College of Veterinary Medicine
Leadership & Program Review

D. Paul Lunn
Dean of Veterinary Medicine
November 29th, 2016
Leadership & Program Review

• Change
  – Building resources
  – Building the DVM program
• Impact
• Opportunity
The Changes
2012-16

- DVM Enrollment Growth from 80 to 100 students per class
- New Curriculum implementation
- Opening of the Terry Center
- 30% hospital caseload growth
- Major faculty and staff hiring

2012: 20,000
2013: 22,000
2014: 24,000
2015: 26,000
2016: 28,000

Fiscal Year

Hospital Accessions

25,839 27,215 29,486 32,151 33,585
Building the faculty

“The single most important thing we do as a University is to hire and retain extraordinary people”

“The acid test of leadership is the ability to hire and keep extraordinary people”

E. Gordon Gee
Former President, Ohio State
2007

“Borrowed” from Louis Martin-Vega 5-year presentation
Resourcing Faculty Growth

• Funding
  – Enrollment Increase
  – Strategic investment funding
  – Cluster hiring
• Facilities and resources
Faculty growth 2012-16

2012 – 132
2016 – 157
Overall change = 25 (19%)

Current faculty Composition:
- Pre 2012: 96 (61%)
- 2012-16: 61 (39%)

Totals Hired:
- TT: 40 – 3 = 37
- NTT: 29 – 5 = 24
Faculty growth 2012-16

- **Professor TT**
  - 2012: 61
  - 2016: 54

- **Assoc. Prof TT**
  - 2012: 25
  - 2016: 30

- **Assis. Prof TT**
  - 2012: 14
  - 2016: 30

- **Professor NTT**
  - 2012: 3
  - 2016: 6

- **Assoc. Prof NTT**
  - 2012: 12
  - 2016: 8

- **Assis. Prof NTT**
  - 2012: 15
  - 2016: 26

- **Lecturer**
  - 2012: 2
  - 2016: 3
Enrollment Increase (approx. $6.7 M)

- TT Faculty 21.5 FTE
  - $3,010,618
- Research Staff 23 FTE
  - $1,104,350
- Teaching Staff 11.5 FTE
  - $730,600
- NTT Faculty 3 FTE
  - $343,654
- Raises & retentions
  - $974,249
- Course budget
  - $240,000
- Operating
  - $288,000

Uncommitted - $600,000
3 TT FTE’s
3 Technician FTE’s
Where is the effort?

2016

- Teaching: 37%
- Research: 33%
- Service: 26%
- Admin.: 4%

CVM % Effort

CVM 155 FTE's

2012

- Teaching: 38%
- Research: 32%
- Service: 26%
- Admin.: 4%

CVM % Effort

CVM 131 FTE's
Enrollment Increase & Cluster Hire Impact

Enrollment Increase

Cluster Hires
- CFEP - 3
- CVM clusters - 8
Research Funding 2012-16

- Federal: 61%
- Industry: 24%
- Foundations: 15%

NC STATE Veterinary Medicine
Research Funding

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Foundations</th>
<th>Industry</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY12</td>
<td>$10,408,915</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>FY13</td>
<td>$8,825,941</td>
<td>12%</td>
<td>22%</td>
</tr>
<tr>
<td>FY14</td>
<td>$9,543,394</td>
<td>13%</td>
<td>29%</td>
</tr>
<tr>
<td>FY15</td>
<td>$10,570,077</td>
<td>16%</td>
<td>27%</td>
</tr>
<tr>
<td>FY16</td>
<td>$10,322,118</td>
<td>19%</td>
<td>26%</td>
</tr>
</tbody>
</table>
Research Future
Main Building – 3rd floor

B-Wing

C-Wing

Research labs & Graduate Students

Research labs & Graduate Students
Centennial Biomedical Campus Master Plan
Centennial Biomedical Campus Master Plan

- Education Building
- Farm Animal Services
- Equine Hospital
Education Building Goals

- Enhance campus community & student experience
- Accommodate CVM and campus growth
- Enable education
Equine & Farm Animal Facilities
NC STATE Veterinary Medicine

DVM Program
Class of 2015 (N = 78)

Class of 2016 (N = 98)

Satisfaction with Overall Educational Experience

Very Dissatisfied (1)
Dissatisfied (2)
Satisfied (3)
Very Satisfied (4)

Per Cent

0 20 40 60 80 100
Alumni Survey By DVM Class Year

Overall Satisfaction With DVM Program

<table>
<thead>
<tr>
<th>DVM Class Year (Surveyed 12-18 Months Post Graduation)</th>
<th>% Satisfied or Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>97.2%</td>
</tr>
<tr>
<td>2011</td>
<td>93.9%</td>
</tr>
<tr>
<td>2012</td>
<td>96.3%</td>
</tr>
<tr>
<td>2013</td>
<td>97.0%</td>
</tr>
<tr>
<td>2014</td>
<td>94.5%</td>
</tr>
</tbody>
</table>
Focus Areas

Clinician Scientist
Combine clinical and basic science

Equine Practice
Entry level equine practice

Food Animal
Skills needed in modern food animal production

Laboratory Animal
Combines many elements of veterinary medicine

Mixed Animal Practice
Broad clinical education

Pathology
Clinical pathology and anatomic pathology

Epidemiology
Prevention and control of infectious diseases in animals

Small Animal Practice
Combines many elements of veterinary medicine

Small and Exotic Animal Practice
Training in both small animal and exotic animal practice

Zoological Medicine
Medicine and surgery in nontraditional species.
### 2016 Senior Exit Survey

#### What are the 3 Most Important Skills for Success in Veterinary Practice?

<table>
<thead>
<tr>
<th>Skill</th>
<th>2015 # Mentions</th>
<th>2016 # Mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Skills</td>
<td></td>
<td>85</td>
</tr>
<tr>
<td>Differential Diagnosis</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>Physical Exam Skills</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Prob Solving / Clin Reasoning</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Surgical Skills</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Med / Clinical Knowledge</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Technical Skills</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Empathy / Sympathy</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

**Number of times mentioned**
Curriculum change 2012 - 2017

• Pre-Clinical Years
  – Grow active learning
  – Problem-solving courses
  – Communication & clinical reasoning courses
• Revised business & professional skills course
• 2\textsuperscript{nd} Year General Medicine Course
• 3\textsuperscript{rd} year Electives
Challenges

• Competencies & “vocational” training
• Sustaining a strong foundation
• Impact of the changes we have made

• New ideas or old ideas?
  – Bleeding edge and state of the art?
• Let’s use what works
  – What are the best ideas?
• Active, informed and broad faculty engagement
Professional Curriculum Evolution

• Teacher-Centered vs. Learner-Centered
• Forward Design vs. Backward Design

• Achievable goals
  – Alignment of learning objectives & instruction
  – Effective & formative assessment
  – Adult learning – contextual, active and building knowledge structures

• Challenging goals
  – Curriculum mapping and vertical integration
  – Balancing core & focus areas
DVM Program development

Jenna Hartwell
• Director of Veterinary Career Services and Professional Development

Amy Snyder DVM MBA
• General Practice
• Selectives & Core business skills education

Allen Cannedy DVM
• Director of Diversity & Multicultural Affairs

Andy Stringer DVM PhD
• Director, Global Health Education
• Certificate Program
Wellness
Student American Veterinary Medical Association

• 3,888 respondents: 27% of all US vet students
  – 60% family history of depression, anxiety or substance abuse
  – 37% periods of depression >2 weeks
  – 20% specific diagnosis
  – 5% considering suicide to the point of forming a plan

2015 study
T.H.R.I.V.E.

Transforming Health & Resilience into Veterinary Excellence
– Wellness Breakfasts, Lunch & Learn & Ambassador training
– Internal website
– Annual QPR Suicide Prevention training
– SAVMA
  • Wellness dinner
  • Wellness Committee & initiatives

Student activities earn points….
CVM House System

Goal: Improve Wellness in 5 Areas

- Intellectual
- Mental and emotional
- Social
- Cultural
- Physical health
Questions...

• Is our admissions policy part of the problem?
  – More emphasis on resilience & emotional intelligence

• Can we model work/life balance

• What and who are we missing?
  – It's not just our students…
In State – Tuition, Fees & Loan fees

**Top five most expensive**

Not including Western, Midwestern & Lincoln Memorial

<table>
<thead>
<tr>
<th>University</th>
<th>Tuition, Fees &amp; Loan fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tufts University</td>
<td>$198,097.50</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>$192,713.73</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>$158,530.97</td>
</tr>
<tr>
<td>University of California-Davis</td>
<td>$151,625.77</td>
</tr>
<tr>
<td>The Ohio State University</td>
<td>$145,481.88</td>
</tr>
</tbody>
</table>

**Top five least expensive**

<table>
<thead>
<tr>
<th>University</th>
<th>Tuition, Fees &amp; Loan fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Carolina State University</td>
<td>$80,675.86</td>
</tr>
<tr>
<td>Auburn University</td>
<td>$84,909.96</td>
</tr>
<tr>
<td>Oklahoma State University</td>
<td>$85,548.93</td>
</tr>
<tr>
<td>University of Georgia</td>
<td>$85,705.71</td>
</tr>
<tr>
<td>Mississippi State University</td>
<td>$90,831.75</td>
</tr>
</tbody>
</table>
Out of State – Tuition, Fees & Loan fees

Top five most expensive

- Michigan State University: $263,922.55
- Northwestern University: $261,385.66
- Colorado State University: $257,549.44
- University of Tennessee: $254,087.99
- Kansas State University: $245,089.44

Top five least expensive

- North Carolina State University: $109,611.43
- University of Wisconsin-Madison: $128,977.81
- University of Missouri: $138,988.81
- Washington State University: $144,156.42
- Tuskegee University: $148,427.34

JAVMA • Vol 249 • No. 10 • November 15, 2016
### Cost of Education

- **2016 AVMA & AAVMC Report on the Market for Veterinary Education**

#### Debt-to-Income Ratio

<table>
<thead>
<tr>
<th>University</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western University - California</td>
<td>4.0261</td>
</tr>
<tr>
<td>Tuskegee University</td>
<td>3.7642</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>2.6063</td>
</tr>
<tr>
<td>Kansas State University</td>
<td>2.6019</td>
</tr>
<tr>
<td>University of Florida</td>
<td>2.3609</td>
</tr>
<tr>
<td>The Ohio State University</td>
<td>2.3473</td>
</tr>
<tr>
<td>Virginia-Maryland Regional University</td>
<td>2.3180</td>
</tr>
<tr>
<td>Colorado State University</td>
<td>2.3117</td>
</tr>
<tr>
<td>Cornell Veterinary College</td>
<td>2.1684</td>
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<tr>
<td>Oregon State University</td>
<td>2.1422</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>2.1301</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>2.0653</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>2.0639</td>
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<tr>
<td>University of Pennsylvania</td>
<td>2.0638</td>
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<tr>
<td><strong>Total Mean</strong></td>
<td>2.0201</td>
</tr>
<tr>
<td>Cummings SVM at Tufts University</td>
<td>1.9986</td>
</tr>
<tr>
<td>Mississippi State University</td>
<td>1.9166</td>
</tr>
<tr>
<td>University of Illinois</td>
<td>1.9140</td>
</tr>
<tr>
<td>Auburn University</td>
<td>1.8973</td>
</tr>
<tr>
<td>Louisiana State University</td>
<td>1.8818</td>
</tr>
<tr>
<td>Oklahoma State University</td>
<td>1.8017</td>
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<tr>
<td>University of Missouri-Columbia</td>
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<td>University of Wisconsin</td>
<td>1.5155</td>
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<tr>
<td>Washington State University</td>
<td>1.4931</td>
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<tr>
<td><strong>North Carolina State University</strong></td>
<td>1.4909</td>
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<tr>
<td>Purdue University</td>
<td>1.4342</td>
</tr>
<tr>
<td>University of Georgia</td>
<td>1.4187</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>1.1737</td>
</tr>
</tbody>
</table>

#### Total Cost-to-Income Ratio

<table>
<thead>
<tr>
<th>University</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western University - California</td>
<td>4.7315</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>4.6429</td>
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<tr>
<td>Tuskegee University</td>
<td>4.0615</td>
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<tr>
<td>Colorado State University</td>
<td>3.8718</td>
</tr>
<tr>
<td>Tufts University</td>
<td>3.7295</td>
</tr>
<tr>
<td>Kansas State University</td>
<td>3.6294</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>3.5876</td>
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<td>The Ohio State University</td>
<td>3.3602</td>
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<td>Cornell University</td>
<td>3.3515</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>3.3263</td>
</tr>
<tr>
<td>Virginia-Maryland Regional University</td>
<td>3.1474</td>
</tr>
<tr>
<td>Auburn University</td>
<td>3.1203</td>
</tr>
<tr>
<td>University of Florida</td>
<td>3.0968</td>
</tr>
<tr>
<td><strong>Total Mean</strong></td>
<td>3.0448</td>
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<tr>
<td>Washington State University</td>
<td>3.0230</td>
</tr>
<tr>
<td>University of Illinois</td>
<td>2.9152</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>2.8918</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>2.8733</td>
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<tr>
<td>Louisiana State University</td>
<td>2.8556</td>
</tr>
<tr>
<td>Mississippi State University</td>
<td>2.8128</td>
</tr>
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<td>Purdue University</td>
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<tr>
<td>University of California-Davis</td>
<td>2.7338</td>
</tr>
<tr>
<td>Oregon State University</td>
<td>2.7139</td>
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<tr>
<td>University of Wisconsin</td>
<td>2.5925</td>
</tr>
<tr>
<td>University of Georgia</td>
<td>2.5441</td>
</tr>
<tr>
<td>Oklahoma State University</td>
<td>2.4450</td>
</tr>
<tr>
<td>University of Missouri-Columbia</td>
<td>2.3417</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>2.3270</td>
</tr>
<tr>
<td><strong>North Carolina State University</strong></td>
<td>2.1551</td>
</tr>
</tbody>
</table>
Average Total Educational Debt

<table>
<thead>
<tr>
<th>Year</th>
<th>NC State</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$75,044</td>
<td>$135,359</td>
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<tr>
<td>2013</td>
<td>$90,315</td>
<td>$146,221</td>
</tr>
<tr>
<td>2014</td>
<td>$97,232</td>
<td>$145,705</td>
</tr>
<tr>
<td>2015</td>
<td>$113,092</td>
<td>$154,160</td>
</tr>
<tr>
<td>2016</td>
<td>$112,616</td>
<td>$155,291</td>
</tr>
</tbody>
</table>
DVM Scholarships Awarded

Academic Year

2012-13: $282,020
2013-14: $472,987
2014-15: $528,770
2015-16: $579,556
2016-17: $679,880
DVM Applicants

Average Applicant is:

- Female
- 3.56 GPA
- 24 years old
- 1654 veterinary contact hours
- Has applied 1.2 times
- Suburban
- $950 in application fees
NC State DVM Applicant Pool

**Applicant Numbers**

<table>
<thead>
<tr>
<th>DVM Class</th>
<th># Admitted*</th>
<th># Qualified</th>
<th># Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>101</td>
<td>493</td>
<td>892</td>
</tr>
<tr>
<td>2019</td>
<td>101</td>
<td>442</td>
<td>892</td>
</tr>
<tr>
<td>2018</td>
<td>100</td>
<td>403</td>
<td>809</td>
</tr>
<tr>
<td>2017</td>
<td>101</td>
<td>471</td>
<td>837</td>
</tr>
<tr>
<td>2016</td>
<td>100</td>
<td>381</td>
<td>662</td>
</tr>
</tbody>
</table>

*80% of Admitted Students are NC Residents

**Class Gender & Diversity**

<table>
<thead>
<tr>
<th>DVM Class</th>
<th>URVM</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td></td>
<td>23%</td>
<td>21%</td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td>24%</td>
<td>29%</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>23%</td>
<td>17%</td>
</tr>
<tr>
<td>2017</td>
<td>9%</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td>2016</td>
<td>9%</td>
<td>21%</td>
<td></td>
</tr>
</tbody>
</table>

*URVM = Underrepresented in Veterinary Medicine
North Carolina vs. National Students – AVMA exit survey

% Planning on Specialty Training

% Job Choice

% NC graduates hired in NC
Where are our DVM alumni?

Overseas – 20
Unknown – 20
Total – 2,256
NC State DVM Alumni Numbers

- Total number of living alumni – 2,256
- Alumni working in NC – 1,151 (51%)
- 3,516 DVM's in NC – 33% NC State Alumni
- NCVMA 2,540 members – 40% NC State alumni or faculty
Economic Impact study 2015-16

**NORTH CAROLINA’S VETERINARIANS FAST FACTS, 2015**

- there are 3,508 veterinarians

- **Wake County** employs the most veterinarians

- projected **23% GROWTH** over next 10 years

- 94.1% are in the Veterinary Services industry

- 36% of veterinarians are CVM alumni

**NORTH CAROLINA’S VETERINARY SERVICES INDUSTRY FAST FACTS, 2015**

- makes up 0.1% of GSP

- generates **$1 BILLION** in sales

- supports 14,330 jobs

- projected **26% GROWTH** over next 10 years

- 23% of industry are veterinarians
## Economic Impact study 2015-16

### Impacts Created by CVM in FY 2015-16

<table>
<thead>
<tr>
<th>Added Income</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$37.7 Million</td>
<td>477</td>
</tr>
<tr>
<td>Operations spending impact</td>
<td></td>
</tr>
<tr>
<td>$32.5 Million</td>
<td>442</td>
</tr>
<tr>
<td>Veterinary hospital spending impact</td>
<td></td>
</tr>
<tr>
<td>$8.9 Million</td>
<td>124</td>
</tr>
<tr>
<td>Research spending impact</td>
<td></td>
</tr>
<tr>
<td>$5.5 Million</td>
<td>153</td>
</tr>
<tr>
<td>Student spending impact</td>
<td></td>
</tr>
<tr>
<td>$89.6 Million</td>
<td>2,149</td>
</tr>
<tr>
<td>DVM alumni impact</td>
<td></td>
</tr>
<tr>
<td>$174.2 Million</td>
<td>3,345</td>
</tr>
<tr>
<td>Total impact</td>
<td></td>
</tr>
</tbody>
</table>
GOAL ONE
Build an inclusive College community and a culture of pride and integrity

GOAL TWO
Deliver world-class education that produces highly successful veterinarians

GOAL THREE
Build research leadership and training in animal and human health

GOAL FOUR
Deliver compassionate, state-of-the-art care in a dynamic educational environment

GOAL FIVE
Strategically invest in targeted programmatic areas
Investing in People

- Leadership training at every level
- Comprehensive mentoring programs
- Career development
- Paths to advancement
Building teams
Admissions: building the DVM class

• We enjoy enormous support from our state
  – When we recruit from NC our graduates stay in NC
  – We can shape the profession in our state

• We need to broaden recruitment in NC & beyond
  – We need to strengthen our brand & demonstrate our performance

• We need to consider new approaches to admissions
Veterinary Hospital & clinical programs

ADVANCED MEDICINE
CARING PEOPLE

Integrated health care, state-of-the-art medical technology for companion, equine and farm animals

HOSPITAL SERVICES
Small Animal  Exotics  Equine  Farm Animal

VETERINARIAN REFERRALS  CONTACT INFORMATION
Veterinary Hospital & clinical programs

• Sustaining the educational mission
• Investment in primary care
  – “Blended” clinical models
• Ensuring a sustainable work environment
Training programs

• House Officer program
• Comparative Biomedical Sciences Graduate Program
• DVM students & Biomedical Research
• The impact of the “150”
Building our research

• Launch and sustain careers
• Grow partnerships and opportunities
Philanthropy

Tiffany and Randy Ramsey Equine Sports Medicine Program

R.B. Terry Charitable Foundation

Ross Annable
Michele M. and Ross M. Annable Scholarship Endowment