

# **SUBJECT REVIEW REPORT**

**DEPARTMENT OF  
VETERINARY PUBLIC HEALTH AND  
PHARMACOLOGY**



***FACULTY OF VETERINARY MEDICINE AND  
ANIMAL SCIENCE***

***UNIVERSITY OF PERADENIYA***

11<sup>th</sup> to 13<sup>th</sup> June 2008

**Review Team :**

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## **1. SUBJECT REVIEW PROCESS**

This review was carried out on the 11th, 12th and 13<sup>th</sup> of June, 2008 by a team comprising the following persons.

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Prof (Ms) Chandra P Kodikara, University of Kelaniya  
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The terms of reference for the review team were according to those described in the Quality Assurance Handbook of the CVCD and UGC (page 13 to 16 and Annex E).

The team based its findings on the following documents and activities:

1. A desk study of the Self Evaluation Report prepared by the Head of Department and Staff
2. A meeting with the Vice-Chancellor and the Director of Academic Affairs
3. Meetings with Department academic staff for in-depth assessments of the contents of the curriculum and the teaching/learning methods used
4. Observation of classroom teaching (Lectures and Practical classes)
5. A survey of facilities – classroom, laboratory, Farm, Computer Centre and Library - available for teaching
6. Interactions with the following personnel:
  7. The Dean of the Faculty
  8. The academic staff of the Department
  9. The non-academic staff of the Department
  10. Veterinary Undergraduate students from the 3<sup>rd</sup> year(senior/junior)
  11. Post-graduate students
  12. Perusal of miscellaneous documents relating to academic activities in the Department
  13. Meeting with the Faculty Student Counselors

## **2. BRIEF HISTORY OF THE UNIVERSITY, FACULTY AND DEPARTMENT**

The Department under review is one of five Departments in the Faculty of Veterinary Medicine and Animal Science (FVMAS) which, in turn, is one of seven Faculties at the University of Peradeniya. The University of Peradeniya, established on 1<sup>st</sup> July, 1942, presently has a developed infrastructure, trained academic staff, equipped laboratories and all the specialized units and accessories of a complete, modern University. It is the largest in terms of student enrolment and the most complete with respect to the number and range of Faculties, in Sri Lanka. It is also the only residential University in the Island located in exceptionally pleasant surroundings with a mild climate.

The FVMAS is the only Faculty in the Sri Lankan University system that offers a degree program in Veterinary Science. University education in Veterinary Science commenced in Sri Lanka in the year 1947 with the establishment of a Department of Veterinary Science in the University of Ceylon. At the outset, students followed the medical curriculum in Anatomy, Physiology, Biochemistry, general Pharmacology and Pathology with their counterparts at the Faculty of Medicine in the University of Ceylon in Colombo. The specialized subjects in Veterinary pathology, Veterinary Public Health and clinical subjects (including therapeutics) were taught at Peradeniya. Since 1966, with the establishment of a separate Faculty of Medicine at Peradeniya, all veterinary undergraduate training has been carried out at Peradeniya

In the year 1973, the single Department of Veterinary Science was expanded to three Departments of study, namely, Veterinary Preclinical, Paraclinical and Clinical Studies, upgraded as the School of Veterinary Science and included with Medical and Dental Schools to form one Faculty. Veterinary Pharmacology and Public Health were at that stage taught in the Department of Paraclinical Studies. In the early 1980s, the undergraduate training in Veterinary Science was accorded full-faculty status with an additional Department, namely, Animal Science. At the same time, the newly formed Department of Veterinary pre-clinical studies took over all the teaching of basic subjects most of which had hitherto had been taught at the Faculty of Medicine. In October 2000, the FVMAS was restructured and the Departments renamed as Basic Veterinary Sciences (BVS), Veterinary Pathobiology (VPB), Veterinary Clinical Studies (VCS) and Farm Animal Production and Health (FAPH). Finally, in July, 2007 the subjects of Veterinary Pharmacology and Public Health were separated out from the VPB into a new Department of Veterinary Public Health and Pharmacology (VPH), to give the present structure.

The students in Veterinary Science pass in stages first through the Department of Basic Sciences, then the VPB and VPH before passing on to the two Departments dealing with clinical and animal production aspects. With the revision in year 2000, there was also a change in the architecture of the course; the teaching of pre-clinical subjects which occupied nearly 2 years up to that time, was reduced to one year with the para-clinical subjects spread over the next two years. Additional subjects such as Wildlife Management were also included with this revision and are also taught during the 2<sup>nd</sup> and 3<sup>rd</sup> years.

All five Departments contribute to the undergraduate program. The role of the first two Departments and Pharmacology in VPH is essentially to prepare the students for the clinical and farm training. This structure is common to many professional courses, in particular, Medicine and Dental Science and different from those in the Science or Arts Faculties in which the individual Departments are usually based on disciplines. In this context, it is somewhat difficult to isolate the role of the VPH as it contributes only a part to the final product. At the meeting with the VC it was decided to review all five Departments together once the individual reports are ready. The task of this review, therefore, was understood as making an assessment of the success of the program in the VPH in teaching the subjects assigned to it.

### **General Observations**

The VPH is responsible for teaching Veterinary Public Health and Veterinary Pharmacology (General and clinical) to 3<sup>rd</sup> year Veterinary students. The justification for establishing a separate Department for public health was stated as the increasing importance of this subject due to the emergence in recent years of a number of diseases in animals that are transmissible to man and the central role played by Veterinarians the world over in their control. The main task of the Department could be defined, therefore, as "Teaching about all hazards to human health & well-being and the environment resulting from animals, animal products and animal production and on ways of minimizing, mitigating or eliminating such hazards. The staff had a clear understanding of what they were trying to achieve through introducing and strengthening public health and were enthusiastic about their task.

It is necessary, however, that the curriculum provides a sound training for this purpose. The Department also has a great opportunity to achieve their goals as a major curriculum review is in progress. The inclusion of the subject of Pharmacology in the Department is apparently for historical reasons and has no rationale. Indeed, it was found that the time available was insufficient to teach this important subject. The two subjects are taught and examined in the

course of the 3<sup>rd</sup> year together with several other subjects for which this Department has no responsibility.

The workload of VPHP was equivalent to around 18 credits and their contribution of marks to the final grade (12 to 15%) was in proportion. We also noted that a considerable portion of the resources of the VPHP was expended in providing services to Industry – relating to detection of residues - and that they were able to earn a significant income from these activities.

### 3. AIMS AND LEARNING OUTCOMES

#### 3.1 Aims

The overall aims of the Programme in the VPHP are to:

- Enable veterinary graduates to adopt public health measures in preventing zoonotic diseases according to available legislative structure.
- Enable students to use clinical information for early recognition of emerging zoonotic diseases and be able to take a lead role in their control.
- Enable students to recognize and to avoid occupational health hazards and environmental threats due to veterinary interventions.
- Encourage students to be self motivated and capable for adopting measures to ensure safety of food which are of animal origin.
- Develop the student ability to make rational decisions on therapeutic regimes based on an understanding of Veterinary Pharmacology.
- Enable students to maximize their participation actively and confidently in future career.

The subjects offered are; Veterinary Public Health, Food Technology & Quality Assurance and Veterinary Pharmacology as shown in the Table. All these courses are offered during the third academic year of the B.V.Sc. program.

Letter code	Code No:	Subject title	Academic semester
VPB	316	Veterinary Public Health I	5
	317	Food Technology and Quality Assurance I	5
	315	Veterinary Pharmacology I	5
	326	Veterinary Public Health II	6
	327	Food Technology and Quality Assurance II	6
	325	Veterinary Pharmacology II	6

#### 3.2 Learning Outcomes

##### Food Technology and Quality Assurance

At the end of this course student should be able to;

- List diverse food commodities of animal origin and their products and describe hazards associated with such foods.
- Describe the main steps in food chains and maintain the quality from “stable to table”.
- Describe compositional and hygienic quality of milk and milk products.
- Explain basic principals in meat inspection in relation to quality and safety.

- Describe the quality assurance measures of meat, eggs their products and aquatic products.
- Describe and apply the basic principals of Food quality requirements for imports, exports and regulations related to domestic and international trade.

***Practical Skills:***

- Perform water quality testing methods.
- Perform milk testing for compositional and hygienic quality.
- Perform meat inspection in relation to quality and safety.

**Veterinary Pharmacology**

Having successfully completed this course, the student will be able to:

- Describe the general concepts of pharmacokinetics and pharmacodynamics with exceptions.
- Explain the diverse activities within the pharmaceutical industry.
- Describe the principals of regulatory pharmacology, including labeling code.
- Select appropriate chemotherapeutic agents in controlling bacterial infections or parasitic infestations
- Identify adverse drug reactions or inefficiencies and carry out remedial measures.
- Describe the drug action in relation to the physiology and pathophysiology of the system or the tissue affected.
- Select drugs effectively to optimize the therapeutic dosage regimes for specific disease conditions.
- Formulate specific therapeutic objectives for individual patients/herd/flock with a variety of different diseases.
- Summarize the advantages and disadvantages of a given therapeutic regime based on the beneficial effects, toxicities and costs of therapeutic agents.
- Evaluate the progress of therapy in a variety of animal species and for a variety of therapeutic agents.
- Use rational treatment regimes based on therapeutic indication, mode of action of drugs and their adverse effects.

**Veterinary Public Health**

At the end of this course the student should be able to

- Define zoonotic and emerging zoonotic diseases with examples and be able to describe a suitable control plan based on available legislative frame work of the country, which can be implemented for early recognition and control of zoonoses.
- Describe the legislations pertaining to veterinary profession and requirements for export and import of live animals and animal products in order to prevent and control the zoonotic diseases arising from local and international sources
- Describe the public health hazards related to food of animal origin and preventive measures to safeguard domestic consumer while promoting international trade, with due consideration to global trade agreements.
- Explain the management and use of laboratory animals for biomedical research.
- Describe the importance of bioethics in professional conduct, research and animal welfare, and apply them in practice.

- Describe health hazards related to diverse veterinary practices and measures to control them.
- List the different waste products originate from diverse veterinary practices and explain suitable methods of waste management to minimize environmental hazards in order to conserve the biodiversity.

***Practical Skills:***

Students should be able to:

- Obtain milk/meat samples using correct procedures and labeling them for laboratory testing.
- Obtain and send samples for rabies diagnosis.
- Interpret laboratory reports and take suitable actions.

## **4. FINDINGS OF THE REVIEW TEAM**

### **4.1. Curriculum Design, Content and Review**

The curriculum was first documented in the year 1992 and has subsequently been reviewed and revised several times. The evolution of the curriculum at different stages, however, has not been properly documented. Although they are supposed to be using the year 2000 curriculum, we noted several changes in the course content. In the current review that is taking place, no major revisions are envisaged.

The overall teaching workload in the Department was assessed to be around 18 credits; the contribution from the Department to the final BVSc mark was proportional.

Ways of achieving horizontal and vertical integration of public health teaching in the curriculum have to be explored. For instance, some elements of public health may be introduced in the first year and some continued in the final year. Even within the present curricular structure some integration may be achieved relatively easily through the use of multi-disciplinary teams in teaching addressing “a certain problem”. Integration within the Department has to some extent been addressed in the new curriculum and these elements should be incorporated into the current learning experiences. The Department should also explore the possibilities of introducing aspects of public health to the final year teaching and examinations.

More specific comments relating to the curriculum are given below:

1. Although called Food Technology and quality assurance, the course deals mainly with food safety aspects relating to foods of animal origin. This is clearly part of public health and can be included as such
2. More emphasis is needed on vector borne zoonotic diseases
3. Staff needs to be trained in curriculum development and curriculum delivery
4. The laboratory practicals do not deal with meat and eggs
5. Students should also be exposed to control of epidemic diseases and in particular to control of zoonotics in the field
6. Clinical pharmacology is not taught due apparently a shortage of time; it should then be transferred to the final year under clinical sciences

***Considering all the above, the Review Team judged the Curriculum Design, Content and Review aspect as SATISFACTORY***

## 4.2 Teaching, Learning and Assessment Methods

### *The teaching/learning methods:*

The methods used – according to the SER – are as follows: Lectures, Self learning assignments followed by presentations with a discussion and a wrap up session by the teacher, Video presentations, Role play, Demonstrations, Practical classes and field visits consisting mostly of observations rather than hands-on experience. We were only able to observe the lectures, practicals and demonstrations. In general, it can be expected that these conventional time-tested methods of teaching and learning are effective. New methods which employ computer assisted technologies and group learning methods which allow for more student-centred learning need to be introduced.

Lecture: The main mode of teaching are lectures. The following observations were made at the lecture that we were able to attend:

- Clear delivery at a pace that the class could follow
- Good engagement of students
- Started with recall of material taught in the previous session
- Although not stated in terms of learning outcomes, an outline of areas to be covered in the lecture was given at the outset
- Transparencies were poor, lettering too small, too much content on a single transparency

Practical: With regard to the practical class observed, there was a need to place the practical in the context of use in veterinary practice and to explain the principles of the test that students were expected to perform.

Self learning assignments: Clear learning outcomes for the assignment needs to be given with the topic. Allocation must be made in the time table for the second session, namely, student presentation and discussion. Ideally time needs to be allocated for working on the assignment as well.

Video presentations: These were enjoyed by students although it is not clear if learning outcomes are given or if a teacher or student based discussion follows. Once again, it would be good to have stated learning outcomes and a few self administered questions to ensure achievement of stated outcomes.

Field visits: Learning outcomes were given; they were mostly observations, with very limited hands on experience. Currently students record their experience in the practical book and it is seen by a teacher but there is no feed back given to students.

Role play: No clear learning outcomes were available

Many teaching methods are employed; however a subject such as public health gives the opportunity to explore innovative and exciting methods to achieve the learning objectives.

Library resources available were sufficient

### *Assessments*

Both in-course and final assessments are made and the two theory papers and the spots cover a wide area of the material taught. It was also noted that the Setter supplies a model answer.

It was found that Essay type questions are the main method of assessment in that this paper carries more weight. The questions commonly only assess recall of knowledge. The range of methods available for assessing analytical thinking and application of knowledge in practical

situations are not utilized. The short answer questions are often “list” only and therefore, superficial. This paper could be used to probe knowledge in greater depth. Although, developing correct attitudes and skills in working as a member / leader of a team is an objective stated in the self evaluation report, current assessment does not test these aspects. Paper one may be modified in to one with more structured essay type questions with at least one questions formulated to bring out analytical skills. In addition, the use of MCQs should be explored and spot tests should be converted to OSPE with stations to asses skills including behavioural and communication skills.

***Considering all the above, the Review Team judged the Teaching and Learning Methods aspect as SATISFACTORY***

#### **4.3. Quality of Students, including Student Progress and Achievements**

The students on entry to the VPH program have completed courses in basic veterinary sciences and in pathology, microbiology, immunology and parasitology and have, therefore, the basic pre requisite knowledge to follow the Veterinary Public Health subject as well as pharmacology taught in the third year. Progress is monitored at the end of the first semester by an in-course assessment and at the end of the year by the 3<sup>rd</sup> BVSc exam at the end of the year. The system does not allow the early monitoring of student progress; this is evident only following the minor examination at the end of the 1st semester.

It is suggested that the department establish formal mechanisms to identify weak students early and monitor their progress during the two semesters that they are with the department. Study of entry marks as well as early identification through more formative in-course assessments such as quizzes or a signature type assessment followed by formal feed back is suggested.

Students felt that they had progressed well through the course and that all the material taught is relevant.

***Considering all the above, the Review Team judged the Quality of Students, including Student Progress and Achievements Review aspect as SATISFACTORY***

#### **4.4. Extent and Use of Student Feedback**

An evaluation of teachers is carried out on an irregular basis, and some documentation was available. There is no dedicated student/staff liaison committee or any other formal mechanisms for students to present their grievances. No formal student feed back is given on the in-course assessment. However, individual teachers have addressed the issues to a certain extent especially in pharmacology.

It is clear that systems of obtaining student feedback on the effectiveness of the teaching/learning need to be formalized and properly documented.

***Considering all the above, the Review Team judged the Extent and Use of Student Feedback Review aspect as SATISFACTORY***

#### **4.5 Postgraduate Studies**

The post-graduate activities of the Department include a taught MVSc course in Veterinary Public Health and several research degrees leading to MPhil and PhD degrees. Individual supervision is provided with adequate attention and time devoted to them. Students are funded through a variety of research grants which the academic staff have been successful in obtaining. The research laboratories are well equipped and managed.

The only drawback to the post-graduate research program was that student completion rates were poor.

***Considering all the above, the Review Team judged the Postgraduate Studies Review aspect as GOOD***

#### **4.6 Peer Observation**

There is no peer observation practiced except scrutiny of examination papers. There are no formal procedures for observing teaching of internal or external staff. The academic staff realize the value of commencing such a system.

***Considering all the above, the Review Team judged the Peer Observation Review aspect as UNSATISFACTORY***

#### **4.7 Skills Development**

The skills that students should develop in this Department are of an integrating nature; analytical skills using the knowledge they have gained to address issues in public health. The skills required have not been clearly identified and moreover, no clear strategy for skills development is in place nor are they accordingly assessed. There is no evidence that prospective employers are consulted regarding the skills required. A list of skills to be acquired should be developed and conveyed to all students and teachers. At the same time, a process of competency certification should be developed. Different levels of skills achievement can also be identified.

***Considering all the above, the Review Team judged the Skills Development Review aspect as UNSATISFACTORY***

#### **4.8 Academic Guidance and Counseling**

As the students in this Department do not have any options in selecting subjects, academic guidance is strictly not needed. But students must be made aware of what they are expected to learn ( knowledge and skills) and this must be done through the formulation of learning outcomes for each course and even for each lesson. Weak students may need some extra help, however, and this can only be done if such students are identified early. No such system is presently in place. With regard to student counseling, the University and the Faculty has a system in place. There are 3 additional counselors in each Department of study but none of them have received any formal training on counseling.

***Considering all the above, the Review Team judged the Skills Development Review aspect as SATISFACTORY***

## 5. CONCLUSIONS

The main strengths and weaknesses identified in each of the sections during the course of this review are summarized below:

### 1. Curriculum Design, Content and Review:

#### Strengths/good practices:

- The pharmacology curriculum is comprehensive whilst the public health curriculum appears to cover the important aspects.

#### Weaknesses:

- Lack of integration in the Public Health curriculum

### 2. Teaching, Learning and Assessment Methods

#### Strengths/good practices:

- A range of teaching methods are used.

#### Weaknesses:

- Lack of balance between classroom teaching and community-based teaching and learning.

### 3. Quality of Students including Progress and Achievements

#### Strengths/good practices:

- The quality of students and achievements are satisfactory.

#### Weaknesses:

- There is no attempt to identify the weaker students at the time of entry and early in the course.

### 4. Extent and Use of Student Feedback

#### Strengths/good practices:

- A teacher evaluation is carried out.

#### Weaknesses:

- Student feedback on delivery of the curriculum in Veterinary Public Health is not obtained and documented.

### 5. Postgraduate Studies

#### Strengths/good practices:

- The Department has several post-graduate research students with adequate funds and supervision.

**Weaknesses:**

- The programs are open-ended with a high attrition rate.

**6. Peer Observation**

**Strengths/good practices:**

- DVPHP realizes the importance of peer observation of all aspects of teaching, learning and assessment

**Weaknesses:**

- It is not currently practiced

**7. Skills Development**

**Strengths/good practices:**

- Laboratory practicals and demonstrations are carried out together with field visits.

**Weaknesses:**

- The skills in Public Health expected to be transferred have not been clearly identified, there is no strategy to ensure their achievement, nor suitable assessments to test whether they are in fact achieved

**8. Academic Guidance and Counseling**

**Strengths/good practices:**

- Counselling system is in place for the University and Faculty.

**Weaknesses:**

- No monitoring or documentation of their activities.

Based on the observations made during the visit by the review team, the eight aspects were judged as follows:

<b>Aspect Reviewed</b>	<b>Judgment Given</b>
Curriculum Design, Content and Review	Satisfactory
Teaching, Learning and Assessment Methods	Satisfactory
Quality of Students including Student Progress and Achievements	Good
Extent and Use of Student Feedback, Qualitative and Quantitative	Satisfactory
Postgraduate Studies	Good
Peer Observation	Unsatisfactory
Skills Development	Unsatisfactory
Academic Guidance and Counseling	Satisfactory

***The overall judgment is suspended***

## **6. RECOMMENDATIONS**

Based on the findings at the review, we wish make the following recommendations for the consideration of DVPH and the Faculty of Veterinary Medicine:

### **Curriculum Design, Content and Review**

- 1 Document the changes to the curriculum
1. Change the architecture of the curriculum enabling vertical and horizontal integration of public health. Sensitize to public health early in the curriculum (first year) with extension into final year teaching and final year assessment
1. Develop clear ILO for the Department as well as for individual courses and even individual lessons
2. Re-visit egg and meat content in curriculum, expand zoonoses, epidemic investigation and vector-borne diseases
3. Explore possibility of having a designated field practice area, (similar to the arrangements that Faculties of Medicine have with the Ministry of Health), where the Department has service responsibilities.
4. Introduce a supervised field attachment ( a “public health attachment”) similar to the clinical attachments.
5. Basic epidemiology to be a pre-requisite for public health or be taught as part of public health.
6. Clearly identify the skills to be acquired, describe the means of acquiring them and testing for competency and certification

### **Teaching, Learning and Assessment Methods**

1. More innovative and integrated methods of teaching learning and assessments to be explored. Employ MCQs and OSPE in assessments
2. Formative assessment to start early enabling identification of weak students and student progress / development to be followed through the department. Formalize arrangements for feed back after formative assessment
3. Develop methods of evaluating field learning assignments. Explore possibility of use of field log books / portfolios for this purpose.
4. Develop more formal systems of obtaining student feedback on courses , teaching learning methods and teaching staff; introduce a staff/student liaison committee
5. Develop systems of peer observation and reporting for all academic aspects – lectures, practicals, tutorials and examination work

### **Staff Development**

1. Develop specialized staff in veterinary public health within the department.
2. Train staff in curriculum development and teaching learning and assessment methods and plan processes for continue such training.

### **General**

1. Transfer of computing skills to 1<sup>st</sup> year, enabling more time for pharmacology in particular.
2. Improve access to computer facilities by extending the hours when the computer room is open
3. Student hand book for each course unit would be ideal, the department to consider feasibility