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Annex 37

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**REPORT OF THE MEETING  
OF THE OIE AD HOC GROUP ON VETERINARY EDUCATION  
Paris, 15–17 December 2010**

The meeting of the OIE *ad hoc* Group on Veterinary Education (*ad hoc* Group) was held at the OIE Headquarters in Paris, France from 15 to 17 September 2010. A list of the members of the *ad hoc* Group may be found at [Annex I](#) and the adopted agenda for the meeting at [Annex II](#).

**1. Meeting with Dr Vallat, Director General**

Dr DeHaven opened the meeting with a particular welcome to Dr Vallat, who joined the *ad hoc* Group for a discussion on the objectives of the OIE's work in the domain of veterinary education. Dr Vallat thanked the members of the Group for their ongoing work on this important topic. He emphasised the fact that high quality veterinary education is an essential need for high quality veterinary services and that the topic of veterinary education falls within the scope of the OIE global initiative for strengthening Veterinary Services, 'the PVS Pathway for efficient veterinary services'. He reminded Group members that the term 'veterinary services', as defined by the OIE, covers all veterinarians, whether working in the public or private sector, while the term 'veterinary authority' covers veterinarians working in governmental services.

Dr Vallat explained that it is important to share the concepts elaborated by this Group with OIE Member Countries and to give Members the tools to help them to put the concepts into practice. Dr Thiermann mentioned that it will be important to develop an appropriate communication strategy to raise awareness of and create support for the OIE's recommendations. In particular, the OIE needed to reach out to veterinary Deans, who are independent of Delegates and not closely engaged with the OIE. Dr DeHaven noted that there were some concerns from Deans in developed countries about the OIE recommending quality standards, as there are well established mechanisms via accreditation of veterinary education establishments that meet the objective of quality assurance. He noted that situating the work on veterinary education within the global PVS initiative was a good way to address these concerns.

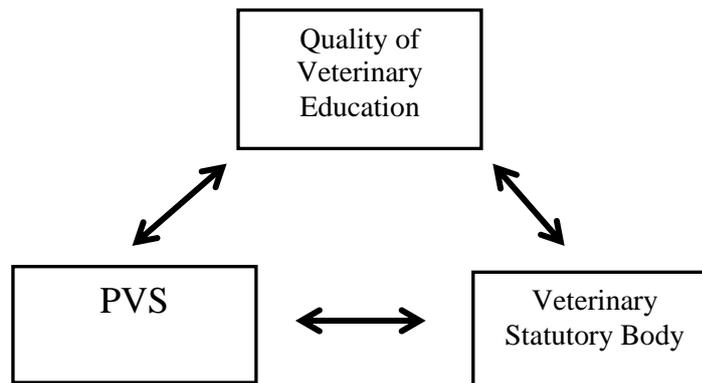
Dr Vallat noted that it has been estimated that up to 80% of the OIE's 177 Member countries lack an appropriate infrastructure for veterinary education. Many countries are obliged to use veterinarians trained outside and have little to no capacity to assure the quality of these veterinarians with respect to their education. The OIE is working to provide standards and tools to enable all countries to apply a standardised approach to the quality of veterinary education. Continuing education is also an essential tool to maintain or improve the competency of veterinarians.

Dr Thiermann noted that veterinary education establishments would continue to be responsible for deciding *how* to deliver veterinary education, with hopefully appropriate reference to the OIE recommendations.

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Dr Vallat commented that the Veterinary Statutory Body (VSB) is the key organisation contributing to assure the quality of veterinarians within a country; hence the focus of OIE on encouraging Members to ensure that they have a VSB, including by providing legislation setting up an independent VSB with the powers to regulate the veterinary profession and, as appropriate, veterinary para-professions.

Dr Vallat noted that the OIE has established a 'pyramid' for assuring the quality of veterinary services, as follows:



Dr Vallat explained that the OIE PVS Pathway is not a mechanism for auditing or accreditation of veterinary schools. This activity is handled by other organisations, including for example the EAEVE in Europe and the AVMA Council on Education in Canada and the USA and it is not the mandate of the OIE to accredit veterinary schools. Rather, OIE Members that are developing countries and countries with in-transition economies have asked the OIE to provide guidance on the minimum competencies that veterinary education establishments (VEE's) should aim to attain, as guidance in developing and refining the veterinary curriculum. Dr Vallat advised that he saw the development of minimum 'day 1' competencies as an important first step. Consideration should be given to the future status of these recommendations in terms of OIE standards and recommendations.

Dr Vallat noted that the Terrestrial Code, specifically Article 3.2.14., contains references to veterinary education but that there are not, for the moment, recommendations on minimum quality requirements for veterinary education. The OIE PVS Tool also contains specific references to initial (and ongoing) training of veterinarians, but the basis for the evaluation of competency is quantitative i.e. the critical competencies Nos. I-1 and I-2 respectively refer to the number of veterinarians and the fact that they hold a recognised veterinary qualification and relevant experience. Qualitative aspects relating to education (both initial and ongoing) are not currently addressed in detail in the OIE PVS Tool. Dr Vallat advised that the recommendations of this Group on 'day 1' minimum competencies and other topics could in the future serve as a key reference for OIE PVS assessors in determining the competence of national veterinary services with respect to the quality of veterinary education.

Dr Vallat commented on the next steps for the *ad hoc* Group as follows: the report will be presented to the Terrestrial Code Commission when it meets on 1– 10 February 2011. The Code Commission is expected to propose some additional text in Code Chapter 3.2., to provide appropriate cross reference to the OIE Recommendations on Minimum Competencies for Day 1 Veterinary Graduates.

With agreement of the Code Commission, the document on minimum competencies could be placed on the OIE internet site, within the menu dealing with the PVS Pathway.

Any proposed amendments to the Terrestrial Code will be managed in accordance with the OIE standard setting procedures, i.e. by consensual decision of the World Assembly of Delegates. The next opportunity for modification of the Terrestrial Code is at the OIE General Assembly in May 2011.

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Dr Jorna mentioned that it is important for the OIE to consider the role of companion animal veterinarians and the fact that most (up to 80% in the USA) veterinary graduates follow a career in companion animal practice. Dr Bedard added that by paying more attention to careers in Veterinary Services in the undergraduate curriculum, more graduate veterinarians may become interested in pursuing a career in the public sector.

Dr Bedard presented the Veterinary Services-related work of the World Bank in Europe and Central Asia regions (see Annex III), including a current WB project in Azerbaijan. Dr Bedard highlighted the value of twinning as an approach to improve the capacities of veterinary education establishments and the possibility of the OIE gaining donor support, including from WG, for such proposals.

## 2. Discussion on the 2<sup>nd</sup> OIE Global Conference on Veterinary Education

Dr Stéphane Martinot, Dean VetAgro Sup, joined the Group for a discussion on the proposed arrangements for the 2<sup>nd</sup> Global Conference on Veterinary Education. Dr Martinot noted that 2011 would mark the 250th world anniversary of the veterinary profession and of veterinary education. As part of the celebration of World Veterinary Year 2011, a 2<sup>nd</sup> Global Conference on Veterinary Education will take place on 13 - 14 May 2011 (after the General Assembly of the European Association of Establishments for Veterinary Education, EAEVE) at the campus of VetAgro Sup, Lyon. The OIE's work on veterinary education will be presented, including presentations by several members of the Group and a round table, chaired by Dr Vallat, on the future needs of veterinary education worldwide.

The Group discussed the proposed programme with Dr Martinot and made several suggestions for speakers and topics to be addressed at the meeting. It was agreed that this conference would provide a good opportunity to raise awareness of the OIE's work on veterinary education and, in particular, to build linkages with the veterinary education community.

## 3. Addressing OIE Member comments

The OIE received comments from 7 Members, i.e. Argentina, Australia, Canada, Chile, Japan, New Zealand and Norway. In addition Dr DeHaven provided comments from the American Veterinary Medical Association. The Group dedicated considerable time to addressing these comments and finalised the document on *Minimum competencies of 'Day 1' veterinary graduates* (see Annex IV).

The Group noted that the definition of veterinary services in the introduction was not aligned with the Terrestrial Code definition and modified this text accordingly.

One Member asked for clarification on the recommendations of the OIE in regard to competency of 'Day 1' graduates on communication. Members of the Group identified two important elements in relation to communication. The veterinarian is well placed to play an advocacy role, i.e. to improve the awareness of the general public about the important role and responsibilities of the Veterinary Services in animal health and public health. Secondly, communication skills are an important competency for veterinarians who deliver the activities defined under the OIE's definition of the veterinary domain. The Group considered that it was important to ensure that basic education gives the 'Day 1' graduate the tools he/she needs to be an effective communicator. As a minimum, 'day 1' graduates should have excellent interpersonal skills, as covered in point 3.5.2. For communication in the context of the administration of veterinary services, the words 'public awareness and advocacy', in parentheses, were added to point 3.6.3.

In response to comments of Members, the Group was of the opinion that the addition of more detailed recommendations (for example required hours, numbers of teachers) was not desirable.

The Group deleted the word 'average', which had been used, for example, as follows: 'this competency includes the *average* entry-level veterinarian' as the word 'average' was considered to be superfluous in the contexts of the OIE recommendations.

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Noting that the competencies pertain to the mandate of the OIE, the Group divided the competencies into three categories, all being part of the core curriculum i.e: 1) general competencies, 2) specific competencies and 3) introduction to advanced competencies. The Group decided not to provide any details on the general competencies that do not relate directly to the OIE mandate as other organisations are responsible for this work.

An OIE Member proposed to modify the title of the document by referring to ‘veterinarians’ rather than ‘veterinary graduates’, to reflect the fact that the defined competencies were directed to veterinarians working in the public sector. The Group disagreed with this recommendation, as the competencies were relevant to all ‘Day 1’ graduates. The Group made some changes in the document to clarify this fact. For example, the title of the paragraph about advanced competencies was changed into ‘Introduction to advanced competencies’, to reflect the fact that ‘day 1’ graduates should have an appreciation of these competencies but were not expected to have specific expertise.

The definition of skills was modified to avoid excluding veterinarians with handicaps.

The comments of several OIE Members revealed a level of confusion about the scope of the Group’s work and the intention of proposing three categories of competencies. The Group changed the description of these categories in order to clarify that all categories were considered to be relevant to the education of veterinary students and included in the core curriculum, regardless of their eventual career choices.

An OIE Member proposed to replace paragraph 1. ‘General competencies’ with ‘General Veterinary Competencies’. The Group disagreed with this suggestion because the report covers veterinary education and the general competencies are, in fact, veterinary competencies.

Two OIE Members commented on the animal welfare – related recommendations, arguing that the wording used was not appropriate for all countries. The Group modified the text of the report accordingly.

The Group decided to move the content of paragraph 2.8. ‘Inspection and certification procedures’ to section 3. ‘Introduction to advanced competencies’ because it relates directly to public sector work whether performed by a veterinarian in the public or private sector. However, a paragraph 2.8 was kept to take into account the necessary competency on general animal health certification.

The Group agreed that an understanding of ethical issues, in particular those underlying the Codes of Ethical Practice that apply in many countries, should be included as a basic competency. The words ‘and ethics’ were therefore added to the title of item 2.9 i.e. ‘Veterinary legislation and ethics’.

On Sections 2.7–2.9., the Group addressed a question about the intended scope of the quoted disease programmes by adding the following text:

‘It is understood that these disease prevention and control programmes will be unique to each country or region, compliant with applicable OIE standards as appropriate, and that entry level veterinarians need to be familiar with these programmes.’

The meaning of the reference to ‘research’ in point 3.4 was discussed, in particular whether this recommendation is appropriate as a ‘Day 1’ competency. It was agreed that the recommendation called for the ‘Day 1’ veterinarian to have general awareness of the relevance of research, not to have competence in the conduct of research and that, on this basis, the text did not need modification.

The Group discussed whether the recommendation under administration and management (Point 3.6.), ‘general awareness and appreciation of at least one language other than the official language of the country’, was reasonable to expect for a ‘Day 1’ veterinary graduate. The Group noted that there was undoubtedly a need for all veterinary graduates to appreciate the international dimension of veterinary medicine. The ability to access peer reviewed scientific publications was greatly influenced by the capacity of graduates to read and understand one of the major languages of publication of scientific journals. Furthermore, the OIE standards are published in English, French and Spanish, with unofficial and/or partial translations available in some other languages. In conclusion, the Group decided not to modify this text.

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In response to Members' comments, the Group agreed that the word 'notions' (point 3.6.6.) was too vague and replaced it with 'principles'.

In response to a Member comment, the Group reviewed the text on communications in the report of the OIE *ad hoc* Group on Communications to ensure that the definitions and recommendations of this Group had been taken into account. The Group agreed that the intent was to address the broader context of communication, beyond interpersonal skills, including public awareness, media management, dissemination of technical information and advocacy especially in relation to decision-makers.

Noting that success in the practice of veterinary medicine depends on effective communication skills, the Group included new text in the Recommendations for Day 1 graduates in a new point 2.10.

The Group clarified and simplified the text on veterinary health certificates in point 2.8. The Group also made some minor text modifications to improve the clarity of the text.

#### **4. Ongoing work**

The Group continued to work on defining competencies and topics, delivery methods and sources relevant to veterinary education, in the three following areas:

1. Critical skills needed by senior level veterinarians in the Veterinary Authority
2. Continuing education topics for private veterinarians conducting work for the Veterinary Authority
3. Delivery methods and sources of continuing veterinary education.

Three working documents were produced and will be the subject of further discussion between members and finalization at the next Group meeting.

#### **5. Discussion on the potential future role of the OIE in accreditation**

In the report of the previous meeting the Chairman recalled that the Group had stated that veterinary schools that could not meet basic competencies should be closed. The Group agreed with an OIE Member's comment that the intent of the OIE recommendations is to improve the quality of veterinary education globally. It is not the task of the OIE to accredit universities or to make recommendations that veterinary education establishments should be closed down. Applying the quality requirements when hiring veterinarians should result in improvement of the VEE curriculum (i.e. market mechanisms). This is a process that will occur gradually, particularly in developing countries.

The Group had a detailed discussion on the potential future role of the OIE in relation to the accreditation of veterinary education establishments. Noting that veterinary Deans in developed countries have expressed concerns about the OIE's role in this area, it was agreed that if the OIE undertook assessments on this topic, this would be done, as for all OIE missions, in response to voluntary requests from Members and in conjunction with the PVS Pathway.

Dr Peralta pointed to the usefulness of OIE standards on veterinary education as a benchmark for VEEs in developing countries. He agreed that market mechanisms would play an important role in bringing about the alignment of veterinary education quality with OIE standards.

Dr LeGall commented that the World Bank was interested in the OIE's work on standards for veterinary education. Noting that Deans in many developing countries may be intimidated by the daunting task of meeting international standards for veterinary education, Dr LeGall considered that the OIE standards could be a useful and relevant benchmark when considering requests from developing countries.

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Dr Kahn made the observation that the OIE's work programme on veterinary education falls within the PVS Pathway and that assessments of VEEs and/or the quality of veterinary education could be undertaken in the context of countries following the PVS Pathway. Dr Thiermann noted that if the OIE decided to undertake assessments of VEEs, it would follow a similar approach as that taken to other specific elements of the PVS Pathway, i.e. the recruitment of experts and conduct of seminars to ensure that all participants had the necessary skills and expertise to undertake missions.

**6. Dates for next meeting**

It was agreed that the next meeting would take place in early July 2011. Members agreed to inform the OIE International Trade Department of their availability.

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Annexes/...

Annex 37 (contd)Annex I**MEETING OF THE OIE AD HOC GROUP ON VETERINARY EDUCATION****Paris, 15–17 December 2010****List of participants****MEMBERS OF THE AD HOC GROUP****Dr Ron DeHaven (Chair)**

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Annex I (contd)

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Annex II

**MEETING OF THE OIE AD HOC GROUP ON VETERINARY EDUCATION**  
**Paris, 15–17 December 2010**

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**Adopted Agenda**

1. Welcome, adoption of the agenda, and introductory remarks
  2. Meeting with the OIE Director General
  3. Discussion on the 2<sup>nd</sup> OIE Global Conference on Veterinary Education
  4. Addressing OIE member comments on the draft Minimum competencies of ‘Day 1’ veterinary graduates
  5. Ongoing work
  6. Discussion on the potential future role of the OIE in accreditation
  7. Dates for next meeting
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Annex 37 (contd)Annex III

## **World Bank Support for Veterinary Education**

### **The Experience in Europe and Central Asia**

#### **I Livestock and animal health in ECA**

Livestock make a significant contribution to GDP in the ECA region from the extensive grazing systems in Central Asia to the more intensive production systems and the concentrated animal feeding systems. Livestock are an integral part of the agricultural systems and rural livelihood but the traditional animal raising approaches are evolving to more market oriented production and accompanying challenges. Livestock raising households are also facing challenges of animal disease and food safety risks that compromise market access, regional and international trade. More recently, the risk of zoonotic diseases has been increasing in rural communities and urban centers and the economic impact locally and nationally is becoming a concern.

These challenges are being addressed in ECA through innovative interventions that are being integrated into existing operations and as stand-alone projects. The recognition of the role of livestock is being promoted through investments that are linked to and dependent upon livestock as the main risk factor and best opportunity for poverty alleviation, market access, public health and environmental sustainability. These include (i) food safety, for which livestock pose the most significant risk, (ii) climate change including biogas and carbon finance associated with grassland rehabilitation, (iii) the One Health agenda in close partnerships with the human health colleagues and building on the avian influenza projects, (iv) traditional approaches to livestock production for more efficient production and sustainable livelihood, and (v) livestock as an important means to mitigate food security risks and the financial crisis. Fundamental to all of these interventions are specific activities related to the reform of veterinary services in close cooperation with the OIE and other international agencies and including formal education, in-service training and professional development for veterinarians and animal health workers.

The WB has financed more than 50 Avian Influenza Projects worldwide of which 13 are in the ECA region and animal health constitutes important components of many other projects. The implementation of the OIE's Performance of Veterinary Services (PVS), Gap Analysis and has been actively promoted and has served as the basis for the development of strategic plans for the reform of veterinary services and design and preparation of new projects that include veterinary reform as important components. The focus of such projects' development objectives includes food safety and agri-food modernization (Turkey EU pre-accession), agricultural competitiveness (Armenia, Georgia), agri-food value-chain development (Azerbaijan), pasture rehabilitation and livestock development (Kyrgyzstan) and a regional One Health Project for Central Asia (Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan). The World Bank (WB) is currently working with the OIE to complete the Strategic Plans in these countries as the basis for planned new investments and the upgrading of veterinary faculties is considered as an important intervention under these projects. The World Bank has worked with other donors to develop a veterinary faculty self-evaluation tool and this would be used along with the PVS results to inform the activities related to faculty upgrading. In addition to the WB and OIE activities, support for veterinary services upgrading in the region is being financed by a number of donors and international agencies including the EU, Swiss Development Cooperation, the Netherlands, EU, IFAD, USAID, US DTRA/DOD, Canada and others.

#### **II An example: Ganja Agricultural University Veterinary Faculty, Azerbaijan**

In Azerbaijan, for example, the veterinary faculty has been pro-active in applying the self-evaluation tool with international technical assistance and has prepared the strategic plan for development of the faculty. The design of the evaluation tool and preparation of the plan was supported with technical assistance from the WB, USDA and US DTRA. The completed plan was promoted within the Government of Azerbaijan and has provided advocacy and justification for Government investments of more than US\$10 million in facilities and infrastructure for the veterinary faculty at GAU. The World Bank financed project and other donors have additionally provided essential supplementary teaching materials and resources based on the guidance under the strategic plan.

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A field laboratory has been replicated in the veterinary school for hands-on, applied teaching purposes through the WB-financed Avian Influenza Project (AIP). The AIP has established a computer centre for teaching purposes but this has also been used to demonstrate the national animal disease information system, AzVet. The AzVet system development has also been financed under the AIP and the computer facilities at the GAU have been utilized for in-service training for field staff and district veterinarians to set up the national e-networks to the AzVet centre in Baku. The AIP is also financing exchanges between the GAU faculty and counterpart faculty in Turkey to align curriculum and share other resources in support of a more regional approach.

The concurrent WB-financed Agriculture Development and Competitiveness Project II (ADCP II) is supporting the establishment of private veterinarians throughout Azerbaijan and has financed the establishment of a Private Veterinary Unit at the faculty to demonstrate the opportunities to students and to provide experiential ambulatory farm services for training students. This has been complemented with the provision of international technical assistance with experienced veterinary practitioners from the Netherlands and elsewhere. The ADCP II has also financed a pilot brucellosis control program in several districts and, as a matter of practice, has involved faculty and students (with stipends) to be involved in the baseline surveys, vaccination programs, data collection and analysis. This program is now being scaled up country-wide under a new ADCP III project which will become operational in 2011. The new project will continue to address the key priorities in the faculty strategic plan to the extent that it addresses project objectives and operational needs.

The GAU vet faculty is in the process of revising and upgrading its curriculum and discussions are ongoing in terms of the most appropriate standards and approaches to develop a competency-based curriculum that will address the national disease control needs and farmers' demands for services. The World Bank is promoting twinning arrangements with faculties in the EU and US to develop long term partnerships and MOUs for student and faculty exchanges, sandwich graduate programs, joint R&D projects with grants from international agencies, curriculum development, etc.

**III The WB-ECA Regional Approach to Veterinary Education**

The approach to reform and upgrading of veterinary education in ECA has been previously outlined in presentations to the OIE. As a fundamental principle, the WB is promoting the application of the self-evaluation tool as part of the national veterinary service strategic plan development in cooperation with the OIE. The national plans are expected to include faculty upgrading as a sub-set of the national plans.

In addition, the Bank is promoting long-term twinning programs with faculties in the EU, Australia, New Zealand and the US and commitments through substantive MOUs or agreements. The sustainability of short term project interventions is contingent upon these kinds of established institutional relationships and the continued faculty upgrading and research programs independent of the time limited project interventions.

The future of veterinary medicine to provide the essential services for farmers and their animals in the region is contingent upon young people seeing opportunities and a reasonable livelihood within the profession. In Kyrgyzstan, for example, a donor-financed (WB/IFAD/SDC/EU) pasture management project has been supporting the implementation of animal health programs with initial vaccination fee-for-service to private veterinarians which is being transferred to farmers. This is part of one component that is promoting the establishment of 800 private veterinarians throughout Kyrgyzstan. Income for private veterinarians is created through ongoing fee-for-service from farmers and Government contracts for vaccination, blood testing, etc. This approach has provided young people with a demonstration of the potential for a reasonable income from the profession and has stimulated intake in the veterinary faculty. Last year 30% of the new students were from the project areas. Faculty upgrading should be integrated with innovative approaches for promoting the image of the profession and impact of services within communities. More importantly, the employment and livelihood opportunities would be presented to youth in a practical way that would create interest in becoming part of a reputable profession with a future.

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In this context curriculum develop would be market driven for the immediate needs of the country, the farmers, the industry and in a way that provides sustainable employment through demand-driven fee-based services.

The ECA region of the WB has been working closely with the South Asia region to develop an international multi-lingual epidemiology training program for veterinarians and doctors that is being delivered through a combination of e-learning and in-service residential programs. This program is funded under the EU Global Avian Influenza Trust Funds and is now operational in SA. It is expected to be operational in ECA in 2011.

#### **IV Development of institutional twinning for veterinary education – an outline**

The objective of such a program would be to establish sustainable veterinary training institutions capable of developing veterinarians and animal health workers to meet the “needs” of food animal producers in developing countries and focusing on three primary competencies:

1. Field based ambulatory vets and animal health workers for which farmers and herders are prepared to pay for basic services and some fee-for-service govt functions.
2. Government veterinarians capable of fulfilling regulatory and disease surveillance functions – active and passive surveillance, animal movement control, meat inspection and other public goods
3. Lab diagnosticians – simple lab tests

##### Methodology:

- Undertake OIE PVS, Gap and Strategic Plan exercise to include faculty evaluation and development of strategic plan including competency-based curriculum
- Develop regional centres in selected countries that could serve to train trainers in other countries in region.
- Promote twinning between developed, transitional and developing country faculties under MOUs officially endorsed for:
  - Training of trainers – faculty
  - Sandwich MSc and PhD for faculty: coursework in developed country but field research work and defense in home country
  - Joint applied research projects based on solving in-country problems and
  - Student exchanges
  - Faculty on sabbatical assignments to twinned institutions to develop curriculum and research. Overseas assignment tenure credited.
  - Digitize and translate curriculum
  - Language training, translation, interpretation, glossaries, reference books and materials.
  - Focus on competencies and basic skills development – clinical practice, pathology, epidemiology.
  - Applied ICT
  - “Teaching” facility development including: (i) physical facilities, (ii) “field” labs, (iii) farm/animals for practice, (iv) ambulatory farm service, (v) clinics, (vi) research.

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- Integrated into ongoing or planned investment and donor projects
  - Seed money – required for TA, selection, feasibility and needs assessments through OIE PVS and existing donor projects.
  - Developed country vet colleges reimbursable salary costs only excluding benefits
  - Developed colleges seek endowments and long term scholarships funding
  - Bilateral donor partnership programs (eg TEMPUS)
  - OIE endorsement as part of international programs
  - Donor projects design principles: FAO, UNDP, WHO, VWB, WB, Gates, Google new initiatives in public health, IDRC (applied research), USAID CRSP (research), Winrock, etc
  - Cooperative research funding proposals
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**MINIMUM COMPETENCIES EXPECTED OF  
DAY 1 VETERINARY GRADUATES TO ASSURE DELIVERY OF HIGH-QUALITY NATIONAL  
 VETERINARY SERVICES**

***Introduction***

The assurance of global public health is not limited to the expertise of human medical professionals, but requires the knowledge and skill set of veterinarians. Specifically, veterinarians in every nation are responsible for the delivery of National Veterinary Services (NVS) - that is, services provided under the legislative framework and the auspices of the governmental authority of a given country to implement animal health to assure the health and wellbeing of animals, people and ecosystems. The term “Veterinary Services” refers to the OIE *Terrestrial Animal Health Code (Terrestrial Code)* definition, which includes both public and private components of the veterinary profession involved in the promotion of animal and public health as well as animal welfare.

National Veterinary Services should be able to meet standards adopted by each country, but should also be able to comply with appropriate international standards and recommendations, particularly those in the OIE’s *Terrestrial Code*. In delivering National Veterinary Services, veterinarians serve as an integral partner in the **One Health** effort—a collaboration of multiple disciplines working locally, nationally, and globally, to address critical challenges and attain optimal health for people, domestic animals, wildlife, and the environment ([www.onehealthcommission.org](http://www.onehealthcommission.org)).

Although only some veterinarians will focus their careers on the delivery of National Veterinary Services, all veterinarians, regardless of professional area of practice after graduation, are responsible for promoting animal health, animal welfare and veterinary public health, act frequently as sub-contractors for National Veterinary Services and in many instances opt for career changes into National Veterinary Services. As such, veterinary education is a cornerstone to assure that the ~~average~~ veterinary graduate not only has received a level of education and training provided that ensures sound overall day-one competencies, as well as the required skills, knowledge, aptitudes, and attitudes (competencies) to understand and be able to perform entry-level national veterinary service tasks that relate to the security and promotion of animal and public health. In addition, basic education that includes instruction in the minimum competencies will establish a basis on which those veterinarians seeking national veterinary service careers can build expertise through on-the-job training and quality postgraduate continuing education.

Taking into account the vast societal, economic, and political differences among OIE member countries, including the different existing VEE accreditation schemes, the following list of competencies are those that the OIE *ad hoc* Group on Veterinary Education believe necessary for the veterinary graduate to be adequately prepared to participate in entry-level national veterinary services.

Competencies as used by the *ad hoc* Group include:

- Skills: ~~psychomotor abilities, both manual and physical;~~ ability to perform specific tasks
- Knowledge: cognitive abilities, meaning mental skills
- Attitude: affective abilities, meaning feelings and emotions; and
- Aptitude: a student’s natural ability, talent, or capacity for learning.

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While the *ad hoc* Group outlined minimum competencies relevant to the delivery of National Veterinary Services, no attempt was made to dictate in which specific course or during which educational year each competency should be taught. Indeed, it may be that many of the following competencies cross course boundaries and can be integrated across the curriculum in multiple courses. Nor did the *ad hoc* Group suggest how many credit hours of educational contact were required to teach each competency, as this might vary depending on the needs and resources of each country. What was unanimously agreed upon, though, is that education in the following minimum competencies during the course of each veterinary school's curriculum will prepare the average entry level (new graduate) veterinarian to promote global veterinary public health and provide an excellent base for advanced training and education for those veterinarians wishing to pursue a career in both public and private components of National Veterinary Services. It is important to note that Veterinary education includes not only school education but also postgraduate continuing education and on-the-job training. The authorities should bear in mind the importance of the lifelong learning to ensure the various competencies of veterinary graduates such as protecting animal and public health.

***Day 1 Competencies*** Relative Relevant to the Delivery of National Veterinary Services

The OIE's *ad hoc* Group on Veterinary Education grouped the following minimum competencies to be part of the core curriculum ~~relating to national veterinary services~~ into three categories-

1. General competencies

~~are those that are part of every veterinary school's core curriculum. Basic veterinary and clinical veterinary sciences~~ Because these competencies are essential fundamental to more than just the national veterinary services, but the *ad hoc* Group only listed mentioned them here without further definition because it did not consider it was part of its remit. Animal production, food hygiene and safety are more precisely defined since they are more relevant to the national Veterinary Services.

2. Specific competencies are those essential even more directly relate to critical competences found in the OIE Terrestrial Code, for all veterinary students to be taught during the course of the professional curriculum. Thus Each competency is defined, ~~with the definitions based largely on those competencies found in the OIE Terrestrial Code. and Learning objectives for the average~~ entry-level veterinarian are also provided for each specific competency identified.

3. Introduction to Advanced competencies are those that should be instructed to veterinary students during the course of the professional curriculum. However, expertise in these competencies, while essential to those veterinarians whose career is limited to national veterinary services, is better obtained through quality postgraduate continuing education and on-the-job training. The *ad hoc* Group included introduction to these advanced competencies here, with the understanding that the primary learning objective for each centres on the ~~average~~ entry-level veterinarian being able to have a general awareness of and appreciation for each competency, with the ability to know where to find up-to-date credible information should deeper knowledge be needed or desired.

1. General competencies

1.1. Basic veterinary sciences

1.2. Clinical veterinary sciences

1.3. Animal production including:

1.3.1. animal identification and traceability;

1.3.2. herd health management and economics of animal production.

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## 1.4. Food hygiene and safety including:

- 1.4.1. on farm food safety practices;
- 1.4.2. traceability;
- 1.4.3. drug and chemical use and residue testing programs;
- 1.4.4. slaughter inspection: this includes ante mortem, post mortem, humane slaughter and hygienic dressing.
- 1.4.5. integration between animal health controls and veterinary public health: the role of veterinarians in conjunction with physicians, public health practitioners, and risk analysts to ensure healthy, hazard-free food, ~~both nationally and internationally from animal production on the farm to traceability of animal movement, sanitation at food processing plants, proper storage of processed animal products, in-home food storage and preparation safety, and health and cleanliness of all humans involved in the food chain from farm to fork.~~

~~1.5. Commitment to lifelong learning~~ 1.5. Animal Welfare**2. Specific competencies**

## 2.1. Zoonoses (including food borne diseases)

Zoonoses are diseases or infections that are naturally transmissible from animals or their products to humans or from humans to animals. Many food borne pathogens are zoonotic and most emerging human pathogens have an animal (livestock or wildlife) origin. As such, zoonoses have major implications on human health and trade in animals and animal products.

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

- 2.1.1. identify the clinical signs, clinical course, transmission potential, and pathogen associated with common zoonotic and food borne diseases, ~~to include~~ including those on the OIE list of notifiable diseases;
- 2.1.2. directly use or explain the use of current diagnostic and therapeutic tools for common zoonotic and relevant food borne diseases;
- 2.1.3. understand the implications of common zoonotic and relevant food borne diseases on human health (e.g., how does the disease spread from animals to humans) and know where to find up-to-date and information regarding these implications;
- 2.1.4. understand regulatory implications (e.g., which national services veterinarian must be contacted if a zoonotic pathogen is identified) of common zoonotic and food borne diseases and pathogens and know where to find up-to-date information regarding these implications.

## 2.2. Transboundary animal diseases

Transboundary animal diseases (TADs) are those epizootic diseases that are highly contagious or transmissible and have the potential to spread very rapidly irrespective of national borders. Transboundary animal disease agents may or may not be zoonotic, but regardless of zoonotic potential, the highly contagious nature of these diseases invariably impacts global economy, global trade and global public health. Examples of transboundary diseases include highly pathogenic avian influenza, rinderpest, classical swine fever and foot and mouth disease.

Annex 37 (contd)Annex IV (contd)

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

- 2.2.1. identify the clinical signs, clinical course, transmission potential (including vectors), and pathogen associated with important transboundary diseases and pathogens, ~~to include~~ including those on the OIE list of notifiable diseases;
- 2.2.2. describe the current global distribution of important transboundary diseases and/or know where to find up-to-date distribution information;
- 2.2.3. directly use or explain the management of samples and use of current diagnostic tools for confirmation and therapeutic tools to prevent and combat important transboundary diseases and pathogens;
- 2.2.4. understand regulatory implications (eg, which national services veterinarian must be contacted if a epizootic pathogen is identified or suspected) of important transboundary diseases and pathogens and know where to find up-to-date information regarding these implications.

## 2.3. Emerging and re-emerging diseases

An emerging disease is a new infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or population, or a previously unrecognized pathogenic agent or disease diagnosed for the first time. A 're-emerging disease' is a resurgence in a defined time period and location, of a disease considered to have been eradicated or controlled in the past. Both emerging and re-emerging diseases have significant impacts on animal (naïve populations) and/or public health.

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

- 2.3.1. define "emerging disease" and provide contemporary examples;
- 2.3.2. define "re-emerging disease" and provide contemporary examples;
- 2.3.3. understand the reasons/hypotheses to explain the emergence/re-emergence of diseases;
- 2.3.4. know where to find up-to-date information regarding emerging and re-emerging diseases.

## 2.4. Regulation of animal welfare

Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter (when relevant), management, nutrition, humane handling, and humane slaughter/killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment.

Specific learning objectives of this competency include the ~~average~~ entry-level veterinarian being able to:

- 2.4.1. define animal welfare and the related responsibilities of owners, handlers, veterinarians;
- 2.4.2. identify major signs of bad welfare;

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2.4.3. know where to find up-to-date information regarding local, national and international animal welfare regulations/standards in order to describe contemporary humane care for:

2.4.3.1. slaughtering and killing techniques ~~for major livestock species (e.g., cattle, sheep, swine, poultry);~~

2.4.3.2. ~~animal-handling techniques for the aforementioned major livestock species at all levels~~ and for all systems of production (e.g., farm, feedlot, sale barn, slaughter house);

2.4.3.3. housing ~~for the aforementioned major livestock species at all levels~~ and for all systems of production (e.g., farm, feedlot, sale barn, slaughter house);

2.4.3.4. transport ~~of the major livestock species.~~

## 2.5. Veterinary products ~~drugs and biologicals~~

‘Veterinary products ~~drugs and biologicals~~’ means drugs, insecticides/acaricides, vaccines, and biological products used or presented as suitable for use to prevent, treat, control, or eradicate animal pests or diseases; or to be given to animals to establish a veterinary diagnosis; or to restore, correct or modify organic functions in an animal or group of animals.

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

2.5.1. use common veterinary products ~~drugs and biologicals~~ in the appropriate manner and administered to the appropriate species;

2.5.2. explain and/or utilize the concept of drug withdrawal time as a means to prevent drug residues in products of animal origin meant for human consumption, and know how to find up-to-date information regarding specific withdrawal times;

2.5.3. explain common mechanisms leading to development of antimicrobial resistance in common pathogens;

2.5.4. know where to find and how to interpret up-to-date information regarding the link between use of antimicrobials in food animals and development of antimicrobial resistance by pathogens of human importance;

2.5.5. understand and describe local, regional, national, and international regulations authorizing the registration, distribution and use of common drugs in food animals;

2.5.6. know the ~~appropriated~~ use of drugs and biologicals to ensure the safety of the food chain and a proper environment (e.g., residues, waste).

## 2.6. Epidemiology

Epidemiology is the study of factors affecting the health and illness of populations, and serves as the foundation and logic of interventions made in the interest of veterinary public health and preventive medicine.

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

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- 2.6.1. know and understand the general principles of descriptive epidemiology;
- 2.6.2. trace the source and spread of a disease, to include the ability to:
  - 2.6.2.1. access and use appropriate information sources;
  - 2.6.2.2. understand and participate appropriately to an epidemiological inquiry in case of occurrence of a reportable disease;
  - 2.6.2.3. monitor and conduct initial surveillance of diseases, to include communication of epidemiological information to other public health practitioners;
  - 2.6.2.4. directly perform and/or explain the use of common and current diagnostic tests and procedures, to include proper collection, handling, and transport of appropriate specimens/samples.

## 2.7. Disease prevention and control programs

Disease prevention and control programs are those programs, most often approved and managed or supervised by the veterinary authority of a country, established for the purpose of controlling a vector, pathogen or disease by specific control or preventive measures, to include movement controls, vaccination and treatment. It is understood these disease prevention and control programmes will be specific to each country or region, compliant with applicable OIE standards, as appropriate and that entry level veterinarians need to be familiar with these programmes.

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

- 2.7.1. describe established programs for the prevention and/or control of common zoonotic or contagious diseases or emerging/re-emerging diseases, to include the relevant veterinary authority oversight;
- 2.7.2. understand and implement contingency plans to control transboundary diseases, to include methods to:
  - 2.7.2.1. control movement of animals, animal products, equipment, and people;
  - 2.7.2.2. quarantine infected and at-risk premises/areas;
  - 2.7.2.3. humanely kill affected animals;
  - 2.7.2.4. dispose of infected carcasses in an appropriate manner;
  - 2.7.2.5. disinfect or destroy contaminated materials;
- 2.7.3. understand and participate to regular or emergency vaccination campaigns, as well as ~~to~~ in regular test-and-cull/treat programmes;
- 2.7.4. explain the concept of “early detection system,” which is defined as a system, under the control of the veterinary services, for the timely detection and identification of an incursion or emergence of diseases/infections in a country, zone or compartment;
- 2.7.5. know which diseases of animals (including companion animals) require compulsory notification by the veterinarian to the prescribed national authority in order to mitigate disease transmission;

Annex 37 (contd)

Annex IV (contd)

- 2.7.6. know where to find up-to-date and reliable information regarding specific disease, prevention and control measures, including rapid response mechanisms.

2.8. General certification procedures ~~Inspection and certification procedures~~

Veterinarians are responsible to certify the health status of an animal or herd in private practice or as an element of official certification.

~~Inspection means examination and evaluation of animals and animal products by an authorized veterinarian prior to completing a certificate to document the health or sanitary status, respectively. Certification means an official document, completed by an authorized veterinarian, for purposes of verifying the health or sanitary status of animals and animal products, respectively, most often prior to transport. For example, as defined in the OIE *Terrestrial Code*, an international veterinary certificate describes the animal health and/or public health requirements that are fulfilled by the exported animal commodity.~~

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian being able to:

- 2.8.1. ~~examine and monitor an animal or a group of animals with a view to certifying freedom from specified diseases or conditions according to established procedures; directly inspect, identify, and document, or explain such processes used to assess the health or risks of animals and animal products for the purpose of transport / export;~~
- 2.8.2. ~~draft health certificates and handle these documents according to the rules; directly conduct or explain the process of *ante* and *post mortem* risk based inspection of animals and animal products;~~
- 2.8.3. ~~directly certify or explain the process leading to certification of commodity quality and wholesomeness as it relates to sanitary matters for export;~~
- 2.8.4. ~~explain common import control mechanisms (e.g., border controls) and certification processes related to assurance of the health of animals, the public, and the ecosystem in the importing country.~~

2.9. Veterinary legislation and ethics

Veterinary legislation is an essential element of the national infrastructure that enables veterinary authorities to carry out their key functions, including surveillance, early detection and control of animal diseases and zoonoses, animal production food safety and certification of animals and animal products for export. VEE's should teach ethics and value issues to promote high standards of conduct and maintain the integrity of the profession.

Specific learning objectives for this competency include the ~~average~~ entry-level veterinarian:

- 2.9.1. having a working knowledge of the fundamentals of national legislation in general, and of specific rules and regulations governing the veterinary profession at the local, provincial, national, and regional level, particularly in relation to delivery of national veterinary services;
- 2.9.2. knowing where to find up-to-date and credible information regarding veterinary legislation and the rules and regulations governing the veterinary profession in his/her own state, province, region and/or country.

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- 2.9.3. understand and apply high standards of veterinary medical ethics in carrying out day-to-day duties.

2.10. Communication skills

Effective communication skills are as important to success in veterinary medicine as are technical skills. In general, communication entails the exchange of information between various individual, institutional and public audiences for purposes of informing, guiding and motivating action. The application of the science and technique of communication involves modulating messages according to situations, objectives and target audiences.

Specific learning objectives for this competency include the entry-level veterinarian being able to:

- 2.10.1. communicate technical information in a way that the public can understand
- 2.10.2. communicate effectively with fellow health professionals to exchange scientific and technical information and practical experience.

**3. Introduction to advanced competencies**

## 3.1. Organization of veterinary services

Veterinary services means the governmental and non-governmental organisations that implement animal health and welfare measures and other standards and recommendations in the Terrestrial Code and the OIE Aquatic Animal Health Code in the territory. The Veterinary Services are under the overall control and direction of the Veterinary Authority. An objective in the delivery of national veterinary services is to bring a country, territory, or region in line with international standards in terms of legislation, structure, organization, resources, capacities, and the role of the private sector and paraprofessionals.

~~Veterinary services means the implementation by governmental and non-governmental organizations of animal health and welfare measures and other standards and recommendations, such as those in the OIE Terrestrial Code, related primarily to the trade/movement of animals and animal products throughout a given country, territory, or region. The delivery of national veterinary services brings a country, territory, or region in line with international standards in terms of legislation, structure, organization, resources, capacities, and the role of the private sector and paraprofessionals.~~

The primary learning objectives for this competency include the ~~average~~ entry-level veterinarian having a general awareness of and appreciation for:

- 3.1.1. the delivery of national veterinary services as a global public good;
- 3.1.2. how veterinary services are organized within his/her own country/region (e.g., central and local levels, epidemiological networks);
- 3.1.3. the function and authority of the national veterinary service within his/her own country/region;
- 3.1.4. how his/her country's national veterinary service agencies interact with veterinary services in other countries and international partners;
- 3.1.5. the relationship between private and public sector veterinarians in delivery of national veterinary services within his/her own country;

Annex 37 (contd)

Annex IV (contd)

- 3.1.6. the essential need to evaluate the quality of veterinary services and the fundamental principles to ensure the quality of veterinary service activities (e.g., professional judgment, independence, impartiality, integrity, objectivity, procedures and standards, communication, and human and financial resources);
- 3.1.7. where to find up-to-date and reliable information should deeper knowledge be needed or desired.

Secondary learning objectives include the ~~average~~ entry-level veterinarian understanding, in addition to the definition of veterinary services outlined above, the following definitions:

- 3.1.8. Veterinary authority: The governmental authority of a country, territory, or region that comprises veterinarians, other professionals, and paraprofessionals and with the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification, international standards and recommendations such as those in the OIE *Terrestrial Code*, and other relevant legislation related to animal and public health and animal welfare. The veterinary authority typically accredits or approves private-sector organizations, veterinarians, and veterinary paraprofessionals to deliver veterinary service functions.
- 3.1.9. Veterinary statutory body means: an autonomous authority, (typically at the national level) that regulates veterinarians and veterinary para-professionals.

### 3.2. Inspection and certification procedures

Inspection means examination and evaluation of animals and animal products by an authorized veterinarian prior to completing a certificate to document the health or sanitary status, respectively. Certification means an official document, completed by an authorized veterinarian, for purposes of verifying the health or sanitary status of animals and animal products, respectively, most often prior to transport.

Primary learning objectives for this competency include the entry-level veterinarian having general awareness of and appreciation for:

- 3.2.1. such processes used to assess the sanitary status of animals and animal products for the purpose of transport / export;
- 3.2.2. the process of ante and post mortem risk-based inspection of animals, and of the inspection of animal products;

### 3.3. Application of risk analysis

Risk means ~~is~~ the likelihood of the occurrence and likely magnitude of the biological and economic consequences of an adverse event or effect to animal or human health. The process of risk analysis involves hazard identification, risk assessment, risk management, and risk communication. The importation of animals and animal products involves a degree of ~~disease~~ risk to the importing country. Risk analysis as applied to importation provides the importing country with an objective and defensible method of assessing the disease risks associated with the importation of animals, animal products, animal genetic material, feedstuffs, biological products and pathological material, using, particularly as a basis, relevant existing OIE standards.

Primary learning objectives for this competency include the ~~average~~ entry-level veterinarian having a general awareness of and appreciation for:

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- 3.3.1. how risk analysis can be applied to assessment of animal disease related risks and residues of veterinary drugs, including importation of animals and animal products and other related veterinary services activities;
- 3.3.2. how risk analysis can be used to ensure veterinary services adequately protect animal and human health;
- 3.3.3. where to find up-to-date credible information should deeper knowledge be needed or desired (e.g. the OIE *Handbook on Import Risk Analysis*).

Secondary learning objectives include the ~~average~~ entry-level veterinarian understanding, in addition to the definitions of risk and risk analysis outlined above, the following definitions:

- 3.3.4. hazard identification: the process of identifying pathogenic agents which could potentially be introduced in the commodity ~~that could potentially be introduced in a commodity~~ (e.g., food of animal origin);
- 3.3.5. risk assessment: evaluation of the likelihood and the biological and economic consequences of entry, establishment, and spread of a hazard within a territory;
- 3.3.6. risk management: the process of identifying, selecting, and implementing measures that can be applied to reduce the level of risk;
- 3.3.7. risk communication: the interactive transmission and exchange of information and opinions throughout the risk analysis process concerning risk; risk-related factors; and risk perceptions among risk assessors, risk managers, risk communicators, the general public, and other interested parties (e.g., stakeholders).

## 3.4. Research

Research means the seeking for and gathering and analyzing of data, information, and facts to extract new meaning or develop unique solutions to problems or cases for the advancement of knowledge.

The primary learning objective for this competency is for the ~~average~~ entry-level veterinarian:

- 3.4.1. to have a general awareness of and appreciation for how both basic and applied research are essential to advance veterinary knowledge in the areas relevant to delivery of national veterinary services (e.g., zoonoses, transboundary diseases, (re-)emerging diseases, epidemiology, animal welfare, veterinary drugs and biologicals) so that future generations are better equipped to assure the health of animals, the public, and the ecosystem.

## 3.5. International trade framework

The framework on which regulations governing safe international trade in animals and animal products relies on the interaction and cooperation among several organizations as well as on the latest scientific advances so as to improve animal health world-wide and to promote and preserve the safety of the international trade in animals and animal products.

Primary learning objectives for this competency include the ~~average~~ entry-level veterinarian having have a general awareness of and appreciation for:

- 3.5.2~~1~~ the World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (i.e., SPS Agreement);

Annex 37 (contd)Annex IV (contd)

- 3.5.3 2 the role and responsibilities of the WTO standard setting organizations such as the OIE and the Codex Alimentarius Commission (CAC) in developing science-based contemporary regulations governing international trade in animals and animal products;
- 3.5.4 3 contemporary international regulations, ~~such as the following~~, that govern the safe trade of animals and animal products, ~~including understanding whether veterinary legislation in his/her region is in line with international standards and guidelines, such as particularly those of established by the OIE and the CAC;~~

Secondary learning objective include the entry-level veterinarian:

3.5.4 understanding the potential implications of transboundary diseases, including zoonoses, on international trade, e.g., does presence of a disease in one country potentially impede international trade of the affected animal species and its products, and knowing where to find up-to-date information regarding these implications. the process leading to certification of commodity quality and wholesomeness as it relates to sanitary matters for export;

3.5.5 understanding import control mechanisms and certification processes related to protection of the health of animals, the public, and the ecosystem in the importing country.

### 3.6. Administration and management

In the broadest sense, administration consists of the performance or management of business or organizational operations and, thus, the making or implementing of major decisions, whereas management is the act of getting people together to accomplish desired goals and objectives. Administration can also be defined as the universal process of organizing people and resources efficiently so as to direct activities toward common goals and objectives, with management comprising planning, organizing, staffing, leading or directing, and controlling an organization or effort for the purpose of accomplishing a goal.

Primary learning objectives for this competency include the ~~average~~ entry-level veterinarian having general awareness and appreciation of:

- 3.6.1. best practices in administration and management as those relate to delivery of quality national veterinary services;
- 3.6.2. the importance of excellent interpersonal communication skills in the delivery of quality national veterinary services, to include self-knowledge and knowledge of others;
- 3.6.3. the ~~understanding~~ importance of effective communication (public awareness and advocacy), as a critical discipline in the administration of veterinary services;

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3.6.4. where to find up-to-date credible information should deeper knowledge be needed or desired;

3.6.5. at least one language other than the official language of the country.

Secondary learning objectives include the ~~average~~ entry-level veterinarian understanding:

3.6.6. ~~notions~~ principles of the categorisation of disease related risks as regards their socio/economic impacts and the impacts of their control measures, as well as prioritisation of actions according to these categories and the situation of a territory, country, region.

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