor**
  - Female: 89% (FY12), 98% (FY13)
  - Male: 109% (FY12), 121% (FY13)

- **Professor**
  - Female: 109% (FY12), 106% (FY13)
  - Male: 109% (FY12), 109% (FY13)

*Percent of AAMC Benchmark*
Salary by Gender – PhD Faculty

<table>
<thead>
<tr>
<th></th>
<th>FY12</th>
<th>FY13</th>
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<tbody>
<tr>
<td>Assistant</td>
<td>94%</td>
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<tr>
<td>Associate</td>
<td>94%</td>
<td>108%</td>
</tr>
<tr>
<td>Professor</td>
<td>96%</td>
<td>114%</td>
</tr>
<tr>
<td>Assistant</td>
<td>102%</td>
<td>100%</td>
</tr>
<tr>
<td>Associate</td>
<td>109%</td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td>101%</td>
<td>115%</td>
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Female

Male
Academic Rank by Gender

% Female Faculty

Instructor  Assistant Professor  Associate Professor

MD

BEYOND BIAS AND BARRIERS
FULFILLING THE POTENTIAL OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING
Enduring Partnerships with our Affiliates
We will succeed through Your Accomplishments