



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology
Vol. 09, Issue, 01, pp.7404-7408, January, 2018

RESEARCH ARTICLE

DELIVERY OF VETERINARY DRUGS : AN EXCLUSIVE MONOPOLY IN SENEGAL

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ARTICLE INFO

Article History:

Received 05th October, 2017

Received in revised form

15th November, 2017

Accepted 20th December, 2017

Published online 31st January, 2018

Key words:

Drug, Veterinary
Monopoly, Prescription
Delivery, Law.

ABSTRACT

Application of law 2008-07 on veterinary medicine practice, has made retail sale of veterinary drugs exclusive to Senegal. Veterinary doctors prescribe and deliver veterinary drugs. This situation limits the monopoly of pharmacist, who may or may not receive prescriptions. The objective of our work, is to study retail sale of veterinary drugs monopoly. It's a survey conducted in DAKAR and DIOURBEL areas, with 15 veterinary doctors and 40 pharmacists. Also, law 2008-07 on practice of veterinary medicine and pharmacy has been analyzed. The law allows veterinary doctors to keep pharmacy open, and veterinary drugs are mostly stored in cabinets, and retail distribution become exclusive to them. Also, cascade prescription is not respected. Therefore, it's important to limit veterinarians competences and to reinforce collaboration between pharmacists and groups of breeders, which is insignificant. As for dispensing pharmacists, they are not trained on animal diseases, and more than half have a small stock of drugs, which not exceed two products. In addition, they receive no prescription. However, drifts affecting veterinary medicine practice could lead the sector to lose its health aspect. Monopoly reframing is necessary to stop conflicts of interest. In one hand, it will be a question of limiting veterinary doctors competences, on the other hand clarifying actors obligations on delivery.

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INTRODUCTION

Veterinary drug meets two condition: to be intended for animal and to fall within general drug definition in Article L. 5111-1. Indeed, law of May 29th1975 established in France a monopoly shared between pharmacists and veterinary doctors, with two restrictions, including prohibition of veterinary doctors from keeping an 'open pharmacy', and obligation to draw up a prescription for medicinal products that can be unsafe for human health and for animal. Article L.610 of public health Code mentions : " only can prepare extemporaneously, hold for sale veterinary drugs to users, and deliver retail free of charge or onerous, pharmacists with a dispensary and veterinary doctors, without having the right to keep open pharmacy (1). In Senegal, veterinary profession practice has undergone significant development with creation of Veterinary College, a Code of Ethics, and establishment of a health mandate (2). Thus law n ° 94-57 of June 26th, 1994 (3) allowed elaboration of a new legislation on veterinary drug. The law (4), allows veterinarians to keep pharmacy open, and to monopolize dispensing of veterinary drugs, to the detriment of pharmacists legally removed.

Therefore, it is not common to find veterinary drugs in most pharmacies, while monopoly between pharmacists and veterinarians is shared. The question is whether this is monopoly grabbing by veterinarians for pecuniary reasons? Or monopoly drop out by pharmacists? To try to answer these questions, the objective of our work is to study retail sale of veterinary drugs monopoly, in areas of Dakar and Diourbel.

Scope of the study

Our study took place in some departments of Dakar and Diourbel regions, according their particularities.

Presentation of Dakar Region (5)

Dakar region occupies a crossroads position which makes it a must for all means of transport linking Europe and the Americas. The Dakar region has 53 local authorities, 45 departments and compt about 3 500 000 habitants in 2015 (6). The departments of Pikine, Rufisque and the commune of Hann bel air were targeted in our study.

Pikine department (7)

Pikine, the second most populous city of Senegal became a municipality by Decree No. 83-1129 of October 29, 1983.

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With Decree No. 96-745 of August 30, 1996, Pikine obtained the status of city with 16 municipalities district. In 2007, the city of Pikine would have 874,062 people according to official estimates. It also houses, among other infrastructures, Senegal's main meat processing center and the largest central fish market.

The department of Rufisque (8)

Rufisque is a city in Senegal, located 25 km southeast of Dakar. At the end of 2007, according to official estimates, the population would be 162,056 people. Poultry farming is a good part of the economic activity of the population in its communes such as Sangalkam, Bambylor and Sébikotane hence the very frequent presence of veterinary practices that ensure their food and medicine supplies in case of care.

The commune of Han Bel Air (9)

The municipality estimates today the total population of the municipality of Hann / Bel-Air to 90 000 habitants. The forest and zoological park of Hann is located in the municipality. There are also many dog watchdog training centers.

Presentation of the Diourbel Region (10)

The Diourbel region is directly linked to its national capital (Dakar) by the N3 national road, and the Dakar Kidira railway line, is populated by 1 049 954 habitants. The region includes 3 departments subject of our study: Diourbel, Bambej and Mbacké.

Department of Diourbel (11)

Diourbel a city of Senegal located about 150 kilometers east of Dakar, is the historical capital of peanut culture. In 2007, Diourbel would have 100,445 habitants. The economy of the region is dominated by agriculture. In addition, cattle and Capricorns are raised. The weekly keur Ibra Yacine market is open every wednesday for farmers in the area, as well as those in Dakar and all over the country, to sell or buy livestock.

Department of Mbacké (12)

Mbacké is located in the heart of Senegal, on the national road number three between Diourbel and Dahra, not far from the holy city of Touba. Mbacké's is populated by 1 049 954 habitants and trading is the main economic activity. The department of Mbacké is surrounded by villages such as Kael, Sadio and especially Same Thiallé, whose main activity is livestock. Also, Mbacké is very close to Dahra known by its weekly market, gathering breeders of the surrounding regions.

Department of Bambej (13)

The city of Bambej is populated by 252532 and located in the former groundnut basin, became a full-function commune in 1956. It houses an Institute (ISRA) and a research center (CNRA). In addition, National School of Rural Managers (ENCR), which vocation is to train agricultural, water and forestry engineers and veterinary technicians, is a major asset for livestock farmers, especially pigs who are the most common.

MATERIALS AND METHODS

Material

We developed a questionnaire administered to pharmacists and veterinary doctors. The specific objectives were:

- Check compliance with prescription rules for veterinary drugs;
- Check conditions for dispensing medicines by veterinary doctors;
- Verify storage of veterinary drugs in offices;
- Verify existence of collaboration between veterinary doctors and breeders' groups;
- Identify therapeutic classes ordered by veterinary doctors,
- Assess the training of community pharmacists on animal diseases;
- Identify advice given by pharmacists on animal diseases;
- Check the availability of veterinary drugs in pharmacies,
- Identify prescriptions for veterinary drugs dispensed by pharmacists;
- Identify limits of the new law on veterinary drugs delivery.
- Data collection was essentially based on survey sheets, but also by a critical review of the 2008 law. Data obtained were processed using Excel 2007 software.

METHODOLOGY

It's a one-year survey that was conducted first among veterinary doctors (December 20, 2015 to January 19, 2016), then among pharmacists (January 23, 2016 to February 15, 2016) settled in Dakar and Diourbel areas. We made a reasoned choice of 15 veterinary practices and 40 pharmacies located in the same area.

RESULTS AND DISCUSSION

Survey of veterinary doctors

Prescription and sale of veterinary drugs

Prescription after consultation

Prescription of veterinary drugs can be carried out only after establishment of a veterinary diagnosis. For pets, diagnosis is established exclusively after clinical examination of the animal; for external animals, diagnosis can result from clinical examination of the animal, but also from permanent sanitary monitoring of the breeding. Regarding external animals, prescription can be performed without clinical examination of the animal. However, veterinary doctors responsible for examining the animal is obliged to make an order after consultation, except for antiparasitic drugs intended for pets external treatment; and medicines containing moderate doses of poisonous substances listed in Annex I, article R. 5143-5 of public health Code. Results shows that prescription rules are applied by veterinary doctors (Fig.1) and are respected for both pet animals (93.3%) and external animals (73.3%). However, it is probable that preliminary clinical examination

will not be respected in accordance with provisions of law 92-52 of June 26, 1992 (14).

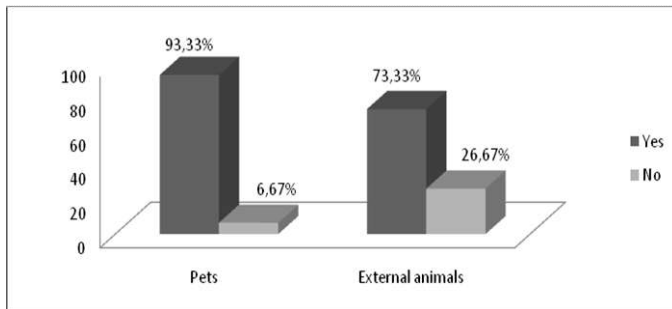


Figure 1. Compliance with prescription after consultation

Renewal of prescriptions

In case of veterinary drug prescription renewal, "cascade" principle (15) must be respected. Our results show that, 73, 33% of veterinary doctors routinely prescribe drugs for human use (Law, 2008) compared to 26.67% (Fig. 2). However, non-compliance with this principle favors production of extemporaneous preparations by veterinary doctors (16) for economic reasons. However, our results are different from those of Dr. EPIN, where 90% of veterinary doctors prescribe drugs for human use (17), only when needed.

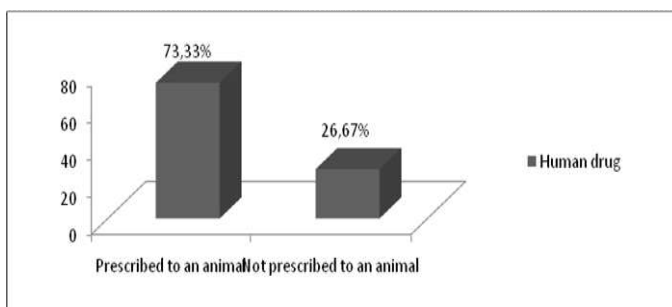


Figure 2. Compliance with prescription by cascade

Delivery of drugs after consultation

In Senegal, the sale of veterinary drugs after consultation of pets (83.33%) or external animals (72.22%), is mostly provided by veterinary doctors in their cabinets (Fig. 3). Indeed, who has the power of prescription also has the power of issue. These results are similar to those of Dr AIRAULT, where 60% to 65% of veterinary drugs delivery is mainly provided by veterinarians; while community pharmacists are involved only by 10% to 15% (19) According to Dr. BRUNAUD S veterinary drugs sale represents about 40% to 60% of the remuneration of a veterinarian practicing in rural areas, and sometimes up to 70% for veterinary doctors practicing in pig and poultry farms (20). This situation could be explained by application of 2008 law (21). However, drug issue by prescriber, leads to questions about the control of prescription effectiveness. However, veterinarian is under any obligation to control his own prescription (22) Such a practice leads to increased risk of misconduct by the veterinary doctors; since this term refers to beyond the physical issue, to an act of analysis of the ordinance. Therefore, veterinary doctors could make his private and financial interests, to the detriment of public health interest, through an unnecessary retail sale of veterinary drugs (23).

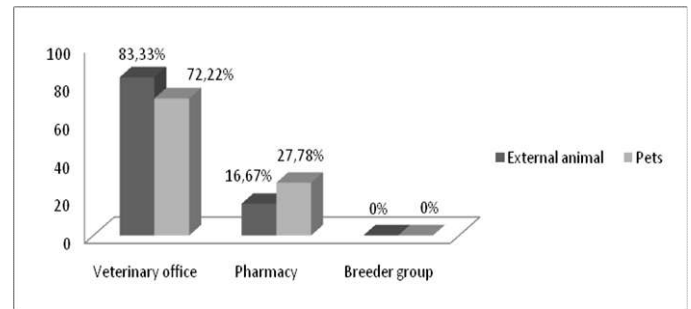


Figure 3. Retail sales of veterinary drugs after consultation

Storage of veterinary drugs in offices

The large storage of veterinary drugs on shelves (73, 33%), against (26.67%) in cabinetry (Fig. 4), attests the fact that veterinary doctors install "veterinary pharmacies". It's a misuse of the law for economic reasons, to the detriment of public health.

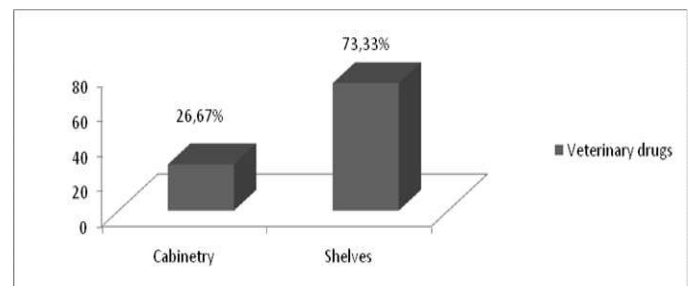


Figure 4. Drug storage locations in veterinary practices

Collaboration between veterinary doctors and breeders' groups

Veterinary drugs are under the control of pharmacist or veterinary doctors who participates in the technical direction of the group. In Senegal, veterinary drugs managed by breeders' groups are limited, because the monopoly of community deposits is held by veterinary doctors, who creates and manages deposit for breeders groups recognized by legislation in force (article 29 of the 2008 law). Indeed, our results show that 60, 00% of veterinary doctors do not work with breeders groups; and only 6.67% work full-time, compared with 33.33% part-time (Fig. 5). This weak collaboration between the two actors could be explained by the monopoly of retail delivery, favored by the 2008 law.

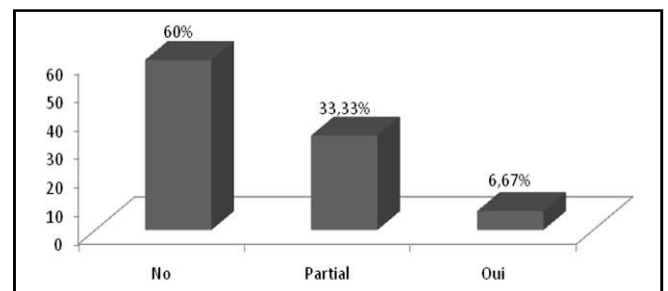


Figure 5. Collaboration of veterinary doctors with breeders groups

Therapeutic classes ordered by veterinary doctors

In most veterinary practices, we noted a significant proportion of antiparasitic drugs prescription in 21.31%, vitamins and

vaccines in 21.31% each, antibiotics in 18.03% (Fig. 6). These results are in part similar to those of Dr. DUFET .C. who showed that antiparasitic drugs, vaccines and serum each accounted for 20%. However, antimicrobial resistance poses a threat to public and animal health (25). Indeed, a study from the AIEMV in 2003, showed that antibiotics occupy 18.57% [25].

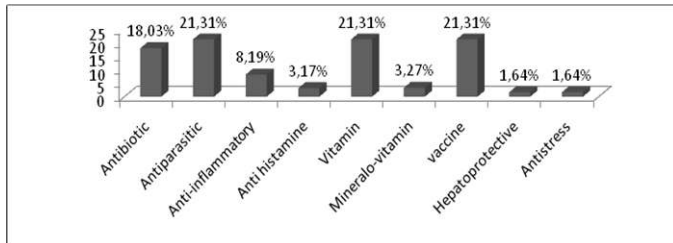


Figure 6. Therapeutic classes most sold through veterinarians

Survey of community pharmacists

Training pharmacists on animal diseases

Regarding the results (Fig.7), 67.50% of pharmacists are not trained in animal diseases, compared to only 32.50% who received them in the 5th year of pharmacy; the level of knowledge is limited to only mentioning pathologies. However, these results are similar to those of the Faculty of Pharmacy of Paris XI (26) with a variable content from one university to another (27). In addition, our results are similar to those of Dr. AIRAULT, who proved in 2013 that only 40% of pharmacists surveyed had received training in veterinary pharmacy, compared to 80% who had not received training outside their university programs.

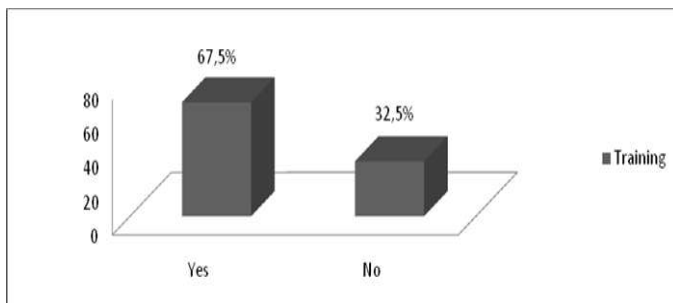


Figure 7. Training of pharmacists on animal diseases.

Advice given by pharmacists

Advice given by pharmacists, relates exclusively to veterinary drugs, that are used in 3.92% of cases by veterinarians, 23.53% by individuals and 25.49% by breeders (Fig. 8). However, in 47.06%, no advice is provided. Indeed, pharmacists legitimacy in veterinary drug to be indisputable, must be accompanied by a strengthening of their knowledge on animal diseases, without being an obligation for pharmacists.

Storage of veterinary drugs in pharmacy

Our results show that more than half of pharmacists hold veterinary drugs; and among those who hold veterinary drugs, their stock does not exceed more than two products for the

most part (Fig. 9). This situation is due to monopoly hold by veterinary doctors.

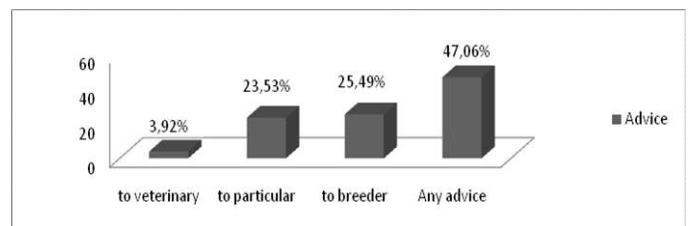


Figure 8. Pharmacists' advice on veterinary Drugs

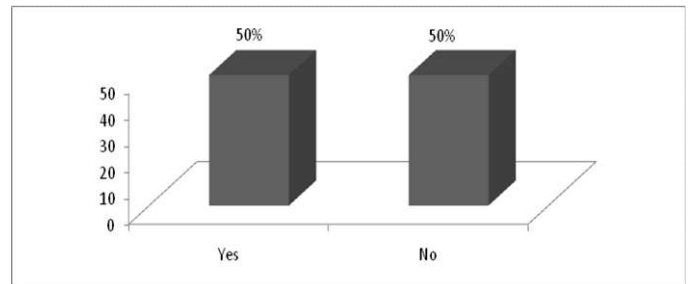


Figure 9. Availability of veterinary drugs in pharmacy

Receipt of prescriptions from veterinary practices

With regard to prescriptions made by veterinary doctors, only 10% of pharmacies visited frequently receive them, 8% quite often and 20% rarely. However, 63% of pharmacies visited do not receive a prescription (Fig.10). This situation could be explained by the fact that veterinary doctors have legitimacy to prescribe and dispense veterinary drugs, unlike pharmacists who are limited in terms of training on animal diseases.

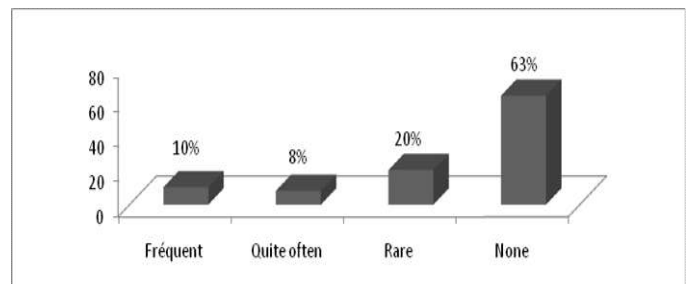


Figure 10. Frequency of receiving prescriptions from veterinary doctors at pharmacy

Limits of law n ° 2008-07 on veterinary medicine practice in Senegal

With regard to veterinary and pharmacy practice, inspecting veterinarians cannot alone control prescriptions of laws and regulations (Article 7. paragraph 2). Contrary to article 48, inspection and pharmacovigilance are joint activities which must be carried out by veterinarians and pharmacists inspectors for public health reasons. On the " Title II ", it can be confusing, since it equates "Veterinary Pharmacy " to " veterinary medicine ". This is a name that should be replaced by 'veterinary drug', as mentioned in the preamble. Also, 'veterinary drug' 'does not exist from a legal point of view, it cannot be advertised to public as mentioned in art. 11. On detention, sale and retail distribution (Chapter III - Article 27, paragraph 2) it will be necessary to read the veterinary doctors

registered on the roll of the Order of Veterinary doctors of Senegal without " keeping open pharmacy ". Pharmacy is a discipline that practice requires conditions which not fulfill by veterinarian. Veterinary doctor only have a restricted prerogative, which grants him derogatory jurisdiction, while keeping pharmacy open is penalized by article L. 5442-1 of public health code. Therefore, it's appropriate to stop this amalgam assimilated to misleading advertising. In case of " Industrial preparation, sale and wholesale distribution " (Article 37 (3)), food manufacturing establishments may not derogate from the technical management rule of the establishment. The obligation must be the same. Indeed, the derogation must be entirely shared and not restricted by the term " prescription " which must be deleted.

Conclusion

Veterinary drugs is likely to impact public health, particularly through consumption of animal food. Public health issue, which was evacuated by veterinary doctors, goes beyond technical framework. Moreover, drifts affecting veterinary medicine practice could lead the sector to lose its health aspect. Therefore, monopoly reframing is necessary to stop conflicts of interest.

REFERENCES

1. Detention and retailing of veterinary drugs in France: French Code of Public Health. Article L5143-2 amended by Law No. 2014-1170 of 13 October - art. 48. <https://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006072665&idArticle=LEGIARTI000029595014&dateTexte=&categorieLien=id> (viewed on January 10, 2018)
2. Exhibition of reasons. Law 2008-07 on veterinary medicine and pharmacy practice in Senegal.
3. Law n ° 94-57 of June 26th, 1994 on New definition of medicinal product in Senegal.: Repealing and replacing Article L 511 of Law 54-418 of April 15th ,1954 in its last paragraph.
4. Law No. 2008-07 of 24 January 2008 organizing veterinary profession and pharmacy in Senegal of 2008.
5. Presentation of Dakar region: available on <https://fr.wikipedia.org/wiki/Dakar>. (viewed October 19th 2016).
6. Population of Dakar region: http://www.senegal-online.com/tourisme_au_senegal/villes-et-villages-du-senegal/dakar-capitale-du-senegal. (viewed October 19th 2016).
7. Presentation of the department of Pikine: available on <http://fr.wikipedia.org/wiki/Pikine> (viewed October 19th 2016)
8. Presentation of Rufisque department available on URL link: <http://fr.wikipedia.org/wiki/Rufisque> (viewed 10/19/2016)
9. Presentation of Hann Bel Air commune: Available on http://fr.wikipedia.org/wiki/Hann_Bel_air (viewed 19/10/2016)
10. Presentation of Diourbel region: available on <http://fr.wikipedia.org/wiki/Diourbel> (viewed 19/10/2016)
11. Presentation of Diourbel department : available on <http://fr.wikipedia.org/wiki/Diourbel> (viewed 19/10/2016)
12. Presentation of Mbacke department : available on <http://fr.wikipedia.org/wiki/Mbacke> (viewed 19/10/2016)
13. Presentation of Bambey department : available on <http://fr.wikipedia.org/wiki/Bambey> (viewed 19/10/2016)
14. Law 92-52 of 26 June 1992 on the establishment of the College of Veterinarians of Senegal
15. PETIT S., Dictionary of Veterinary Medicine, 12th edition, Publishing Vet. 2003.
16. Law 2008-2007 on veterinary medicine and pharmacy practice in Senegal. Art. 34. A veterinarian can prescribe for animals authorized medicines and prepared for human use. Or if the appropriate veterinary drug does not exist when prescribing it must proceed step by step, before resorting to human specialty.
17. Law 2008-2007 on veterinary medicine and pharmacy practice in Senegal.. Article 34 on Veterinary Profession Organization.
18. Dr. EPIN. M: "twenty practical cases of veterinary advice at pharmacy" PhD Thesis, 2009. Faculty of Medicine of Creteil
19. Dr. Airault: "Veterinary medicine in pet: analysis of the officinal practice and training of pharmacist" Thesis of doctorate in Pharmacy, 2013, University of Angers.
20. Dr. Brunaud S. : "The veterinary drug: retail distribution in France and Europe, role and involvement of the pharmacist" Thesis of Doctorate in Pharmacy, 2011, University of Poitiers, Faculty of Medicine and Pharmacy
21. Law 2008-2007on Veterinary Profession Organization. Chapter III, section 27 of the 2008 Act is entitled: Detention, Sale and Retail Distribution. This article allows veterinarians to keep open pharmacies, prescribe and dispense drugs to breeders without requiring the prescription.
22. J. Maillet, Contribution for the National Committee for a reasoned use of antibiotics in veterinary medicine, 13 September 2010 (unpublished).
23. Maud Cintrat. Contractual doctoral student in charge of teaching mission (Aix-Marseille University). Center for Health Law (UMR 7268 - EF - CNRS) Health and Social Law Review 2012 p. 1084
24. P. De Castro. Amendments 1-55, Draft motion for a Resolution on Antibiotic resistance, European Parliament, 24 March 2011, p. 23-24. Antibiotics could end up in drug residues found in the meat that is consumed.
25. Dr. Dufet. C: "Market of veterinary drug" Thesis of Doctorate in Pharmacy, 2012, University of Burgundy, Faculty of Pharmacy. BISMUTH R. The delivery of veterinary drug, Thesis. Veterinary medicine: Maisons-Alfort: 1998.
26. PETIT S., Veterinary Therapeutic Guide 2004 - Pets, 2nd Edition, Veterinary Point Editions, 2004. Veterinary training of the officinal team represents a module of about twenty hours.
27. BISMUTH R. The delivery of the veterinary drug, Thesis. Veterinary medicine: Maisons-Alfort: 1998.