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Artículos científicos

Competencias clínicas en la medicina de las pequeñas especies

Clinical Competencies in Small Species Medicine

Competências clínicas em medicina de pequenos animais

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Resumen

Las unidades de responsabilidad profesional (URP) representan una adaptación conceptual de las actividades profesionales confiables (EPA) propuestas por Olle ten Cate, quien las considera un puente para trasladar las competencias generadas en el aula al contexto real. Las URP representan una metodología para supervisar y evaluar el desarrollo de las competencias en medicina veterinaria y zootecnia durante la estadía profesionalizante en el área clínica de las especies de compañía. Con el propósito de tener un panorama sobre las competencias en la educación veterinaria de la Universidad Autónoma de Zacatecas (UAZ), se encuestó a los estudiantes que culminaron la estadía profesionalizante en las áreas clínicas de animales de compañía. El instrumento metodológico contempló ocho URP en cinco niveles de una escala Likert. En los resultados sobresale la URP correspondiente a la obtención de la historia clínica y el examen físico con un desempeño independiente sin supervisión. La mayoría de las URP muestran un ascenso gradual de responsabilidad con tendencia hacia un desempeño autónomo e independiente. Las opiniones de los estudiantes sobre las URP representan una herramienta de evaluación del desempeño en el contexto real con miras a replantear y consolidar las competencias médicas y garantizar un mejor ejercicio profesional.

Palabras clave: actividades profesionales confiables, educación basada en competencias, medicina veterinaria y zootecnia.

Abstract

The professional responsibility units (PRUs) represent a conceptual adaptation of the entrustable professional activities (EPAs) proposed by Olle ten Cate, who considers them as a bridge to transfer the competencies generated in the classroom to the real context. The RPAs represent a methodology to supervise and evaluate the development of competencies in veterinary medicine and zootechnics during the professional stay in the clinical area of companion species. With the purpose of having an overview of the competencies in veterinary education at the Universidad Autónoma de Zacatecas (UAZ), students who completed the professional internship in the clinical areas of companion animals were surveyed. The methodological instrument contemplated eight units of professional responsibility in five levels of the Likert scale. The results show that the PRUs corresponding to obtaining the clinical history and physical examination stands out with an independent

performance without supervision. Most of the PRUs show a gradual ascent of responsibility with a tendency towards autonomous and independent performance. The students' opinions on the PRUs represent a tool for evaluating performance in the real context with a view to rethinking and consolidating medical competencies and ensuring a better professional practice.

Keywords: entrustable professional activities, competency-based education, veterinary medicine and zootechnics.

Resumo

As unidades de responsabilidade profissional (URP) representam uma adaptação conceitual das atividades profissionais confiáveis (EPA) propostas por Olle ten Cate, que as considera uma ponte para transferir as habilidades geradas em sala de aula para o contexto real. As URPs representam uma metodologia para supervisionar e avaliar o desenvolvimento de competências em medicina veterinária e zootécnica durante a permanência profissional na área clínica de espécies de companhia. Para ter uma visão geral das competências em educação veterinária na Universidade Autônoma de Zacatecas (UAZ), foram pesquisados os alunos que completaram a permanência profissional nas áreas clínicas de animais de companhia. O instrumento metodológico incluiu oito URPs em cinco níveis de uma escala Likert. Nos resultados, destaca-se a URP correspondente à obtenção da história clínica e exame físico com realização independente sem supervisão. A maioria das URPs apresenta um aumento gradual da responsabilidade com tendência para um desempenho autônomo e independente. As opiniões dos alunos sobre a URP representam uma ferramenta de avaliação de desempenho no contexto real, com vistas a repensar e consolidar habilidades médicas e garantir uma melhor prática profissional.

Palavras-chave: atividades profissionais confiáveis, educação por competências, medicina veterinária e zootecnia.

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Introduction

In recent years, there has been an increasing interest in educational models in higher education moving from the classical model to a competency-based education. The concept of competency-based education has been further developed in the areas of medical specialty to protect the health of citizens from incompetent medical practices; hence, the concept of competencies and their components begin to be integrated at the curricular level in higher education (ten Cate, 2005). The decade between 2000 and 2010 can be remembered as that space of time in which this concept gained a lot of ground in the educational field (ten Cate, 2005). However, since its inception, competency-based education has been surrounded by a series of interrelated definitions that make it difficult for it to be implemented and evaluated at the curricular level, to the extent that certain gaps have been detected between what is taught and what is taught. practice in medicine. Such definitions are often negotiated by experts and interested parties. The final language of the competencies reflects specific biases as well as dynamic trends in society's expectations of medical professionals in various settings (Lurie, Mooney, & Lyness, 2011).

Given this situation, the so-called entrustable professional activities (EPA) promoted by Olle ten Cate seek to link competency frameworks with clinical practice and facilitate the application of competency-based education (Matthew et al., 2020). The EPA are defined as a part of the essential professional work in a given context, executable independently and within a certain time, observable and measurable in the process and the results; are activities that lead to the recognition of the results of professional work, that lead to a conclusion, that require specific skills, attitudes and knowledge, that are generally acquired through instruction, that are usually confined to qualified personnel and that should reflect the competencies , the acquisition of which is considered important (Ten Cate, 2011).

The APN concept has spread rapidly in medical education and its appendices made up of specialties and has made it possible to develop competencies, subcompetencies, competency domains, and milestones or critical points to be established in a curricular manner (Salisbury et al., 2020). In competency-based medical education, consensus has been building towards ways that guarantee improved standards of care by health professionals. That is why the American Association of Medical Schools (AAMC) has established 13 central APNs with their respective subcompetencies (Matthew et al., 2020).

In the same way that medical education has done, veterinary education has made great strides towards competency-based education. Along these lines, after bringing together



universities from the United States, Canada, the United Kingdom and the Netherlands, the Reference Framework for Competency-Based Veterinary Education (BCVE) emerged. In this framework, 32 competencies stand out, nine domains of competencies and eight EPA (Matthew et al., 2020). The authors of this work have established that professional activities or practices, instead of being "reliable", are delegated or transferred to be carried out as an activity with "responsibility", since it is something more inherent to the person who performs them, since values, attitudes and emotions are involved in its execution, while trust can fall into a space of subjectivity on the part of whoever confers that something is done; therefore, we have called them professional responsibility units (URP).

This study is focused on the analysis of competencies in veterinary education at the Autonomous University of Zacatecas (UAZ), Mexico. The curricular characteristics of said educational center are very similar to those of the rest of the country, however, the UAZ is distinguished by the fact that in order to obtain a degree in Veterinary Medicine and Zootechnics, students must complete two semesters of professional stay. In this program, students are inserted in public and private spaces to carry out rotations in clinics and hospitals for small species, equines or wildlife. In the area of animal production, there is a predominant interest in carrying out the year of professionalization in milk-producing farms or ranches dedicated to the production of meat and cattle breeding stock, as well as minor ruminants and pigs. There are also those who choose to carry out their professional practices in zoos, laboratories or in special programs focused on epidemiological studies and practices for the control and eradication of diseases considered mandatory reporting. These rotations provide unprecedented opportunities for students to consolidate their academic advancements, knowledge, skills, and techniques used in veterinary clinical practice, gain invaluable experience in communication between clients and peers, and supervisors to gain expertise in the diagnosis, management, and care of patients. An essential requirement is that during these two semesters the student is under the supervision of one or more veterinarians, who will supervise their progress and who, based on their performance, will establish the levels of responsibility to be delegated until the student carries out their veterinary activities independently and autonomously, without supervision.

With the purpose of analyzing the scope that the professionalization stay contributes in the development of their professional competences for the exercise of the zootechnical veterinary doctor, a survey was carried out on students who completed their academic

program of professionalization stay in clinics and hospitals in the animal area. of companies located in different states of the Mexican Republic.

Materials and methods

A survey was conducted of 33 students from the Veterinary Medicine and Zootechnics degree program at UAZ who completed their professional stay in clinics and hospitals for small species both in the private sector as well as in universities in the states of Durango, San Luis Potosí, Aguascalientes. , Jalisco, State of Mexico, Mexico City, Querétaro and Zacatecas.

Survey design

The instrument established eight URPs that encompass the medical-surgical practice that demands health care for companion species:

- a) Record the medical history, perform a physical examination and create a list of differential diagnoses.
- b) Develop a diagnostic plan and interpret results.
- c) Develop and implement a management and treatment plan.
- d) Recognize patients who require urgent, emergent care for their evaluation and management.
- e) Formulate relevant questionnaires and retrieve evidence to advance care.
- f) Perform common surgical procedures on stable patients including pre- and postoperative management.
- g) Perform general anesthesia and recovery of stable patients including monitoring and support.
- h) Formulate recommendations for a preventive medicine program.

In the same way, the survey considered five levels of responsibility delegated to the students of professionalization stay based on a Likert scale to obtain the level data. These were raised in the form of questions, with specific characteristics according to each level, which were applied to the eight URPs.

The questions and their respective level are shown below:

- Level 1. Were you only allowed to observe the professional practice carried out by your advisor?

- Level 2. Did you carry out the professional practice under the close supervision of your assigned advisor or veterinarian?
- Level 3. Did you carry out the professional practice with moderate supervision by your advisor or assigned veterinarian?
- Level 4. Did you carry out your professional activity with distant supervision? With your adviser in the area for any help or emergency?
- Level 5. Did you develop your professional practice independently? In addition to this, did they delegate to you the responsibility of supporting those who are advancing at lower levels?

Results

Figure 1. URP related to the registration of medical history, physical examination and differential diagnoses by students in professional stay

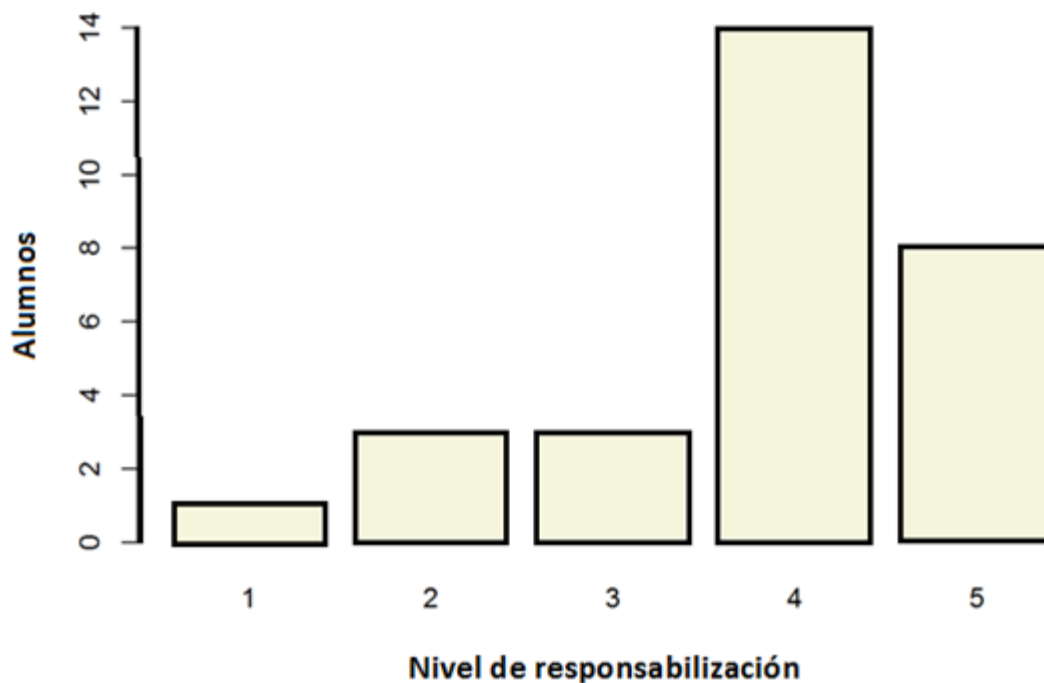


Source: self made

Figure 1 shows a very acceptable level of responsibility towards independence in the execution of tasks, as shown in the bars corresponding to levels of responsibility 4 and 5, since a good number of students performed in those levels. Based on these results, it is assumed that, in order to fulfill the tasks of this URP, the student in professional stay was responsible for obtaining the complete, accurate and organized medical history. He demonstrated client-centered interviewing skills (establishing empathy, listening for verbal and nonverbal cues, client culture, and interaction skills). In addition, she identified in the

client the main reason for consultation and the relevant elements of the history associated with common health conditions. Likewise, she performed a clinical examination, communicated the findings and tried to attend to the well-being of the animal and the safety and comfort of the client. Additionally, the student completed this URP by preparing a list of clinical problems to prioritize and justify differential diagnoses, and thereby guide this phase towards diagnostic and therapeutic needs and possible limitations. All of the above was documented in a clinical sheet.

Figure 2. URP related to the development of a diagnostic plan and interpretation of results by students in professional stay

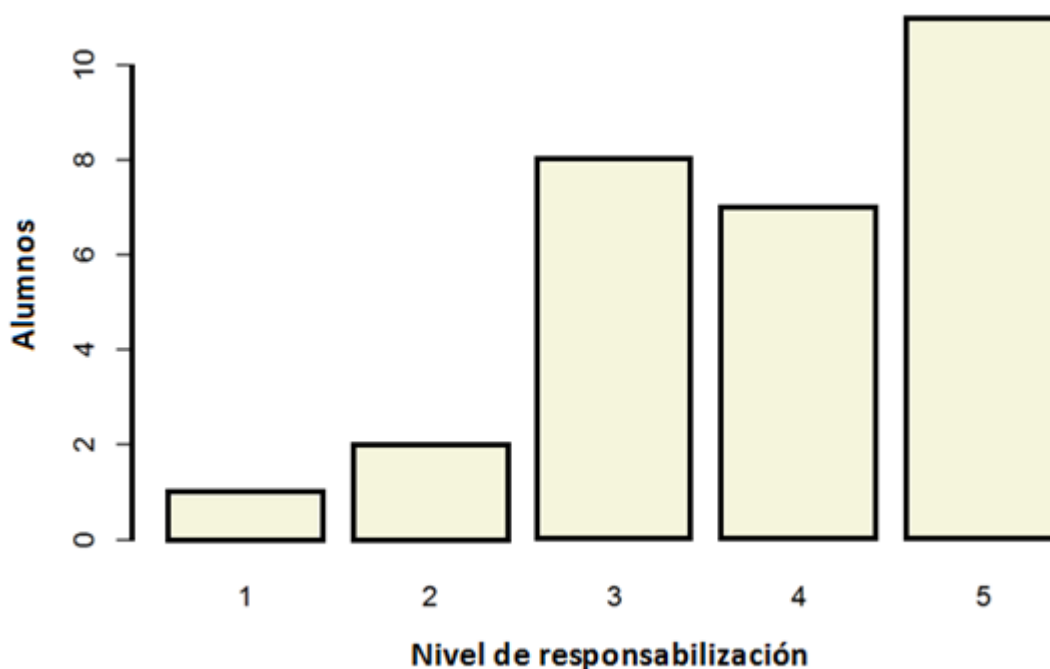


Source: self made

Figure 2 shows a level of responsibility with surveillance distant from the activity carried out and with a certain degree of independence, as shown in level 5. Level 4 of responsibility concentrates the largest number of students, which means that the supervisor is Find in the student performance area for any consultation of the procedures included in this URP. Based on the results shown here, it is assumed that for the fulfillment of this URP, the student in the professional internship used his clinical reasoning skills to create a prioritized list of differential diagnoses, which allowed him to select, together with the supervisor, the initial procedures for diagnostic tests. He analyzed the diagnostic process and

justified future tests. She developed the financial budget and proceeded to negotiate with the owner of the patient the signature of executory consent. Subsequently, she interpreted diagnostic test results. On the other hand, the student was updated to achieve the clinical consistency recorded in the file and, in this way, configure the diagnostic plan with the client and her consent as new information arrived. Finally, she documented the diagnostic plan in the clinical file.

Figure 3. URP related to the development and implementation of a therapeutic management plan by students in professional stay

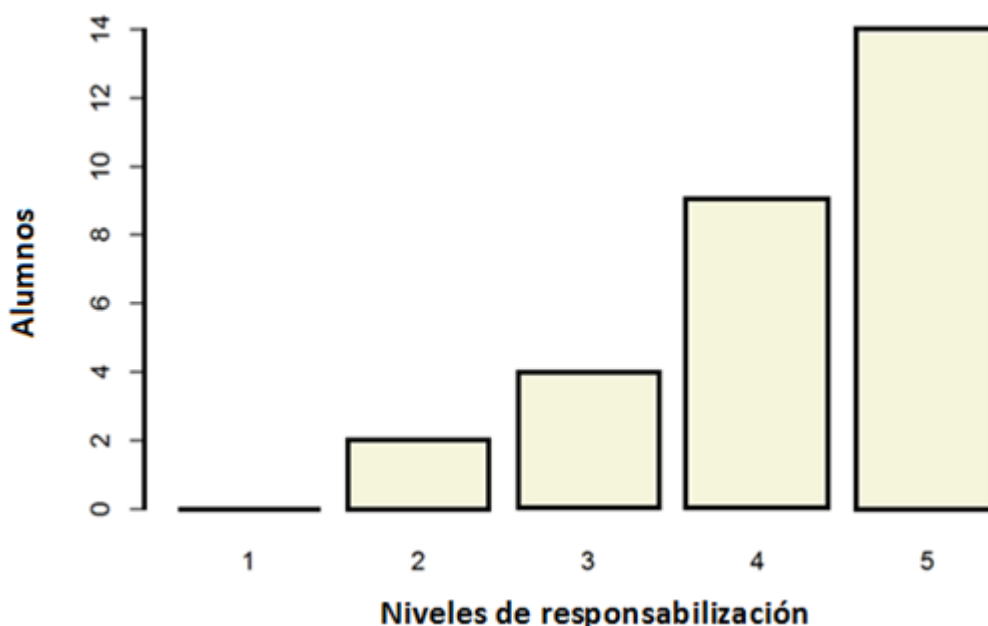


Source: self made

For its part, figure 3 shows a dispersion of responsibility at the different levels, which means that there was a closer surveillance in the activities, however, there is an acceptable tendency towards the autonomy of the actions by the student. . With these results shown here, it is assumed that, for the fulfillment of this URP, the student in professional stay made use of clinical reasoning skills for medical and ethical integration, taking into account economic factors and wishes of the client for the health plan. treatment and management. He acted against the gaps of ambiguity resulting from the information collected and the data available. Together with her activity supervisor, he explained treatment options and answered client questions. He performed therapeutic interventions and participated in euthanasia when necessary. She guided the client and the work team to offer

continuous care to the patient. She integrated new information as it became available to update the management and treatment plan. She recognized limitations in personal veterinary skills, equipment and infrastructure for a real solution of the patient's need in special situations. The student in professional stay followed up on the case with the client and the work team to determine changes in the patient's status based on compliance with the recommendations or the ability to implement a treatment and management plan.

Figure 4. URP related to the recognition of patients requiring urgent care by students in professional stay

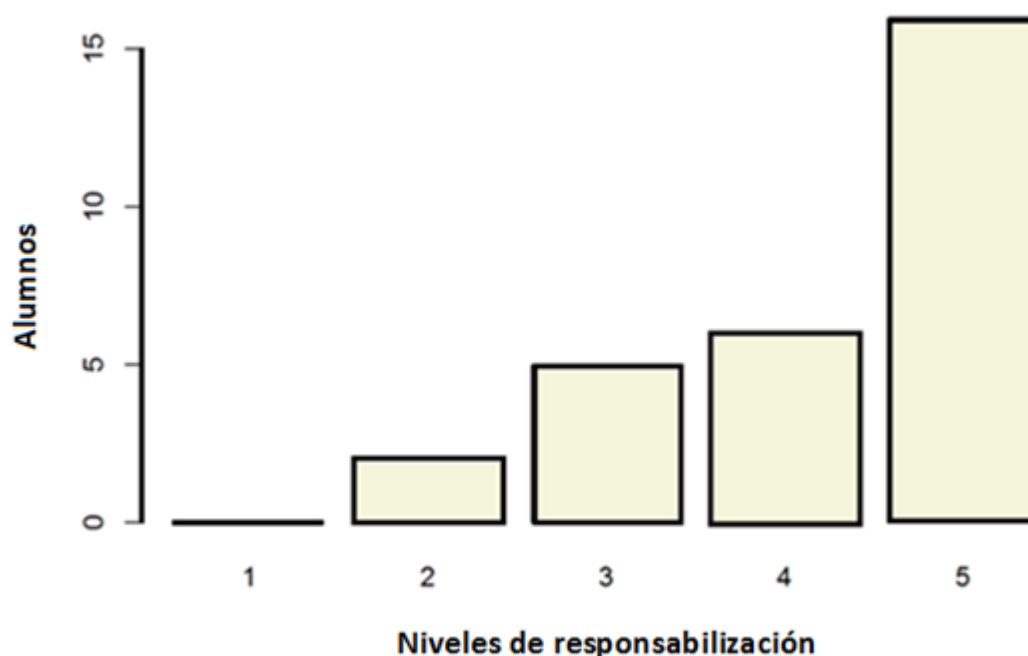


Source: self made

Figure 4 shows a gradual increase in the level of responsibility towards greater independence in the clinical practices of the professionalizing student, as shown in levels of responsibility 4 and 5, which means that there is still a certain accompaniment by the student supervisor in medical-surgical emergencies. Based on the results shown here, it is assumed that, in accordance with the activities proposed for the fulfillment of this URP, the student in professional stay evaluated the clinical situation to identify the patients who required urgent or emergent treatment. In the case of patients with multiple damage, she applied a triage classification according to the severity of the health condition. She evaluated the patient's condition to determine and classify urgent problems. She updated the client on the patient's health status, as well as immediate medical action plans. As needed, initiated emergent medical management to support vital functions, provided oxygen, ensured

effective airway and ventilation, established effective circulation, provided sedation and effective pain relief for safe patient management, corrected hypothermia and hypoglycemia, controlled hemorrhage, stabilized fractures and identified possible etiologies to determine the initial management plan, including euthanasia when necessary, always in consultation with the client. Prioritized care for the emergent patient involving members of the clinical team and worked according to the circumstances and limitations, and finally documented in the file the initial evaluation of the patient, necessary interventions, possible diagnoses, management plan and communication with the client.

Figure 5. URP related to the formulation of relevant questionnaires to show progress in the clinical process by students in professional stay

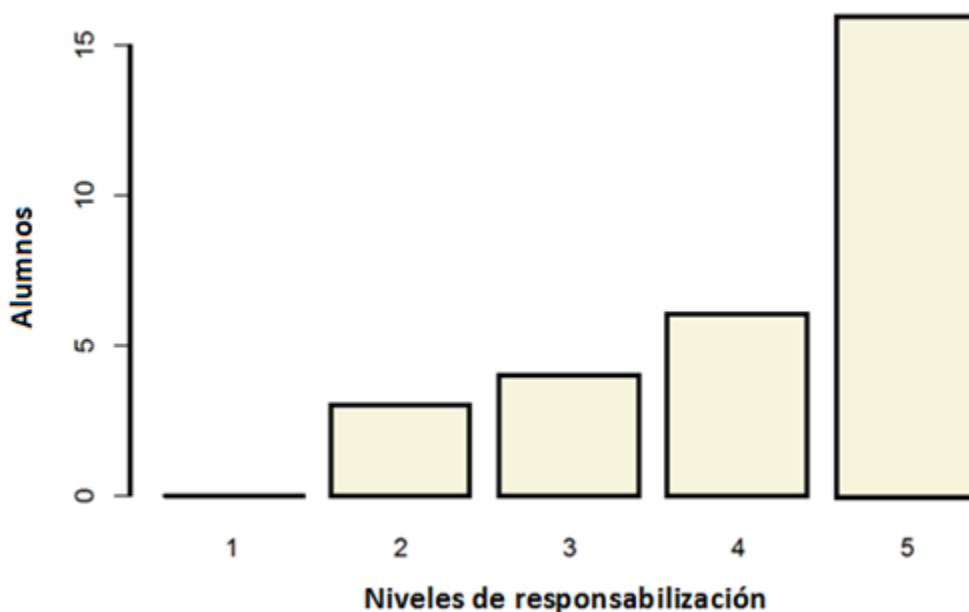


Source: self made

This figure shows a good behavior towards the independence of the activities carried out, as shown by level 5 of responsibility. This indicates that in many situations there was no support in resources and technology to solve the doubts that the clinical situation of the patient patient asked him. Figure 5 also shows an acceptable accompaniment by the advisor assigned to his professional development. Based on the results shown here, it is assumed that according to the activities proposed for the fulfillment of this URP, the student in professional stay focused on formulating pertinent questions based on the evaluation of the

patient's health situation, consulted sources of information , evaluated the applicability and generalization of the studies in publications for specific or similar clinical situations and identified the useful resources for patient care and finally evaluated the patient's response to the interventions and the evidence collected to make adjustments in some diagnostic or therapeutic plan.

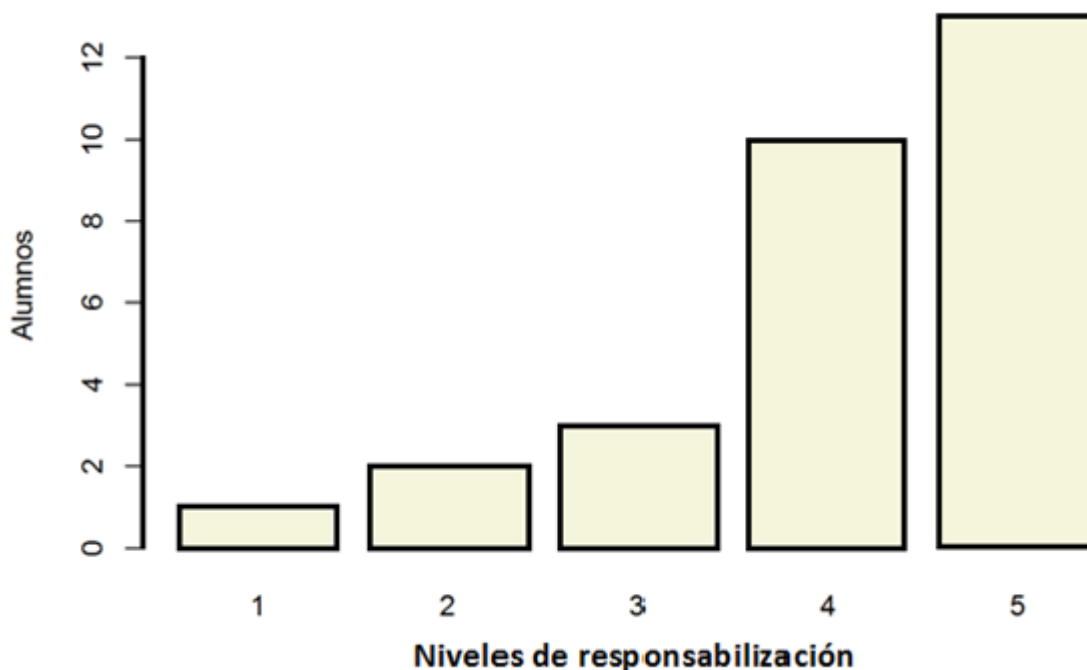
Figure 6. URP related to the performance of common surgical procedures on stable patients by students in professional stay



Source: self made

On the other hand, figure 6 shows a gradual behavior at levels 2, 3 and 4, and a shock of independent responsibility in this URP, with more than 50% of students located at level 5. Following the results shown here , it is assumed that according to the activities proposed for the fulfillment of this URP, the student in professional stay participated in the elaboration of the surgical plan, as a member of the team of surgeons he handled the basic principles of the surgical procedure; prepared the site, prepared himself and other staff to perform the procedure, performed surgical procedures of varying difficulty levels, applied the principles of asepsis, tissue handling, hemostasis, and surgical skills, and called for assistance when deemed necessary. In addition, he clinically reacted to changes in the patient's condition and surgical procedures and participated in the analgesic formulation, therapy and post-surgical care plan.

Figure 7. URP related to the performance of general anesthesia procedures and recovery of patients by students in professional stay

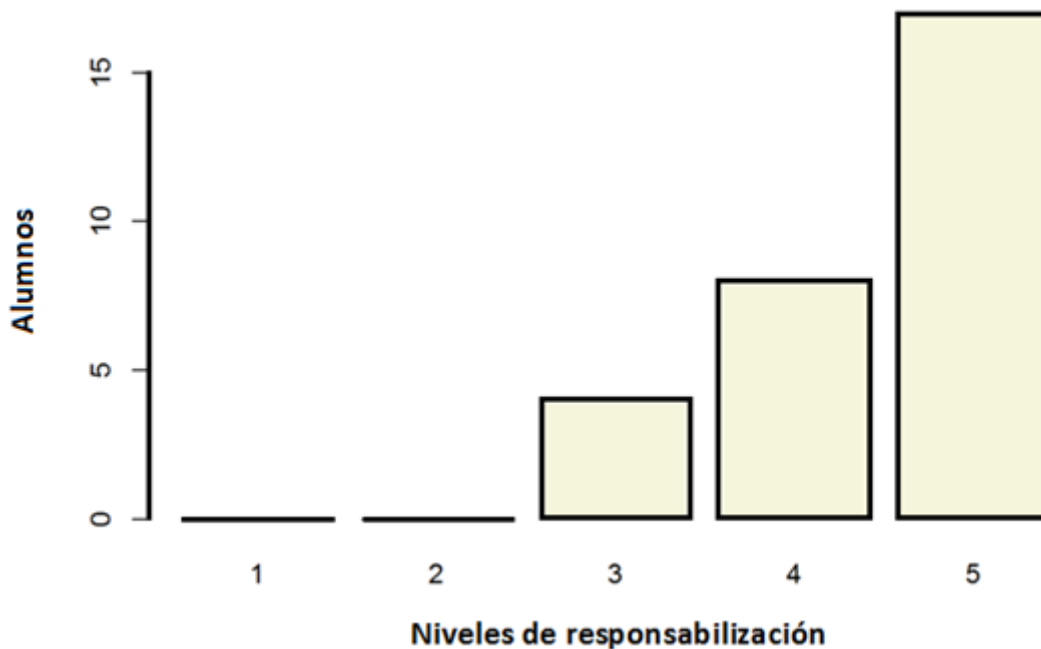


Source: self made

Figure 7 shows a good response in levels of responsibility 4 and 5, which indicates that more than three quarters of the students in stay agreed to the anesthetic activity showing a good command of competence that brought them closer to independence. . A possible explanation for a greater responsibility delegated to the students surveyed is the fact that they have greater access to inhaled anesthesia equipment, which gives them greater confidence to advance. Based on these results and taking into account the activities proposed for the fulfillment of this URP, it is assumed that the student in professionalization stay carried out an evaluation of the patient relating clinical history, physical examination and results of diagnostic tests and other procedures to establish the feasibility of the anesthesia on normal, healthy patient or patient with mild systemic disease without functional limitations for anesthetic procedures. She generated analgesia and general anesthesia protocols including premedication, induction, maintenance and recovery. Selected drugs and equipment, socialized plan with team members, safely performed anesthesia and recovery procedures, including physiological monitoring supports, patient preparation for anesthesia, administration of pre-anesthetic medication, anesthesia induction and maintenance of ventilation, maintenance of anesthetic plan, monitoring of vital signs such as blood pressure

and being attentive to common problems associated with anesthesia and procedures. Finally, the development of this URP includes the assessment of pain and administration of analgesic drugs, if necessary, in addition to collaborating with other tasks in conjunction with the team of surgeons. These actions were associated with knowing the legal procedures for the use of anesthetic drugs and tranquilizers and registering anesthetic data, including the name of medications, dosage, route of administration, procedures, complications, and balances in drug stock.

Figure 8. URP related to the formulation and recommendations of a preventive medicine plan by students in professional stay



Source: self made

Finally, figure 8 shows a good response in levels of responsibility 4 and 5, which indicates that more than three quarters of the students in professionalization stay agreed to the preventive activity of the health of pets showing a good domain of competition that led them to independence in the actions of this URP. Based on what is observed here, and considering the activities proposed for the fulfillment of this URP, it is assumed that the students evaluated the needs of the pets considering age, health status and risk of exposure in order to convince owners about recommendations for better prevention of potential diseases in companion animals. He also guided owners on the general management of pets

according to their characteristics. He carried out prophylactic actions of preventive medicine and the appropriate registration in the cards and clinical files.

Discussion

Like the APNs raised in the paragraphs above, the URPs explained in this work show a good approximation to competencies in veterinary medicine. The professionalizing stays are developed in a real context, they solve a real health need, which gives rise to the professional development of the students as they show the abilities and skills of the competencies that were aligned in some way from the classroom. However, in this phase the classroom should be left behind and it is only required in those moments in which an academic activity is scheduled for the presentation of complex clinical cases or the presentation of advances in specific therapy protocols, or the underlying themes. thesis or research. The teaching activities developed in the classroom by themselves would not allow the effective performance for the care of pets that happens when they are accompanied by a professional stay through the different URP. Programs should consider eliminating time-based training to the extent possible and providing opportunities for learners to progress toward proficiency at their individual pace within a set period of time to achieve desired outcomes (Murray et al., 2019).

During the curricular development of the stays, the doctors responsible for supervising the professionalizing students must apply the pertinent evaluation criteria through supervision, in such a way that they can give the go-ahead for gradual advancement and recognize when the student is in the point of emancipation. The supervisor of the professionalizing student is the one who establishes the milestones or markers of quality and efficiency with which the student performs (Salisbury et al., 2020). It is also the supervisor who defines the critical paths for the improvement of the company advised by him; Similarly, it is who defines the rotation times in the different areas that make up the receiving unit, whether clinic or hospital.

The results shown in this study represent the opinion that the students expressed in relation to what they consider was delegated to them to advance towards the highest level of responsibility. It is possible that the students have not completed all the URPs; in principle, because in certain receiving clinics or hospitals some of the responsibility units surveyed are not included in their practices and services. It is also possible that certain clinics or hospitals have certain established service policies, with some restrictions on student participation,

which is why in the graphs there are still expressions that are located at level 1 of responsibility, and therefore, although in minimal cases, the student was only allowed to observe. It is also important to mention that very few students experienced a certain stagnation in level 1 of responsibility, which is why they have marked that level in the survey.

Something likely is that certain tasks have not been delegated to the professionalizing student due to the fact that they show few skills, abilities, attitudes and thus collide with the model of active participation of the receiving clinics. On the other hand, of the total URP, some are more prominent than others, which is also reflected in the dominance of the competition. For example, it could be thought that the URP related to obtaining the clinical history and performing the physical examination are activities of less complexity than performing surgeries; however, obtaining a good history and physical examination of the patient requires a strong command of communication skills. It is essential to establish a great bond of communication to generate the necessary trust until the owner expresses all the events around his pet out loud. That is why communication skills must be outlined from the lower grades through simulated practices where the same students assume the role of veterinarian and pet owner.

The results shown here reveal that some areas require more attention from the training prior to the stays. Proof of this is the fact that there is a high degree of student-supervisor dependency related to therapeutic protocols. It is then that in the URP corresponding to the treatments, a level of responsibility is shown with close supervision, so the student must be continuously consulting his advisor about the active ingredients and their dosage. This indicates that contents related to pharmacodynamics and pharmacokinetics require greater practical participation in the laboratory, with specific activities that are closer to what is demanded in the real contexts of medical practice.

According to what is shown in the graphs, it can be concluded that, based on the opinions of the students regarding their performance in the URP during the two semesters of professional stays in the area of pet medicine and surgery, there are an acceptable approach to a competency-based veterinary education in the Academic Unit of Veterinary Medicine and Zootechnics of the UAZ.

It is plausible that the opinions of the students are taken into account, especially in those aspects where there is consensus, there are more felt weaknesses. Higher education institutions should strengthen this type of programs where students venture curricularly into

public and private companies that provide the professionalizing space, since in this way social bonding is cultivated and the great needs that higher education must meet are rescued through its graduates. As students are a direct link between the company and the university, educational programs can close gaps in curricular content by collecting feedback from stakeholders to integrate it into curriculum mapping (Macik et al., 2017). In order to support the development of illustrative sub-competencies and help with the revision and curricular reform necessary to advance more solidly towards the implementation and consolidation of veterinary education based on competencies. (Angela, Andrew y Dean, 2020).

The link that results from the relationship between the professionalization stays and the company, according to the experience it has registered, has generated a good labor market for those who successfully completed their professionalization program. This has made it possible for up to 30% of students to receive a direct job offer in the receiving unit, once they have graduated.

On the other hand, it has also been observed that since the curricular plan of two semesters of professional stay was implemented, the graduates of the veterinary medicine and zootechnics career show a very positive attitudinal behavior as entrepreneurs and manage to promote projects in the self-employment modality through the establishment of a clinic with the offer of basic veterinary services, a situation that was not very noticeable when the undergraduate program was developed with a study plan based purely on biased content, the main characteristic of the traditional educational model.

As mentioned above, it is difficult to move from a classical education scenario to a competency-based modality. As with any innovation, the standardization and socialization of language is critical to adaptive change. As has been proposed, an abrupt change in the contents is not necessary, but starting from what is established, take the order that veterinary competencies require. If you want to advance in competency-based veterinary education, it is necessary to share the same language, with clear concepts and definitions that articulate the key components for the establishment of shared educational models in all training programs, to guide educators and students towards teaching, learning and assessment of competencies (Englander et al., 2017). Some curricular experiences that have been developed by health professional training institutions can be adopted where it has been possible to carry out contextual professional competencies more effectively; where the groups are small and the spaces for practice are vast and sufficient for the years of training residency. The sequencing of student progress occurs through the use of milestones as a

potential approach to help guide the assessment of the longitudinal development of competencies (Green et al., 2009; Holmboe, Yamazaki, Nasca, & Hamstra. 2020). Milestones, also called critical points, are designated as defined and observable markers of an individual's ability throughout a continuum of development. (Englander *et al.*, 2017).

According to Green et al. (2009) and Aagaard et al. (2013), the milestones are organized as narrative descriptions of skills that are acquired and monitored at various stages of professional development based on the execution of a series of subcompetencies (Aagaard et al, 2013; Green et al., 2009). Milestones can be used as a mechanism for formative assessment focused on learner improvement or summative assessment, to help facilitate and support ongoing learner development, as well as continuous improvement towards the quality of training programs. (Holmboe et al., 2020; Salisbury et al., 2020). Milestones focus on the student, they are a useful tool for supervisors, since they provide a guide for the development of an educational plan both individually and collectively (Torralba, Jose and Katz, 2020).

Unlike general medicine, in veterinary medicine the recent graduate must face the labor market the day after acquiring his degree. For graduates of classic teaching models, it has been established that on average they invest between 12 and 18 months of updating and the possibility of a solid job. Given this, veterinary education must continue to be promoted with as much space as possible in the scenario provided by real contexts; More practices related to professional skills and their major and secondary domains should be generated. Curriculum plans must be built that can align their contents from the classroom to the competencies. The URP or the EPA are not absolute, they can be perfected, new ones can be built according to the needs and the context; it is enough to assume a methodology for the elaboration, from the title and consensus of the content to the instrument in which they will be evaluated. Many professions and specialties have advanced in their curricular changes to a competency-based education supported by the APN methodology, such is the case of pediatrics (Carney, 2020), psychiatry (Pinilla et al., 2020), surgery (Brasel et al., 2019), neuro-oncology (Kamp et al., 2021), nursing (Al-Moteri, 2020), pharmacy (Haines et al., 2017), anesthesiology (Wisman-Zwarter et al., 2016), and animals farm (Duijn et al., 2019). Advances in this methodology are already registered at the undergraduate levels, where the installed capacity in infrastructure plays an important role; in the same way, the capacity of the human resource must be superior. This means that the implementation of competency-based models with transit bridges to clinical practice in real contexts, such as APNs, requires

a great deal of experience from teachers, so they must also be incorporated into training schemes. (Silverthorn, Lee, Corliss, Nelson y Bergemann, 2020).

The URP concept, adapted from the EPA introduced by ten Cate (2005), represents a way out of epistemological obstacles, provides the means to assess the performance of daily activities of professionals in training, since it is an essential tool to record longitudinally student performance (ten Cate, 2005). EPAs are defined as the essential tasks of a discipline (profession, specialty, or subspecialty), which an individual can be assigned to perform without direct supervision once sufficient competence has been demonstrated (Englander et al., 2017). EPAs put competencies into practice in the workplace, because several competencies, from multiple domains, need to be integrated simultaneously to execute EPAs (Molgaard et al., 2020; Salisbury et al., 2020). This becomes more evident when the activity is developed without supervision, with fluency, with mastery, since certain actions are shown to be encapsulated in the individual, that is, they are automated as experience accumulates. Essentially, EPAs provide a user-friendly organizational structure that can be used for student observation, feedback, and assessment through the application of multiple assessment tools that measure a student's clinical performance. (Peters, Holzhausen, Boscardin, ten Cate y Chen, 2017).

Conclusions

According to the data shown here, there are URPs that require greater practical participation from the academic settings prior to the professional stay. This is demonstrated by the figures related to pharmacology and therapeutics, anesthesia and emerging situations. It is important to review both the content and the demonstration activities related to the active ingredients, the kinetics and elimination of drugs and drugs that are handled in the most common clinical situations in pet species where the handling and dosage of products they are the order of the day in clinics and hospitals that include spaces for professional stays, where the participation of supervising physicians of these PRUs must also be evaluated. The figures corresponding to these URP should be marked as weaknesses and opportunities for curricular action, since if the background of the professionalizing stay seminars is reviewed, there is a strong claim from the students towards a better academic practice around veterinary pharmacology and what derives from it. In conclusion, it is sought that the PRUs in the area of small species increasingly show a tendency towards independence in the performance of future veterinarians.



Future lines of research

The methodology with which this work was developed can be applied to evaluate the PRUs of animal health and production of domestic species contemplated in the curricula of schools and faculties of veterinary medicine and in this way generate and consolidate lines of research that pay more and more to specify the true competencies of the zootechnical veterinary doctor, since despite the existence of certain information related to the competencies of this, many aspects remain to be associated and updated based on new methodological proposals that are emerging and revolutionized other disciplines.

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