Higher education policy of veterinary medicine in Belgium

A comprehensive overview and comparative study

by

Ashkan M.H.Joshghani

Promoters:  Prof. dr. Dewulf
Prof. dr. De Vliegher

Literature Review

as part of the Master's Dissertation

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Evelyne Picco (Direction of Education at National Veterinary School of Toulouse) on the other hand explained the admission policy in France.

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EXECUTIVE SUMMARY

In Belgium, the democratisation of higher education since the 1950s has led to an ever-increasing number of students pursuing academic degrees. As a side-effect of this open access, some popular study programs are now facing insufficient infrastructure to support the growing numbers of students, a so-called 'plethora of students'. This has led to calls for restricting the access to certain programs. However, while there are many ways to limit access to higher education, none of those are generally accepted; particularly in Belgium, the regulation of higher education admission policies has long been a contentious topic.

The study of veterinary medicine is a prime example of the controversies surrounding plethora of students in higher education. Nevertheless, Belgium is one of the few countries which places no restrictions on the access to veterinary studies. As a result, for many years, Belgium has attracted a considerable influx of foreign students, predominantly from neighbouring countries that do implement selective measures for veterinary students.

While the French Community, being faced with an excess of students in the clinical Master's program, has modified its admission policy multiple times over the past decade to limit access to veterinary medicine, the Flemish Community has remained largely inactive on this unresolved topic. In addition, a preliminary analysis of available data indicates that Belgium produces an amount of veterinarians which comparatively exceeds that of neighbouring countries by a significant margin. Further research is required to fully understand the implications of this preliminary finding and quantify the veterinary needs of society.

**Key words:** Higher education - Veterinary Medicine - Admission policy - Numerus clausus - Plethora
EXECUTIVE SUMMARY (Dutch version)

Sinds 1950, leidde de democratisering van het onderwijs in België tot een groeiende universitaire expansie en studentenstroom naar het hoger onderwijs. Tot de dag van vandaag is dit diepgeworteld principe verder doorgetrokken. Een ‘goedkoop’ en open hoger onderwijs heeft als doel sociaal-economische of etnische drempels te verlagen om alle studenten, ongeacht sociale achtergrond, gelijke kansen tot verder studeren te kunnen bieden.

Een neveneffect hiervan is evenwel dat in een aantal gevallen de snelheid van de expansie van instellingen voor hoger onderwijs geen gelijke tred kan houden met de immer toenemende studentenstroom. Hierdoor worden sommige ‘populaire’ richtingen geconfronteerd met een infrastructuur en middelen die niet langer voldoen om de studentenstroom op te vangen. Men spreekt van een zogenaamde ‘plethora aan studenten’. Wanneer een hoger onderwijsinstelling haar maximale capaciteit bereikt, bestaat het risico dat de kwaliteit van de opleiding in het gedrang komt.

Als respons hierop wordt vaak voorgesteld om restrictieve toelatingsvoorwaarden voor bepaalde opleidingen in te voeren om de instroom van de studenten te verminderen. Hoewel er vele wijzen denkbaar zijn om het aantal studenten te beperken, is geen ervan algemeen aanvaard. Iedere maatregel heeft zijn voor- en nadelen, waarbij ook de rechtvaardigheid van de instroombeperkende maatregel steeds in vraag gesteld kan worden.

De opleiding diergeneeskunde wordt aanzien als één van de ‘populaire’ studierichtingen in het hoger onderwijs. Vaak wordt de grote instroom gelinkt met de romantisering van het beroep van dierenarts in de media (o.a. TV-programma’s). In België is er voor de opleiding tot dierenarts geen toelatingsproef, noch een numeros clausus vastgelegd. In tegenstelling tot België, hebben de buurlanden wel instroombeperkende maatregelen ingevoerd voor de opleiding diergeneeskunde op basis van een numeros clausus, waarbij een beperkt aantal studenten de opleiding jaarlijks kan starten. De studenten die geen toelating krijgen tot de opleidingen in hun thuisland, proberen hun droom om dierenarts te worden waar te maken door in België te komen studeren. De influx van buitenlandse studenten naar de Faculteiten Diergeneeskunde verloopt voornamelijk op basis van overeenkomst van de moedertaal met de taal waarin het onderwijs gegeven wordt: Nederlandse studenten komen naar de universiteiten in de Vlaamse Gemeenschap, terwijl Franse studentenuniversiteiten in de Franse Gemeenschap verkiezen.

De afgelopen decennia, heeft de Franse Gemeenschap de toelatingsvoorwaarden tot de opleiding Diergeneeskunde verschillende malen aangepast om de instroom van de studenten te beheersen, terwijl de Vlaamse Gemeenschap de toegang tot de opleiding Diergeneeskunde steeds open heeft gehouden.

Er werd ook een analyse uitgevoerd om het aantal afgestudeerde dierenartsen dat op de arbeidsmarkt terechtkomt te vergelijken tussen België en de buurlanden. Uit de resultaten blijkt dat België, in verhouding tot de oppervlakte van het land, een aanzienlijk grotere hoeveelheid dierenartsen produceert in vergelijking met de buurlanden. Verder onderzoek is evenwel onontbeerlijk om de verschillende, vaak onvolledig gekende variabelen en hun onderlinge relatie beter te begrijpen om de volle betekenis van deze resultaten te kunnen inschatten.
INTRODUCTION

Plethora (derived from the Greek word plèthōrè, which translates to “fullness”) is by definition a clinical term indicating hypervolemia. In a non-clinical context, the word plethora is used to indicate an excessive amount. The phrase ‘plethora at the Faculty of Veterinary Medicine’, which has been repeated numerous times over the past years, thus refers to an excess of students entering the veterinary medical training.

Drawing a parallel with the clinical meaning of the word ‘plethora’, the current situation can be summarized as follows:

students flow through the Faculty of Veterinary Medicine like blood through arterial blood vessels. Across the capillary walls, a six year exchange of knowledge takes place between the blood stream and interstitial fluid. After enduring a long diffusional exchange, students graduate as veterinarians. The veterinary graduates flow eagerly towards the heart, in this case represented by the dynamic labour market. Once arrived at a veterinary practice, a new breath of air starts their professional career as the lungs expand.

A probable diagnosis in Belgium is that the labour market for veterinary practitioners suffers from a condition comparable to congestive heart failure (CHF). The disrupted Belgian labour market is currently starting to fail in a comparable fashion: a vicious cycle begins to emerge in which a consistent flow of veterinary graduates causes further plethora of the labour market. As the student population progressively increases, capillary walls start to distend which jeopardizes the quality of the (pre)clinical education. Furthermore, the equivalent of a heightened venous blood pressure gives rise to other symptoms such as an increased geographical competition and associated tariff conflict among veterinary practitioners, low salaries, early termination of career, etc.

What are the underlying causes? Does the democratization of higher education dilate the blood vessels, causing an excess of veterinary graduates? Is the large interest of students for veterinary studies co-caused by a romanticized vision of the profession in the media (e.g., in TV shows)?

However, a proper diagnosis cannot be reached based solely on the aforementioned symptoms. It is imperative to seek accurate data, in order to demonstrate a causal connection with the observed pathology. Despite of the existence of the condition, it is surprising to see how little research has been conducted on this matter.

At Ghent University, some therapeutic measures have been put in place in order to control the plethora in veterinary medicine, such as instituting a challenging 1st year (to dilute the student mass entering the second year), introduction of online lessons (to compensate for classrooms with an insufficient capacity) and organizing more practical courses (to prevent overpopulation of practical courses). Furthermore, the option “research” was introduced in 2000 as an additional specialization in the final year, to broaden career opportunities for students beyond becoming a veterinary practitioner.

Still, some believe it is a symptomatic treatment which only aims to relieve the symptoms without addressing the actual cause of the pathology.
Will these measures be sufficient to treat the heart failure, or will veterinary practitioners develop the labour-equivalent of cyanosis due to oxygen deprivation? From a clinical point of view, one fact is certain: untreated CHF patients have a poor prognosis.

As with any clinical examination, it is important to work in a chronological order. In this study, we will start the procedure with a sample of the higher education policy in Belgium, and whether elements in this policy can be identified as possible causal factors.
LITERATURE REVIEW

1. HIGHER EDUCATION IN BELGIUM: AN OVERVIEW

1.1. Education: a Community competence

Belgium is a trilingual country with three official languages namely Dutch, French and German. A shared ethnic background with mutual language and culture forms the bound that unites people into a Community. Therefore, Belgium is divided into three linguistic communities: the Flemish Community, the French Community and the German-speaking Community.

As the domain of education is associated with the notion of language, the third state reform of 1988-89 shifted education into a Community competence. Instead of centralised regulation, each Community gained autonomous jurisdiction over education. The communities enact their own legislation regarding education through Community laws, also known as decrees.

This study will focus on the two major communities of Belgium - the Flemish and French Communities.

1.2. Accessibility to higher education

Belgium is a country which strives for a democratic higher education. A democratic education system can be interpreted in various ways. In essence, it aims to develop equal educational opportunities and academic freedom of choice for every student regardless of their social background. In addition, promoting cultural diversity lies within the principles of a democratized education system. Groenez (2008) described the term democratization as: “the process through which inequality of educational opportunities across social groups reduces over time”.

In order to pursue these aims, the government undertakes measures to reduce socio-economic and ethnic barriers. Through publicly-funded universities and colleges, socio-economic barriers are reduced by establishing low and therefore affordable tuition fees, study grants for students from low-income families and social facilitations within higher education institutions. Furthermore an open access policy to higher education is a shared ideology among the Belgian communities. Any student, both domestic or international, with a diploma of secondary education or equivalent diploma has access to higher education in Belgium, at the same, low, tuition fee.

1.3. Limited democratization in particular study programmes

Although open access to all forms of higher education is considered a deeply-rooted principle in Belgium, some exceptions have been made in several study programmes.

1.3.1. Visual, audio-visual, music and performing arts

In the Flemish Community, students are permitted to higher art school after succeeding in an artistic entrance examination. The examination aims to measure the artistic qualifications of a potential student in which growth potential, affinity and experience with the art form are evaluated.

1.3.2. Engineering sciences

In the French Community, an entrance examination is organized for engineering sciences. A similar examination existed in the Flemish Community, but was abolished from the academic year 2004-2005 onwards, as it led to a significant decline in the Flemish Community.

References:

1. Art. 2 of the Coordinated Belgian Constitution of 17 February 1994
2. Recognized by an Community Decree, a Belgian law, European Directive or an International agreement
3. Flemish Community Decree: Art. 9 of the Decree of 30 April 2004 on increasing the flexibility of higher education
   French Community Decree: Art. 49 of the Decree of 31 March 2004 specifying the remit of higher education, facilitating its inclusion within the European Higher Education Area, and providing fresh funding for universities
4. Flemish Community Decree: Art. 68, §1 of the Decree of 4 April 2003 on the restructuring of higher education in Flanders
   French Community Decree: Art. 50 of the Decree of 31 March 2004 specifying the remit of higher education, facilitating its inclusion within the EHEA, and providing fresh funding for universities
1.3.3. Medicine and dentistry

The regulation of higher education policy regarding medicine and dentistry has been, and still is, a continuing (political) point of friction between the communities in Belgium. The following question emerges - why should there be an agreement for medicine and dentistry between communities? In order to answer this question, we have to go rather far back to an assembly in the Belgian Chamber of Representatives in 1996. As we shall see later on, this point is particularly relevant to the issue regarding plethora in veterinary medicine and how it differs with medicine and dentistry, which will be discussed later.

Before we proceed, we must understand that healthcare professions for humans are bound to the Social Security system. Healthcare practitioners who are entitled to reimburse the cost of their healthcare services, must first receive an RIZIV/INAMI identification number or practice license, which is granted by the Belgian National Institute for Sickness and Invalidity Insurance (Dutch version: Rijksinstituut voor Ziekte- en Invaliditeitsverzekering or RIZIV, French version: Institut National d’Assurance Maladie-Invalidité or INAMI). Also, once graduated, further training (three to six additional years, depending on the specialty) is needed to be able to obtain a practice license. Thus in other words, without a practice license, a graduate in medicine and dentistry is not able to be registered as a practitioner whose services will be financed through the National Institute for Sickness and Invalidity Insurance in Belgium.

1.3.3.1. Plethora of physicians

In the late 1990s, Belgium was characterized by one of the highest physician/population ratios in the industrialized countries (3.6 registered physicians per 1000 inhabitants in 1995), as well as major geographical differences in physician density (Schokkaert & Van de Voorde, 2005; Gerkens & Merkur, 2010). Consequently, this situation sparked a debate concerning the plethora of physicians in Belgium.

In these discussions, three main arguments were put forward to justify limiting the number of physicians in Belgium. First of all, a growing number of physicians leads to an increase in healthcare expenditures by the Social Security system, which is mainly publicly financed in Belgium. This argument is based on the assumption that more physicians per citizen lead to more (possible unnecessary) medical services (prescriptions, examinations and treatments). This phenomenon is also known as the ‘supplier-induced demand’ (SID), which refers to physicians deviating from their agency responsibilities to provide unnecessary care with the main objective of increasing their own pecuniary resources (Léonard et al, 2009). Secondly, an oversupply of physicians can cause a decrease in number of patients per physician which may endanger healthcare quality. A certain number of patients per physician is necessary to gain sufficient experience, especially in young graduates. The final motivation concerns the major interregional discrepancy in physician density (i.e. a higher ratio in the southern French Community compared to the northern Flemish Community), which was considered neither politically acceptable nor financially sustainable given the federal financing of health care (Stordeur & Léonard, 2010).

1.3.3.2. Limitation on access to profession at federal level

After a certain consensus has been reached, a numerus clausus (Latin for "closed number", refers to a quota) was established by the Federal Government in 1996 for access to the professions of physician and dentist. Practically, access to the profession is limited by which a strict amount of medical graduates are annually allowed to submit to a specialization after graduation, leading to a practice license.

The numerus clausus became effective in 2002 for dentistry and 2004 for medicine, as it was set for the students starting in academic year 1997-1998 who graduated at least five respectively seven years later.

The annually available number of practice licenses is determined by the Committee for Medical Supply Planning (MSP) and is tailored in accordance with the perceived needs of society.

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6 Art. 148-149 of the proposal act of 3 January 1996 regarding social provisions
7 Public social security institution that manages and supervises the compulsory health care and benefits insurance
8 Art. 170 of the act of 29 April 1996 regarding social provisions
9 Since academic year 2012-2013 is medical training in Belgium reduced to a six-year university course (art. 4 of the act of 12 May 2011 regarding shortening of the medical training duration)
To establish the number of required licenses, a complex model is used in which the MSP Committee need to take various aspects into account: trend in physician and dentist supply, population healthcare needs, quality of healthcare and demographic (ageing trends) as well as sociological (feminization) evolution of the profession.

Thus, the proposal of the MSP Committee contains annually a maximum number of medical graduates that can be accepted for further training which leads to a practice license. The total amount is further percentually divided among the communities and professional title (general practitioners and medical specialists)\(^\text{11}\). The quota for the communities are decided in proportion to the population size (60 % for the Flemish Community and 40% for the French Community), with the objective to gradually reduce the imbalance in the supply of physicians between the communities.

1.3.3.3. Limitation on access to higher education at Community level

Based on the MSP Committee's recommendation, a *numerus clausus* is set by the Federal Minister of Public Health and Social Affairs. However in order to meet the quota, the communities, which are in charge of education policy, were requested to take measures to reduce the outflow of medical graduates. Otherwise, medical graduates can end up not receiving a practice license, creating a wave of dissatisfaction.

In order to maximise the chances for achieving this objective, the communities were advised to concurrently implement similar policies to limit student numbers\(^\text{12}\). However, each community implemented a different policy.

Since academic year 1997-1998, the Flemish Community introduced an entrance examination for medicine and dentistry\(^\text{13}\). Hereby, the Flemish Community chose to limit student inflow to universities based on a qualitative selection procedure. The exam is not subject to a *numerus clausus*, meaning everyone who passes the examination is eligible to register for medicine and dentistry, without any restriction of the numbers of successful candidates.

In the French Community a different approach has been taken, with the admission policy undergoing significant changes over the years (see Table 1).

**Table 1. Changes in admission policy regarding medicine and dentistry in the French Community.**

<table>
<thead>
<tr>
<th>Date</th>
<th>ADMISSION POLICY</th>
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<tr>
<td>Decree-Law of 14 July 1997</td>
<td>Since academic year 1997-1998, a limitation of access to the Master's programme (2(^\text{nd}) cycle). At the end of the third year of the 1(^\text{st}) cycle, students must receive a certificate to proceed to the Master's training, which is based on overall results during the 1(^\text{st}) cycle. In accordance with the federal quota, the French Community has set a <em>numerus clausus</em> on the number of available certificates which they published three years in advance. The French Community determined the number of available certificates in 1997 for academic year 1999-2000, and in 1998 for academic year 2000-2001, after which the Decree-Law was suspended.</td>
</tr>
<tr>
<td>From academic year 2001-2002 till 2003-2004</td>
<td>No limitation on number of students in accordance with the federal quota.</td>
</tr>
<tr>
<td>Decree-Law of 1 July 2005</td>
<td>Since academic year 2005-2006, a limitation of access to the second year of the 1(^\text{st}) cycle. In order to proceed to the second year, students must receive a certificate by succeeding an examination. In accordance with the federal quota, the French Community has set a <em>numerus clausus</em> on the number of available certificates which they published one year in advance.</td>
</tr>
</tbody>
</table>

\(^{10}\) Art. 169 of the act of 29 April 1996 regarding social provisions  
\(^{11}\) Royal Decree of 30 May 2002 regarding medical supply planning  
\(^{12}\) Advisory concerning proposal Decree of 31 May 1996 on modification of the Decree of 12 June 1991 regarding universities in the Flemish Community  
\(^{13}\) Flemish Community Decree: Art. 2 of the Decree of 24 July 1996 on modification of the Decree of 12 June 1991 regarding universities in the Flemish Community
Table 1. Changes in admission policy regarding medicine and dentistry in the French Community.

<table>
<thead>
<tr>
<th>Date</th>
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<tr>
<td>Decree-law of 16 June 2006</td>
<td>Starting from academic year 2005-2006, enrolment of non-resident students is limited to 30% of the total number of students (resident and non-resident) who have enrolled in the course for the first time in the previous academic year.</td>
</tr>
<tr>
<td>Decree-Law of 24 October 2008</td>
<td>Starting from academic year 2008-2009, access to the second year is possible without a certificate.</td>
</tr>
<tr>
<td>From academic year 2008-2009 till 2014-2015</td>
<td>No limitation on number of students in accordance with the federal quota.</td>
</tr>
</tbody>
</table>
| Decree-Law of 23 March 2012     | - Starting from academic year 2012-2013, a reorientation procedure is introduced by which an examination committee makes recommendations to first-year students who have failed in the 1st semester. A total of three recommendations can be given to the student - (1) remediation program with supplementary activities during 2nd semester, (2) divide curriculum programme over several years or (3) reorientation to another course in the health sector. An agreement must be made between the student and examination committee to proceed to one of the three recommendations.  
- Starting from academic year 2013-2014, students are admitted to the study programme after completing a non-binding admission test. It is a self-evaluation test for students to gain insight into specific capabilities required to succeed in studies in medicine or dentistry. The result is non-binding which means that the final decision remains with the student, thus preserving freedom of choice for every student. |
| Decree-Law of 9 July 2015       | Starting from year 2015-2016, a limitation of access to the second year of the 1st cycle (same admission policy as in the Decree-Law of 1 July 2005).        |

1.3.3.4. A long-standing and continuing debate
The debate regarding minimal entry requirements for medicine and dentistry revolves around multiple issues which are a source of contention between the Communities. The primary controversy is centred on the application of different admission policies designed to manage the outflow of graduates in order to meet the mandatory federal quota. A major stumbling block is the fact that, as illustrated in Table 1, during a number of years, no limitation on the number of students in accordance with the federal quota was enforced. This resulted in an excess of fresh medical graduates beyond the mandated quota, who consequently were unable to receive a practice license.

Although the French and Flemish Communities apply different admission policies, the number of medical graduates regularly exceeds the quota in both communities (Federal Public Service Health, Food Chain Safety and Environment, 2011). Additionally, the scientific validity of the MSP Committee’s recommendations and the outdated database of the medical register are frequent targets of criticism.
2. VETERINARY MEDICINE

The veterinary medicine curriculum is a six-year course, consisting of a two-cycled Bachelor-Master structure in which each cycle takes 3 years to obtain a degree. The reform to a cycle degree system in higher education originates from the Bologna Declaration¹⁴ which is currently being implemented in 48 countries. It aims to harmonize higher education systems and create a so-called European Higher Education Area or EHEA (European Commission/EACEA/Eurydice, 2015). In essence, the objective is to promote citizen mobility (students, graduates, teaching staff) and employability by enhancing comparability and mutual recognition of academic degrees between countries.

2.1. Universities

Figure 1 presents an overview of universities offering the study programme veterinary medicine in Belgium. In the Flemish Community, veterinary medicine is offered by Ghent University (UGent) and the University of Antwerp (UAntwerpen).

Figure 1. Overview of foreign student influx and interuniversity flow of Bachelor graduates to universities offering Veterinary Medicine in Belgium.

¹⁴ The Bologna Declaration of 19 June 1999 - Joint declaration of the European Ministers of Education. The idea behind the Bologna Declaration was laid down in the Sorbonne Declaration of 25 May 1998 by the Ministers of Education of France, Germany, Italy and the United Kingdom
For the French Community a total of four universities offer the course, namely Université de Liège (ULg), Université Libre de Bruxelles (ULB), Université Catholique de Louvain (UCL) and Université de Namur (UNamur).

All of the universities offer a Bachelor’s degree in Veterinary Medicine but the Universities of Liège and Ghent are the only institutions in Belgium to offer a clinical Master’s programme and award the degree of veterinarian. As a consequence, as seen in figure 1, an interuniversity flow of Bachelor graduates occurs towards the Faculty of Veterinary Medicine of Ghent University (FVMGU) and University of Liège (FVMUL). As a result, any increase in number of Bachelor graduates in the different universities will have an impact on the subsequent number of students at ULg and UGent.

In addition, there has been a continuous influx of foreign students applying for veterinary medicine in Belgium. The foreign students apply at universities that conduct the education in the same language as in their native country. Thus students from France apply at universities in the French Community, and students from The Netherlands apply in the Flemish Community. Students from Germany also apply at universities in the Flemish Community, but the numbers are significantly lower compared to the influx from The Netherlands (Archive UGent, 2016).

2.2. Accessibility to veterinary education in neighbouring Member States

Belgium is surrounded by Member States where access to veterinary education is restricted. In this section, we will discuss the admission policy of veterinary medicine in The Netherlands and France, from where the main student influx to Belgium derives.

2.2.1. The Netherlands

In The Netherlands, only the Faculty of Veterinary Medicine of Utrecht University offers a veterinary training program. According to governmental regulations, veterinary medicine is bound by a numeros clausus (also called 'numerus fixus' in The Netherlands) in which a maximum of 225 students are admitted per year.

There are three ways to be admitted to the study of veterinary medicine in the Netherlands: via direct access (1), decentralized selection (2) or through a central weighted lottery (3).

All students with an average secondary school grade of 8.00 or higher are automatically admitted to the program, without any restriction (1). The other students are selected through a weighted lottery system in which a higher average secondary school grade gives a higher chance of gaining admission (2). An institution is also allowed to implement their own admission procedure, also known as 'decentralized selection' (3). Hereby the Faculty of Veterinary Medicine in Utrecht selects a maximum of 30 % of the 225 available places, for those applicants who are interested in the option Food Animals and Veterinary Public Health (Van Beukelen, 2004).

Starting from academic year 2017-2018, admission through direct access or central weighted lottery will be abolished. Going forward, selection procedures will be decided by the institutions via decentralized selection. As justification for the annulment, the Minister of Education, Culture and Science notes:

"De loting houdt rekening met eindexamencijfers (gewogen loting), maar betreft geen inhoudelijke selectie"

"A weighted lottery system only takes secondary school grades into account, but is not a content wise selection"
2.2.2. France

In France, a total of four national veterinary schools (Lyon, Nantes, Toulouse and Maisons-Alfort) offer a full veterinary curriculum and award the degree of veterinarian. Admission to veterinary schools, so-called Grandes Écoles, is based on a nationwide competitive entrance examination (concours), organized by the Service des Concours Agronomiques et Vétérinaires (SCAV).

The entrance examination is also subjected to a numerus clausus, which is each year set by the Ministry of Agriculture. Since 2013, a numerus clausus is fixed at 137 students for each veterinary school\(^{17}\). Therefore, a maximum of 548 students may be admitted each year to study veterinary medicine in France.

However, before being eligible to participate in the entrance examination, students must first undertake two years of preparatory studies after their secondary school at specialized schools, also known as Classes Préparatoires aux Grandes Écoles (CPGE).

Thus, in order to gain access to a veterinary school in France, students are required to undertake a two-year preparatory course and succeed a selective nationwide entrance examination.

2.3. Changes in admission policy

2.3.1. French Community

Wallonia-Brussels, the French Community of Belgium, experienced a significant growth in the number of students enrolling in veterinary medicine. Concern has been expressed that this plethora is jeopardizing the quality of education and because of the nature of the issue, public health. Because critical needs in public health, including food safety and security, are linked to animal health, they can be addressed most effectively by veterinarians, as they are the only health professionals trained in multispecies comparative medicine (H. Hoblet, Maccabe, & Heide, 2003). As a consequence, any decline in the quality of veterinary training will inevitably have a negative impact on the provision of services crucial to public health. In 1999, the World Health Organisation (WHO) defined this concept as ‘Veterinary Public Health’ (WHO Study Group on Future Trends in Veterinary Public Health, 2002).

Due to these concerns a number of different measures attempting to restrict the influx of students have been applied. In this chapter, a chronological overview of changes in admission policies and the effects of their implementation on the veterinary medicine curriculum will be presented.

Over the last 20 years, the number of first-year students has been gradually increasing (as seen in Figure 2). Between 2001 and 2005 there was a systematic decline after which there was again a significant growth rising from 288 to 930 students - an increase of approximately 320 %.

![Figure 2. Number of first-year veterinary students in all four universities of the French Community, 1996-2016 (ULg, 2015).](image-url)

\(^{17}\) Act of 2 December 2013 regarding admission of the communal entrance examination in national veterinary schools in France
To understand these fluctuations, we must take a closer look at the changes in admission policy for the veterinary medicine course (see Table 2).

Before 2003 the admission policy was fairly simple. A secondary-school diploma or an equivalent diploma in the case of foreign students was the main requirement for admission to the study programme.

However due to an on-going increase of Bachelor graduates applying for the Master's programme at ULg, admission to the veterinary medicine course had to become more restricted. The Faculty of Veterinary Medicine of ULg could not cope with the increase in demand without serious disruption of the clinical Master's programme.

Under the decree of 8 May 2003\(^\text{18}\), an interuniversity entrance examination was introduced for three consecutive academic years - in academic year 2003-2004, 2004-2005 and 2005-2006.

A **numerus clausus** system was introduced in which a quota was set on 250 new first-year students each year. The implementation of this admission policy had both an immediate and delayed effect.

After academic year 2002-2003, as seen in Figure 2, an immediate decline was initiated in the number of first-year students. For ULg, the delayed effect started to manifest itself three years later when students finished their first cycle Bachelor's programme in veterinary medicine.

Therefore, in order to adapt admission policies to trend changes in student population over time, a consistent coherence between the government and higher education institutions is of utmost importance, because an admission policy change always has a delayed effect.

**Table 2.** Changes in admission policy regarding veterinary medicine in the French Community.

<table>
<thead>
<tr>
<th>DATE</th>
<th>ADMISSION POLICY</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2003</td>
<td>Open admission to the study of veterinary medicine in which the only criterion for entrance is possession of a diploma of secondary education or for foreign students an equivalent qualification diploma recognized by a French Community Decree, a Belgian law, an European Directive or an International agreement.</td>
</tr>
<tr>
<td>Decree-law of 16 June 2006</td>
<td>Starting from academic year 2005-2006, enrolment of non-resident students is limited to 30 % of the total number of students (resident and non-resident) who have enrolled in the course for the first time in the previous academic year.</td>
</tr>
<tr>
<td>Decree-law of 9 July 2015</td>
<td>Starting from academic year 2015-2016, limitation to enrolment of non-resident students reduced to 20 % of the total number of students (resident and non-resident) who have enrolled in the course for the first time in the previous academic year.</td>
</tr>
<tr>
<td>Decree-law of 16 July 2016</td>
<td>Starting from academic year 2016-2017, a limitation of access to the second year of the 1st cycle. In order to proceed to the second year, students must receive a certificate by succeeding an examination. The French Community has set a <em>numerus clausus</em> of 276 available certificates for all four universities combined, providing the Bachelor's programme in veterinary medicine.</td>
</tr>
</tbody>
</table>

As the Decree-Law of 8 May 2003 came into effect, a new unforeseen problem had arisen. The majority of students who succeeded the entrance exam were of French nationality. For instance, in the academic year 2005-2006, nearly 85 % of the total student enrolments to the Bachelor program were French students (Radius ULg, 2015). This phenomenon was the result of several factors. First, as mentioned earlier, access to veterinary schools is highly selective in France. Second, in order to qualify to sit for the nationwide entrance examination, students must complete two years of preparatory studies after their secondary school. As a result, French students have an advantage compared to Belgian students to succeed entrance examinations. Third, higher education in the French Community of Belgium shares the same language of instruction as in France.

So, due to the restricted admission policy, many French students fail to gain access at veterinary schools in France.

\(^{18}\) Art 1. of the Decree of 8 May 2003 - Modifying the decree of admission requirements regarding veterinary medicine studies in the decree of September 5 1994 concerning the system of university studies and academic grades and the Act of July 27 1971 on the financing and supervision of university institutions
Consequently, an influx of well-prepared French students occurred to the universities in the French Community of Belgium offering the veterinary curriculum, which in turn leads to an unintended reduction of Belgian veterinary students. Assuming most of the French students would return to France at the end of their studies, concerns has been expressed that this could lead to a shortage of veterinarians in the French Community of Belgium, which may endanger public health. Also, from a societal perspective, higher education institutions are still entitled to provide an equal education opportunity to domestic students.

The Parliament of the French Community acted swiftly and constituted the Decree-Law of 16 June 2006\(^{19}\). It established a *numerus clausus* system to limit non-resident students enrolling for the first time in which a certain number of places are kept 'reserved' for resident students\(^{20}\) in Belgium.

Under Art. 4 of the Decree a threshold is set by the following ratio:

\[
\frac{\text{Non-resident students or NR}}{\text{Total number of students in previous year or T}} \leq 30\%
\]

Whereas the resident students have unrestricted access to the course veterinary medicine, access for non-resident students can be granted, within a 30% threshold. In this case, the non-resident students are predominantly represented by French students.

Whenever this percentage is exceeded, the total numbers of non-resident students are selected through a lottery system to achieve a 30 % NR/T ratio. If the particular student is not drawn, the institution refuses their application for enrolment.

As Figure 3 shows, the Decree-Law of 16 June 2006 has significantly decreased the number of French student applying for veterinary medicine in the French Community of Belgium.

However some student applicants, in particular of French nationality, brought on 9 August 2006 an action before the Constitutional Court of Belgium seeking annulment of the decree. The students have claimed that the decree is discriminatory on grounds of nationality and undermines freedom of student mobility, hence contravening European Union (EU) law\(^{21}\) and United Nations (UN) Treaties\(^{22}\).

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\(^{19}\) Decree of 16 June 2006 regulating the number of students in certain programmes of the first cycle in higher education

\(^{20}\) Students who are legally domiciled in Belgium and fulfills one of eight further conditions (see Art. 1)

\(^{21}\) - Directive 2004/38/EC of the European Parliament and the Council of 29 April 2004 on the right of citizens of the Union and their family members to move and reside freely within the territory of the Member States
- Art. 2 and Art. 5 of the Treaty establishing the European Economic Community (EEC Treaty) of 25 March 1957 in Rome, entry into force 1 January 1958
- Art.18 (1) and Art. 21 (1) of the Treaty on the functioning of the European Union (TFEU) of 25 March 1957 in Rome - Non-discrimination and citizenship of the Union (EEC renamed to TFEU by the Lisbon Treaty of 2007)
- Art. 165 (1) and (2), Art. 166 (2) of the Treaty on the functioning of the European Union (TFEU) of 25 March 1957 in Rome - Education, vocational training, youth and sport
The Belgian Court had doubts as to the legality of the Decree with questions regarding interpretation of EU law. It has therefore referred the case to the Court of Justice of the European Union (CJEU\textsuperscript{23} Case C-73/08 Opinion of Advocate General Sharpston, 2009), in which a central question was raised -

"Can a EU Member State limit the number of other EU country students that may enter its education system?"

As the CJEU (Court) initiated the case, clarification of the French Community government of Belgium was requested to justify the implementation of the Decree. The Belgian government provided certain statistics and three possible arguments: (1) the influx of foreign students poses an excessive burden on public finances; (2) the quality of education is likely to be jeopardized; (3) the quality of the French Community's public health system is likely to be endangered because of a shortage of veterinarians as there are not enough Belgian graduates. The Court began a more in depth analysis whether these reasons were based on objective considerations and can justify the indirect discriminatory treatment of non-resident students.

According to settled case-law, the first argument (1) was in essence not considered valid. This argument was of purely economic nature to which it, as stated by Advocate General Sharpston, appeared to be relying on the familiar 'free rider' argument (paragraph 95):

"Students moving abroad to study reap the benefits from publicly funded education in the host Member State but do not contribute to financing it through (their parents') national taxes, nor do they necessarily themselves ‘pay back’ by staying to work in the host Member State and becoming taxpayers there"

Furthermore, it was not clear to the Court how the adoption of the Decree will resolve the excessive burden on public finances. As counter statement, Sharpston noted that the government financing of higher education in the French Community of Belgium is based on a so-called 'closed-envelope' system. A 'closed-envelope' system means that the government fixes the total amount of funding granted to higher education, which in this case implies that a decrease in number of students (whether resident or non-resident) would not result in any saving of money for the French Community.

However, Sharpston overlooked an important matter. The budget for higher education, fixed within a 'closed-envelope' by the government, is allocated among higher education institutions. Hereby a variable component is included\textsuperscript{24} which takes institution parameters (e.g. evolution in student numbers, field of study, etc) into account. According to the change in institution parameters, the budget is adjusted to fulfil the needs of the institution. Thus, if an institution encounters a significant increase in student numbers, the budget allocated to that institution increases, which eventually leads to a decrease of the budget for other institutions, as the total budget for higher education is fixed by the government. In this case, an excessive number of students in a costly course as veterinary medicine will create a burden on the budget for other institutions, which is paramount to guarantee a quality educational programme.

According to Sharpston, the second argument (2), regarding overcrowding of practical courses, also was not considered valid. He concluded that the statistics, showing an increase in number of non-resident students, falls far short of what would be required to justify indirectly discriminatory treatment. However, the Court mentioned that 'ensuring high standard of university education' constitute legitimate aims under the Treaty but restriction based on these ground must not go beyond what is necessary in order to attain it.

Hereby an excessive demand for access to veterinary medicine can be addressed lawfully by adopting specific non-discriminatory measures such as an entrance examination or requiring a minimum grade for registration.

\textsuperscript{22} Art. 2(2) and Art. 13(2)(c) of the International Covenant on Economic, Social and Cultural Rights (ICESCR) of 16 December 1966, entry into force 3 January 1976
\textsuperscript{23} Court of Justice of the European Union: judicial institution of the European Union
\textsuperscript{24} French Community Decree: Art. 113 of the Decree of 31 March 2004 regarding organization of higher education to promote integration in the European higher education area and refinancing of universities
However, as mentioned above, Belgium stands behind the idea of free access to higher education. It is well established that the Communities will deviate from this policy only in rare and exceptional cases, as mentioned above in section 1.3.

The final argument (3) regards the effect of the Decree-Law of 8 May 2003 which resulted in an insufficient number of students permanently, residing in the French Community, obtaining diplomas in veterinary medicine.

According to the statistics of the entrance examination for veterinary medicine in 2005, of the 250 successful candidates, 216 obtained their secondary school diploma abroad. That implies only 34 Belgian candidates were able to start their studies in veterinary medicine. Sharpston stated (paragraph 115):

"That number is clearly insufficient. If no measure is taken, the French Community runs the risk of encountering a lack of veterinarians. It is self-evident that such a lack of veterinarians is likely to pose very serious dangers to public health"

Moreover, it should here be noted that, both the second and final argument eventually lead to the same consequence - a potential threat to public health. As mentioned earlier regarding the role of veterinarians in public health, overcrowded institutions make it difficult to guarantee a quality clinical veterinary education and thus provide appropriately trained veterinarians.

In a ruling on 13 April 2010, the Court concluded that the non-resident Decree-Law of 16 June 2006 is justified in light of the protection of public health.

However, regardless of the influx reduction of non-resident students, over the last years, the absolute numbers of students have kept increasing (as shown in Figure 2). The capacity of the Faculty of Veterinary Medicine at ULg could not cope with the increase of students without disruption of the clinical Master's programme. In response to this situation, the Parliament of the French Community enacted the Decree-law of 16 July 2016. It established a *numerus clausus* under which a maximum of 276 students will receive a certificate allowing access to the second year of the 1st cycle after succeeding an examination. The 276 certificates are divided among the four universities of the French Community providing veterinary medicine.

2.3.2. Flemish Community

In the Flemish Community, admission to veterinary medicine is not subject to any admission restrictions (i.e., no entrance examinations, no *numerus clausus*, no minimum average grade). However, during a plenary assembly of the Flemish Parliament in 1996, the question for the need of an entrance examination for veterinary medicine was brought up, but this matter was not pursued any further.Regardless, as mentioned in the introduction, some mitigation measures have been put in place to control an increasing number of students at FVMGU.

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2.4. Evolution of student population in veterinary medicine

This section presents an overview of the evolution of the student population in veterinary medicine in Belgium. The data was collected from the archive of both universities, which afterwards was analysed with Microsoft Excel.

2.4.1. Ghent University

2.4.1.1. Inflow of first-year students

![Figure 4. Number of student enrolments in veterinary medicine by nationality at Ghent University, 1995-2014](image1.png)

2.4.1.2. Outflow of veterinary graduates

![Figure 5. Number of veterinary graduates by nationality at Ghent University, 1995-2014](image2.png)

In the FVMGU, the final year of the six-year veterinary curriculum is divided into five options: equine medicine; ruminant medicine; companion animal medicine; research; and medicine of pigs, poultry and rabbits. These tracks are chosen by the student to become further specialised within specific areas of interest. A differentiation in five options is introduced to improve the starting competence of veterinary graduates (Simoens, de Kruif, & Swannet, 2004)
**Figure 6.** Number of graduates in companion animal medicine at Ghent University, 1997-2014

**Figure 7.** Number of graduates in ruminant medicine at Ghent University, 1997-2014

**Figure 8.** Number of graduates in equine medicine at Ghent University, 1997-2014

**Figure 9.** Number of graduates in medicine of pigs, poultry, and rabbits at Ghent University, 1997-2014

**Figure 10.** Number of graduates in research at Ghent University, 1997-2014
2.4.2. Liège University

2.4.2.1. Inflow of first-year students
See Figure 2, section 2.3.1

2.4.2.2. Outflow of veterinary graduates
At the FVMUL, the curriculum in the final year is not differentiated into multiple options, as is the case at Ghent University. Consequently, no differentiation can be made between the veterinary graduates in Figure 11.

Figure 11. Number of veterinary graduates at University of Liège, 1996-2015 (ULg, 2015).
3. DISCUSSION
Towards an admission exam for veterinary medicine?

Overcrowding of educational facilities is a problem which is all too familiar to students and academic staff alike. The potential decrease in educational quality, resulting from this excess of students, is a primary concern which academic institutions try to avoid as much as possible.

All of Belgium’s neighbouring countries attempt to address this issue through the introduction of regulations intended to limit student inflow. Such measures are, however, contradictory to the idea of open access to higher education for all, which is a deeply-rooted principle of Belgian educational policy. Consequently, Belgium’s democratized higher educational system is a major draw for foreign students.

In the case of the FVMGU, various measures have been taken over the years to cope with the growing numbers of students, as mentioned in the introduction. Nevertheless, a central and delicate question still remains unresolved: should an entry exam for veterinary medicine be introduced?

This section intends to clarify why this remains an unresolved issue, and discuss some of the major political hurdles standing in the way of the introduction of an entry exam. The handling of similar issues in medicine and dentistry will serve as a comparison with the current situation in veterinary medicine.

First and foremost, the idea of an entry exam is considered to be inconsistent with the principle of a democratized system of higher education in Belgium. Nevertheless, this fundamental principle was deviated from in a few cases, including medicine and dentistry.

Second, veterinary medicine has no impact on the Social Security budget. This is in contrast with medicine and dentistry, where the potential threat of ‘supplier induced demand’ has been invoked to justify a restrictive entry exam, as it may increase the expenditures of the Social Security.

Third, if an entry exam for veterinary medicine is rolled out, this would have to be done in combination with the introduction of separate financing measures. A large part of the overall budget for higher education is apportioned based on the amount of used study credits and finance credits. As a result, greater numbers of students equal a higher number of study and finance credits – and hence an increase in the institution’s level of funding (De Kock & Vercruysse, 2009). Consequently, if the number of veterinary students is reduced, the FVMGU would generate less income for the university as a whole.

When the entry exam for medicine and dentistry was first introduced, a special measure making funding independent from the number of students was established to prevent a sudden drop in the income of the academic institutions. This particular measure has now been abolished, and medicine and dentistry currently fall under the general regulations governing academic funding. However, compared to other academic disciplines, medicine and dentistry are still heavily up-weighted when determining the available amounts of educational funding. The Bachelor of medicine course receives a weighting factor of 3.9, while a Master’s in medicine is weighted at 4.0. In the case of dentistry, these numbers are 3.9 and 4.2 respectively. In veterinary medicine, the weight of the Bachelor’s is currently set at 2.0, with the Master’s weighing in at 3.0.

However, it is also important to point out that veterinary medicine and human medicine share an important similarity, as both contribute to secure public health. It is therefore imperative to maintain a consistently high standard of training in both fields, because safeguarding public health is linked to providing qualitative education to future health professionals.

Any type of numerus clausus arrangement will inevitably always be subject to controversies and criticisms regarding the fairness and equitability. Notwithstanding, the French Community has decided to address the recurring plethora by instituting a numerus clausus starting from academic year 2016-2017.

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26 Flemish Community Decree: art.III3 of the proposal Decree of 31 May 1996 on modification of the Decree of 12 June 1991 regarding universities in the Flemish Community

27 Flemish Community Decree: art. 23 of the Decree of 24 March 2008 regarding financing of the function of the colleges and universities in the Flanders
Hypothesis: a comparison between the outflow of veterinary graduates in Belgium and neighbouring Member States

This section will attempt to compare the outflow of graduated veterinarians onto the labour market in Belgium with that of the neighbouring countries, the Netherlands and France. It has to be kept in mind that the following merely represents an illustrative hypothesis, for which data on a number of factors are lacking, e.g. the number of graduates leaving their country to work abroad, the number of foreign graduates deciding to pursue careers in Belgium, the differentiation of graduates among the various veterinarian specialisations, and the animal species on which they will primarily work, etc.

Rather than determine the ratio of veterinarians for a given population, it was instead decided to calculate the ratio of veterinarians per surface area of the respective countries (and multiplied by 100, for easier comparison of the numbers). The rationale behind this methodology lies in the fact that veterinarians, by definition, practice on animals rather than humans. In addition, it was not possible to calculate the veterinarian/animal ratio, considering that no data are available on which animal(s) veterinarians will practice. In the assumption that most of the non-Belgian graduates will return to their native country to practice their profession, an additional 'corrected ratio' is calculated taking into account only Belgian veterinary graduates.

In case of the Netherlands, each year 225 students are admitted to the veterinary program, of which approximately 200 eventually graduate after six years (Van Beukelen, 2004). Thus, ca. 11 percent represent the amount of students falling behind in the curriculum or drop-out.

France yearly allows a maximum of 548 students to enter veterinary training; the number of students out of those 548 that actually graduates is not known. However, considering the highly selective policy, it is reasonable to assume most of the inflow of French veterinary students finish their studies in at least six years. To be consequent, applying the 11 percent to the French students suggests that each year around 490 fresh veterinarians enter the labour market in France.

In the case of Belgium, precise statistics are available. For our comparison, we will use the numbers for academic year 2013-2014, which is the most recent year for which detailed data are at hand. In the Flemish Community (Figure 5), a total of 217 students graduated from the FVMGU, including 166 Belgians, 46 Dutch, four Germans and one Norwegian. The French Community (Figure 11) saw 241 veterinarians graduate from the FVMUL during the same period, broken down between 137 Belgians and 104 French.

**Table 3.** Comparison of outflow of veterinary graduates onto labour market between Belgium, the Netherlands and France.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>COMMUNITY</th>
<th>LAND SURFACE</th>
<th>OUTFLOW OF VETERINARY GRADUATES</th>
<th>RATIO</th>
<th>CORRECTED RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td># Belgians</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>Flemish Community</td>
<td>13 522 km²</td>
<td>217</td>
<td>166</td>
<td>1.61</td>
</tr>
<tr>
<td></td>
<td>French Community</td>
<td>16 844 km²</td>
<td>241</td>
<td>137</td>
<td>1.43</td>
</tr>
<tr>
<td></td>
<td>The Netherlands</td>
<td>41 543 km²</td>
<td>200</td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td>France</td>
<td></td>
<td>643 801 km²</td>
<td>490</td>
<td></td>
<td>0.08</td>
</tr>
</tbody>
</table>

According to the data, Belgium has a considerably higher ratio and even corrected ratio comparing to the neighbouring Member States. As a result, Belgium, for its size, has a considerably higher outflow of veterinary graduates entering the labour market. Following the hypothesis, this indicates that Belgium produces an amount of veterinarians which comparatively greatly exceeds that of neighbouring countries.

However, by this finding alone, one cannot conclude with certainty that there is plethora of veterinarians on the Belgian labour market, as currently no data quantifying the actual veterinary needs of society are available.
This will require a substantiated approach, similar to that already applied to human medicine by the Committee of Medical Supply Planning. In order to estimate the veterinary needs of society, a dedicated model taking into account various factors and their interdependency needs to be developed; some of the main factors into play include trends in veterinary supply, the number of active veterinarians on the labour market, demographic trends (ageing of the community), sociological evolution of the profession (e.g. feminisation), etc. It is clear from this short list, which is far from exhaustive, that developing a model with this degree of sophistication and complexity is no small task, and to this end, the establishment of a medical register for veterinaries will be essential.

These issues will be further explored in much greater detail in an upcoming dissertation in academic year 2017-2018.
4. REFERENCES


