VETERINARY EDUCATION IN TAIWAN

THE 17TH AAVS CONFERENCE
NOV. 21-22, 2018, TOKYO, JAPAN

Chian-Ren Jeng¹, Chao-Chin Chang²

¹School of Veterinary, National Taiwan University
²College of Veterinary Medicine, National Chung Hsing University
Overview

✓ FOUR 5-year undergraduate programs
ONE 4-year post-baccalaureate program

✓ 3 veterinary colleges
  1 professional school
  1 post-graduate department

✓ Confer DVM degree
  Doctor of Veterinary Medicine

✓ 280 DVM graduates/year
  ~ <100 MS graduate/year
  ~ <10 PhD graduate/year

✓ Board certification (computer-based) for licensed practice
  1. Veterinary pathology
  2. Veterinary pharmacology
  3. Laboratory diagnosis
  4. Veterinary general disease
  5. Veterinary infectious disease
  6. Veterinary public health

  Average of 60 is required

✓ Recognized by Hong Kong & Malaysia Government
  (NTU & NCHU)
Veterinary Colleges in Taiwan: Location

- **1928** National Taiwan University (NTU)  
  - Established year for department of veterinary medicine

- **1919** National Chung-Hsing University (NCHU)

- **2005** Asia University

- **1919** National Chia-Yi University (NCYU)

- **1924** National Ping-Tung University of Science and Technology (NPUST)
Veterinary Colleges in Taiwan: Organization

National Taiwan University (NTU)
School of Veterinary Medicine
DVM, MS, PhD (2008)

National Chung-Hsing University (NCHU)
College of Veterinary Medicine
DVM, MS, PhD (1999)

Asia University
Department of Veterinary Medicine
DVM (2016)

National Chia-Yi University (NCYU)
College of Veterinary Medicine
DVM, MS (2016)

National Ping-Tung University of Science and Technology (NPUST)
College of Veterinary Medicine
DVM, MS, PhD (2011)
Veterinary Colleges in Taiwan: School System

National Taiwan University (NTU)
5 year - undergraduate

National Chung-Hsing University (NCHU)
Asia University
5 year - undergraduate

National Chia-Yi University (NCYU)
4 year – post-baccalaureate

National Ping-Tung University of Science and Technology (NPUST)
5 year - undergraduate
Veterinary Colleges in Taiwan: Current Deans

NTU
Dr. Chian-Ren Jeng

NCHU
Dr. Chao-Chin Chang

Asia University
Dr. Chi-Hsien Chien

NCYU
Dr. Shih-Jen Chou

NPUST
Dr. Shin-Chu Chen
# Veterinary Colleges in Taiwan: Key Facts

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>Student Total</th>
<th>Student DVM</th>
<th>Student Graduate</th>
<th>S/T Ratio</th>
<th>Graduation Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTU</td>
<td>36</td>
<td>465</td>
<td>360</td>
<td>105</td>
<td>13</td>
<td>182 (152)</td>
</tr>
<tr>
<td>NCHU</td>
<td>52</td>
<td>573</td>
<td>374</td>
<td>199</td>
<td>11</td>
<td>182 (151)</td>
</tr>
<tr>
<td>NCYU</td>
<td>15</td>
<td>276</td>
<td>261</td>
<td>15+10</td>
<td>16</td>
<td>185 (140)</td>
</tr>
<tr>
<td>NPUST</td>
<td>30</td>
<td>575</td>
<td>519</td>
<td>56</td>
<td>19</td>
<td>186 (157)</td>
</tr>
<tr>
<td>Asia</td>
<td>10</td>
<td>45</td>
<td>45</td>
<td>0</td>
<td>NA</td>
<td>155 (128)</td>
</tr>
</tbody>
</table>
# Veterinary Colleges in Taiwan: Key Facts

<table>
<thead>
<tr>
<th></th>
<th>Prof</th>
<th>Associate Prof</th>
<th>Assistant Prof</th>
<th>Lecture</th>
<th>PhD%</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTU</td>
<td>15</td>
<td>11</td>
<td>10</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>NCHU</td>
<td>29</td>
<td>12</td>
<td>7</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>NCYU</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>93%</td>
</tr>
<tr>
<td>NPUST</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>0</td>
<td>93%</td>
</tr>
<tr>
<td>Asia</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>

Upside-down Pyramid
<table>
<thead>
<tr>
<th>Organization</th>
<th>Affiliated institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NTU</strong></td>
<td></td>
</tr>
<tr>
<td>1. Department of Veterinary Medicine</td>
<td>1. Veterinary Hospital</td>
</tr>
<tr>
<td>2. Institute of Veterinary Clinical Sciences</td>
<td>2. Center for zoonosis studies</td>
</tr>
<tr>
<td>3. Graduate Institute of Molecular and Comparative Pathology</td>
<td>3. Center for animal disease and development of food product analysis</td>
</tr>
<tr>
<td><strong>NCHU</strong></td>
<td></td>
</tr>
<tr>
<td>1. Department of Veterinary Medicine</td>
<td>1. Veterinary teaching hospital</td>
</tr>
<tr>
<td>2. Graduate Institute of Pathobiology</td>
<td>2. Animal disease diagnosis center</td>
</tr>
<tr>
<td>3. Graduate Institute of Microbiology and Public Health</td>
<td></td>
</tr>
<tr>
<td><strong>NCYU</strong></td>
<td></td>
</tr>
<tr>
<td>1. Department of Veterinary Medicine</td>
<td>1. Veterinary teaching hospital</td>
</tr>
<tr>
<td><strong>NPUST</strong></td>
<td></td>
</tr>
<tr>
<td>1. Department of Veterinary Medicine</td>
<td>1. Veterinary teaching hospital</td>
</tr>
<tr>
<td>2. Graduate Institute of Wildlife Conservation</td>
<td>2. Animal disease diagnosis center</td>
</tr>
<tr>
<td>3. Graduate Institute of Animal Vaccine Technology</td>
<td>3. Center for Animal Vaccine and adjuvant development</td>
</tr>
<tr>
<td>4. Center for wildlife conservation service</td>
<td>4. Center for wildlife conservation service</td>
</tr>
</tbody>
</table>
# OIE Core courses for Day one one competence

<table>
<thead>
<tr>
<th>Time</th>
<th>Course</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>Biochemistry</td>
<td>Genetics</td>
</tr>
<tr>
<td></td>
<td>Anatomy</td>
<td>Physiology</td>
</tr>
<tr>
<td></td>
<td>Immunology</td>
<td>Biomathematics</td>
</tr>
<tr>
<td></td>
<td>Animal welfare and ethology</td>
<td></td>
</tr>
<tr>
<td>Mid</td>
<td>Parasitology</td>
<td>Pharmacology/Toxicology</td>
</tr>
<tr>
<td></td>
<td>Pathology</td>
<td>Transmissible disease</td>
</tr>
<tr>
<td></td>
<td>Microbiology</td>
<td>Epidemiology</td>
</tr>
<tr>
<td>Mid to Late</td>
<td>Rural economics, business management, and animal production</td>
<td>Clinical and diagnostic sciences</td>
</tr>
<tr>
<td></td>
<td>National and international veterinary legislation</td>
<td></td>
</tr>
<tr>
<td>Late</td>
<td>Herd health management and nutrition</td>
<td>Public health</td>
</tr>
<tr>
<td></td>
<td>Food safety/ hygiene</td>
<td>Professional jurisprudence and ethics</td>
</tr>
<tr>
<td>Throughout</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Course</td>
<td>Course</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>1st</td>
<td>Anatomy (&amp; lab)</td>
<td>General Chemistry (&amp; lab)</td>
</tr>
<tr>
<td></td>
<td>Zoology</td>
<td>Animal Welfare</td>
</tr>
<tr>
<td>2nd</td>
<td>Biochemistry (&amp; lab)</td>
<td>Physiology (&amp; lab)</td>
</tr>
<tr>
<td></td>
<td>Parasitology (&amp; lab)</td>
<td>Virology (&amp; lab)</td>
</tr>
<tr>
<td></td>
<td>Histology (&amp; lab)</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Pathology (&amp; lab)</td>
<td>Diagnostic Imaging (&amp; lab)</td>
</tr>
<tr>
<td></td>
<td>Anesthesiology (&amp; lab)</td>
<td>Obstetrics and Reproduction</td>
</tr>
<tr>
<td>4th</td>
<td>Clinical Pathology (&amp; lab)</td>
<td>Public Health (&amp; lab)</td>
</tr>
<tr>
<td></td>
<td>Swine Diseases</td>
<td>Fowl Disease</td>
</tr>
<tr>
<td></td>
<td>Exotic Animal Disease</td>
<td>Ruminant Diseases</td>
</tr>
<tr>
<td></td>
<td>Small Animal Surgery</td>
<td>Large Animal Surgery</td>
</tr>
<tr>
<td>5th</td>
<td>Epidemiology</td>
<td>Jurisdiction and Ethnics</td>
</tr>
</tbody>
</table>

**Clinical Rotation (7 Groups):**
- Small animal surgery
- Small animal internal medicine
- Exotic and aquatic animals
- Clinical pathology
- Pathology & swine disease
- Large animal
- Fowl & laboratory animals
<table>
<thead>
<tr>
<th>Animal Behavior</th>
<th>E M Technique</th>
<th>Nutritional Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Necropsy Technology</td>
<td>Embryology</td>
<td>Ophthalmology</td>
</tr>
<tr>
<td>Animal Rights Thoughts</td>
<td>Endocrinology</td>
<td>Pigeon Disease</td>
</tr>
<tr>
<td>Animal Vaccine and Practice</td>
<td>Endoscope Technique</td>
<td>Principles of Pharmacokinetics</td>
</tr>
<tr>
<td>Bioanalytical Techniques</td>
<td>Equine Disease</td>
<td>Small Animal Dentistry</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>Fluid Therapy</td>
<td>Strategy for Veterinarian Career</td>
</tr>
<tr>
<td>Canine Sports Medicine</td>
<td>Genetics</td>
<td>The Life and Death of Animals</td>
</tr>
<tr>
<td>Cardiology</td>
<td>Global Animal Protection and Public Policy</td>
<td>Toxicology</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>Hematology/Clinical Hematology</td>
<td>Traditional Chinese Veterinary Medicine</td>
</tr>
<tr>
<td>Chinese Herbal Medicine</td>
<td>Hospital Management</td>
<td>Veterinary Acupuncture</td>
</tr>
<tr>
<td>Clinical Microbiology</td>
<td>Laboratory Animals</td>
<td>Veterinary Dermatology</td>
</tr>
<tr>
<td>Clinical Neurology</td>
<td>Leadership and Management</td>
<td>Veterinary Entomology</td>
</tr>
<tr>
<td>Clinical Nutrition</td>
<td>Molecular Biology</td>
<td>Veterinary Oncology</td>
</tr>
<tr>
<td>Clinical Pharmacology</td>
<td>Mycology</td>
<td>Veterinary Pediatrics</td>
</tr>
<tr>
<td>Diagnostic Cytology</td>
<td>Neuroelectrophysiology</td>
<td>Veterinary Preventive Medicine</td>
</tr>
<tr>
<td>Diseases of Wild and Pet</td>
<td>Nursing Practice in Companion</td>
<td>Veterinary Radiology</td>
</tr>
</tbody>
</table>
Clinical Rotation in NTUVH

- Block system training
- Six blocks in one semester, last year (2 semesters) of the DVM program (internal medicine, surgery, clinical path/image, production medicine/wards, necropsy)
Section of Small Animal Medicine
Acupuncture

- Electro-acupuncture
- Dry needles
- Laser acupuncture
- Wormwood warm needle
Section of Small Animal Surgery
An all-year round program supports daily care

24 hours ward service

Residents, interns, and veterinary technicians, rotating senior students
Large Animal
ZOO ANIMAL

ZOO ANIMAL HEALTHY EXAMINE
Exotic pet disease

□ General clinic, basic examination, surgery, hospitalization.
□ Patient: small mammals, birds, reptiles, amphibians, marines
□ Examination: microscopic examination, laboratory examination, radiography, ultrasonography, CT.
Diagnostic Imaging Service

Ultrasound

X-ray

Endoscopy
- Digital radiography, ultrasound, 16-slice spiral computed tomography (CT) and magnetic resonance imaging (MRI).
- Clinical teaching for the undergraduate education, intern and resident training program.
Pathological diagnosis: anatomical pathology
NTUVH Resident Training Programme
- Small animal surgery
- Small animal internal medicine
- Large Animal & Wildlife Medicine
- Veterinary Pathology
  - 3-4 year program
  - Required: case load, publication (SCI paper)

NCHUVH
- Intern → Resident → CR → VS
  - Required: case load, publication (SCI paper)
Comparative Pathology
Chinese Traditional Medicine
Veterinary Dermatology
Veterinary Internal Medicine
Veterinary Kidney Specialists
Veterinary Ophthalmology
Veterinary Orthopaedic
Veterinary Pathology
Veterinary Surgeons

Serve as bases for CE
Future Challenge: Need vs Interest!!

- Companion (56%)
- Government (19)
- Economic (8%)
- Abattoir (6%)
- Local agri station (6%)
- Exotic animal (2%)
- Research Institute (2%)
- Industry/Sales (<1%)
The best reward of Good Education

Board certified (to be)
specialist /alumni working in
the university

Dr. Po-Yen Chou
(NTU, DVM, 2003)
BVM, MVM, DACVS
(Small Animal Surgeons)
UC Davis School of
Veterinary Medicine

Dr. Ronald Koh
(NCHU, DVM, 2005)
Assistant Professor
LSU School of
Veterinary Medicine

Dr. Andy Law
(NCHU DVM, 2008)
Assistant Professor
Purdue University,
School of Veterinary Medicine

Board certified specialist
working in the industry

Dr. Cindy Lin
(NTU DVM, 2002)
DVM/PhD/DACVP
(Veterinary Pathology)
UC Davis
Clin Path
International
Diagnostic Center

Dr. Yun-Ting Wang
(NCHU DVM
2009)
Diplomat
American College
of Poultry
Veterinarian
Huvepharma

Board certified specialist
working in Taiwan

Dr. Cindy Lin
(NTU DVM, 2002)
DVM/PhD/DACVP
(Veterinary Pathology)
UC Davis
Clin Path
International
Diagnostic Center

Dr. Yun-Ting Wang
(NCHU DVM
2009)
Diplomat
American College
of Poultry
Veterinarian
Huvepharma

Dr. Ya-Pei Chang
(NTU DVM)
Diplomat of European
College of Veterinary
Neurology
Assistant Professor at
SVM NTU

Dr. Kuan-Sheng Chen
(NCHU, DVM, 1999)
DVM, MVS, PhD, MANZCVS
(Australian and New
Zealand College of
Veterinary Scientists in
Veterinary Radiology)
Assistant Professor at
CVM NCHU
Working together to improve Veterinary Education in Asia

Tokyo
Azabu
UPM
Kyoto
Working together to improve Veterinary Education in Asia
Future Challenge: moving toward a 6-year undergraduate program

- More practical (clinical) training
- To be better connected to the international system
  - Main Stream: Undergraduate 6 years or post-graduate 4 years
- Better recognized for degree equivalency
- Lack of police support, no incentive and no supplementary support, not sustainable yet.

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. America</td>
<td>All vet colleges</td>
<td>Post graduate 4 years</td>
</tr>
<tr>
<td>British</td>
<td>Cambridge, royal vet colleges....</td>
<td>mostly 6 years, some 5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Edinburgh)</td>
</tr>
<tr>
<td>Europe</td>
<td>Utrecht, Poland, ....</td>
<td>6-year</td>
</tr>
<tr>
<td>Australia</td>
<td>Sydney, Melbourne, Murdoch....</td>
<td>6-year</td>
</tr>
<tr>
<td>Asian</td>
<td>Japan, Korea, Thailand, ...</td>
<td>6-year</td>
</tr>
<tr>
<td></td>
<td>Taiwan, Malaysia, China, Spain, New Zealand</td>
<td></td>
</tr>
</tbody>
</table>
Challenges faced:

- DVM program recognized by Hong Kong (NTU & NCHU) will be expired on Dec. 2023 if our program is not under accreditation process, either AVMA, EAEVE, RCVS, Australia-New Zealand (AVBC Inc.) …..

- Application of international accreditation of our program?
College of Veterinary Medicine, National Chung Hsing University

Prof. Chi-Chung Chou
Thanks for your attentions