



1.1. Medical graduates (/100 000 population) (S-4)

1.1.1. Documentation sheet

Description	Medical graduates (with a Belgium diploma) per 100 000 population
Calculation	Numerator: Number of students graduating every year from medical faculties in Belgium (End-of-year situation 31/12). Denominator: Total population (End-of-year situation, January T+1).
Rationale	<p>Maintaining a sufficient stock of physicians to guarantee the accessibility and quality of care requires investment in training new physicians, taking into account that it takes at least 8 years to train a general practitioner^a and 10-13 years to train a medical specialist. Some European countries opt for strong recruitment strategy to recruit trained physicians from abroad.¹ The World Health Organization adopted in May 2010 “The Global Code of Practice on the International Recruitment of Health Personnel”² to promote a more ethical recruitment of health personnel and to encourage countries to achieve greater “self-sufficiency” in the training of health workers.</p> <p>The number of new medical graduates (new inflow), taken together with the number of practising physicians (current situation), the number of foreign-trained physicians and the proportion of practising physicians above 55 years old (a proxy of the outflow within ten years) are thus important indicators of the sustainability of the health system.</p> <p>Medical training (6 years): Becoming a graduated physician in Belgium means having followed basic medical training consisting of a bachelor's and a master's degree (3 years each).^b The bachelor's degree + master's degree lead to the medical doctor degree (= graduated physicians), the starting point for the advanced master's degree for specialisation (see post-graduate training). After this 6-year cycle, students receive their physician's diploma, a licence to practice (visa/visum) delivered by the Federal Public Service Health, Food Chain Safety and Environment (FPS Public health) and a RIZIV – INAMI number (allowing reimbursement of the medical practice by the compulsory health insurance). To have access to the profession, they also have to be registered in their provincial Medical College (Ordre des Médecins / Orde der artsen). A “filter” has been introduced in the basic medical training to allow a certain correspondence between the number of students graduating in Medicine and the overall quotas for access to specialization (see below). Different “filters” were put in place across the years. In the Flemish community, an inter-university organised admission test was introduced at the beginning of basic training. In the French community, different measures have been taken, including strict number, orientation and reorientation tests. Since the academic year 2023-2024, an entrance exam combined with a numerus fixus has been put in place in both communities, limiting the number of students having access to the basic medical training.</p> <p>It should also be noted that the French community has introduced a limit on the percentage of non-residents (people residing abroad) who can start medical studies. From 2017, this percentage was set at 30% and from the academic year 2023-2024 up to 2029-2030, this percentage was set at 15% of the total students admitted.</p>

^a General practitioners have the possibility to begin their 3 years post-graduate training the last year of their basic training.

^b The master's degree in medicine was revised from 4 years (240 ECTS credits) to 3 years (180 ECTS credits) in 2014-2015. This means that in academic year 2017-2018, the last cohort of students of the four-year master's degree in medicine graduated as did the first cohort of students of the three-year master's degree ('double cohort').



Post-graduate training (3- 7 years): To be recognized as medical specialists (in general medicine or in another specialty), graduated physicians have then to follow an additional training of three to seven years, depending on the specialty. There are 47 recognized specialties, including general medicine.³ Specialization is restricted to a limited number of candidates (system of quota, see below), who have to submit a training plan.

The system of quota (*“contingentement des médecins/contingentering van de artsen”*)

The federal government decided in 1997 on a system of quota to limit the number of physicians in the health care sector. RIZIV – INAMI numbers for access to specialization are restricted according to these overall quotas defined by the Federal State under the advices of the Planning Commission of Medical Supply of the FPS Public health. The quotas are known 6 years in advance so that the candidates know them before they start their studies. The system became effective in 2004, that is, after all students who had enrolled before the government decision could complete their training. Since the training of physicians is a competence of the Communities, Federal overall quotas were then subdivided between the Flemish and the French Community, proportionally to population size. For French-speaking universities, the quotas were 303 for the years 2008-2011, 356 in 2012, 390 in 2013, 410 in 2014, 492 for the years 2015-2017, 984 in 2018 (double cohort), 492 for the years 2019-2021, (575 advised in 2022 but not published in the royal decree), 607 in 2023, 586 in 2024, 585 in 2025, 514 in 2026, 612 in 2027, 744 in 2028, 929 in 2029. For Flemish universities, the overall quotas were 454 for the years 2008-2011, 534 in 2012, 585 in 2013, 615 in 2014 and 738 for the years 2015-2017, 1476 in 2018 (double cohort), 738 for the years 2019-2021, (745 advised in 2022 but not published in the royal decree), 838 in 2023, 859+69 in 2024, 860+69 in 2025, 759+152 in 2026, 905+72 in 2027, 1104 in 2028, 1144+100 in 2029.⁴

The legislator had nevertheless provided for a smoothing mechanism. Such a mechanism could be negative, i.e. in the event of a one-off overrun, the quota may be increased by one year, provided that the quota is reduced by another year; or positive, i.e. allowing the possibility of postpone unfilled quotas to the following years.⁵ In 2018, because the quotas had been exceeded by the French Community, the Federal government decided in a first instance to activate this mechanism to resorb the surplus (negative smoothing) but such a decision was finally abolished.⁶ Only a positive smoothing mechanism in Flanders was kept (see the “+” above). Then, from the academic year 2023-2024, an entrance exam combined with a numerus fixus has been introduced in both communities to restrict the number of students starting the medical basic training.⁷

Moreover, it should be noted that previously, in addition to the overall quotas, minimum quotas were also set by the Federal State. Since the Sixth State Reform, only overall quotas are now set at the Federal level. The distribution by specialisation (sub-quotas) has become a prerogative of the Federated entities. The Federated entities have set up their own planning commissions to manage the sub-quotas by specialisation. Discussions on the creation of an inter-federal planning body between the Federal State and the Federated entities are also in progress.

It is also important to note that currently the quota system only applies to medical graduates with a Belgian diploma, but the law of 29 March 2019 also provides for the possibility of establishing a quota for medical graduates and specialists with a foreign diploma and provides for a two-year period to publish these quotas.⁸

Some specific specializations, i.e. data management, forensic medicine and occupational medicine, fall also outside the overall quota (‘out of quotas’) as these are not financed through the compulsory health insurance.

Data source	Federal database of health care professionals (“Cadastre/Kadaster”), FPS Public Health OECD Health statistics
Technical definitions	The number of medical graduates is based on the number of “visa/visum” delivered by the FPS Public Health, which are registered in the federal cadastre. Only the first “visa/visum” delivered is taken into account (which differs from OECD data, see below). Data were extracted on 16 December 2022. As the database is constantly being updated and corrected, there may be differences in data depending on the date of extraction.
Limitations	This indicator also counts medical graduates with a foreign nationality or residing abroad and it is possible that some of them leave Belgium after having completed their medical training in Belgium.



	It should be noted that for some medical graduates, the country origin of the diploma is unknown. These people are not included here. They are considered in the medical graduates with a foreign diploma.
International comparability	International comparability is partially limited due to methodological differences (some countries exclude foreign graduates while other countries include them). It should also be noted that small differences appeared between Belgian data provided by the FPS Public Health and OECD data. This is due to a difference of definition, i.e. OECD data concern the number of students who have completed their medical training in a given year and is based on the number of diploma and not on the number of first “visa/visum” delivered
Dimension	Sustainability of the health system
Related indicators	Number of practising physicians; Medical graduates becoming GP (% of those with medical specialisation); Number of practising physicians above 55+ years old; Share of foreign-trained physicians; Projection of the number of contacts with GPs (Demand); Projection of the number of GPs active in the healthcare sector (Supply)
Reviewers	Pascale Steinberg, Timothée Mahieu, Nadia Benahmed

1.1.2. Results

Belgium

The numbers of medical graduates has increased more sharply than expected from the implementation of the quota system. In 2021, the number of students graduated from medical schools in Belgium almost doubled compared to 2010 (1904 and 985 respectively) (see Table 1) and there were 674 more medical graduates than the quotas (set at 1230 for 2021).

Analysis by demographic characteristics

There is a higher proportion of female medical graduates with a Belgian diploma than male ones (respectively 61.5% and 38.5% in 2021) and it is quite stable over the time. In 2021, 88.3% of these students had the Belgian nationality while it was 94% in 2010. Almost all students resides in Belgium (see Table 1).

Regional comparison

The number of medical graduates with a Belgian diploma is almost the same in the French community (1003 in 2021 vs a quota of 492) and the Flemish community (901 in 2021 vs a quota of 738).

The pattern of medical graduates with a Belgian diploma and a foreign nationality (including unknown nationality) highly differs by community: a proportion between 4% and 7% for the Flemish Community, and an increasing proportion up to 20% for the French Community in 2020 (19% in 2021, see Figure 1). In the Flemish Community, most medical graduates with a foreign nationality came from the Netherlands while in the French community, halve of them had the French nationality. There was a higher variety of nationalities among medical graduates in the French Community (Morocco, Italy, Cameroon, Luxembourg, see (Figure 2). The proportion of medical graduates coming from France in the French Community increased from 3.4% in 2010 to 11.5 in 2019 and then slightly decreased to 9.6% in 2021. To tackle this problem, the French-community has limited the percentage of people residing aboard among all students admitted to the medical basic training (limited to 30% from 2017 and 15% from 2023-2024, see the documentation sheet). The proportion of medical graduates originating from The Netherlands in the Flemish Community varied between 3% (in 2021) and 7% (in 2014) during the 2010-2021 period.

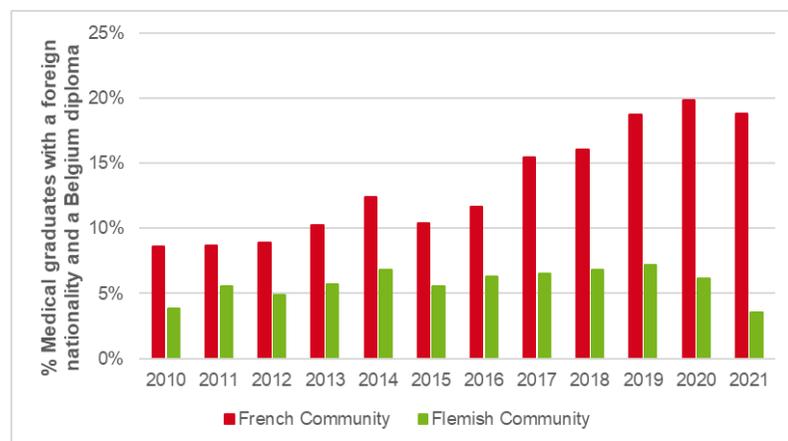

Table 1 – Number of medical graduates with a Belgian diploma, by Community and by characteristics (2010-2021)

	2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019	2020	2021	
Belgium	985	1135	1181	1180	1292	1358	1621	1684	3283	2014	1920	1904	
Community**	French community	408 (41.4%)	473 (41.7%)	462 (39.1%)	430 (36.4%)	573 (44.3%)	605 (44.6%)	736 (45.4%)	840 (49.9%)	1781 (54.2%)	985 (48.9%)	926 (48.2%)	1003 (52.7%)
	Flemish community	577 (58.6%)	662 (58.3%)	719 (60.9%)	750 (63.6%)	719 (55.7%)	753 (55.4%)	885 (54.6%)	844 (50.1%)	1502 (45.8%)	1029 (51.1%)	994 (51.8%)	901 (47.3%)
Gender	Female	652 (66.2%)	742 (65.4%)	761 (64.4%)	737 (62.5%)	780 (60.4%)	832 (61.3%)	964 (59.5%)	1006 (59.7%)	1914 (58.3%)	1179 (58.5%)	1176 (61.3%)	1171 (61.5%)
	Male	333 (33.8%)	393 (34.6%)	420 (35.6%)	443 (37.5%)	512 (39.6%)	526 (38.7%)	657 (40.5%)	678 (40.3%)	1369 (41.7%)	835 (41.5%)	744 (38.8%)	733 (38.5%)
Belgian Nationality***	Yes	926 (94%)	1055 (93%)	1101 (93.2%)	1086 (92%)	1167 (90.3%)	1245 (91.7%)	1470 (90.7%)	1499 (89%)	2892 (88.1%)	1752 (87%)	1674 (87.2%)	1682 (88.3%)
	No	57 (5.8%)	78 (6.9%)	76 (6.4%)	87 (7.4%)	120 (9.3%)	105 (7.7%)	142 (8.8%)	185 (11%)	389 (11.8%)	259 (12.9%)	245 (12.8%)	221 (11.6%)
	Unknown	2 (0.2%)	2 (0.2%)	4 (0.3%)	7 (0.6%)	5 (0.4%)	8 (0.6%)	9 (0.6%)	(0%)	2 (0.1%)	3 (0.1%)	1 (0.1%)	1 (0.1%)
Place of residence****	Residence in Belgium	966 (98.1%)	1099 (96.8%)	1150 (97.4%)	1134 (96.1%)	1257 (97.3%)	1313 (96.7%)	1568 (96.7%)	1636 (97.1%)	3135 (95.5%)	1931 (95.9%)	1846 (96.1%)	1840 (96.6%)
	Residence abroad	14 (1.4%)	29 (2.6%)	27 (2.3%)	38 (3.2%)	32 (2.5%)	39 (2.9%)	44 (2.7%)	41 (2.4%)	108 (3.3%)	56 (2.8%)	64 (3.3%)	56 (2.9%)
	Unknown	5 (0.5%)	7 (0.6%)	4 (0.3%)	8 (0.7%)	3 (0.2%)	6 (0.4%)	9 (0.6%)	7 (0.4%)	40 (1.2%)	27 (1.3%)	10 (0.5%)	8 (0.4%)

Source: FPS Public Health, Cadastre; KCE calculation. *Double cohort due to the reduction of studies; **Based on (1) the community delivering the professional agreement. If not available, based on (2) diploma language. If not available based on (3) contact language ***At the time of data extraction (December 2022); ****At the end of the visa year (31 December);



Figure 1 – Percentage of foreign medical graduates (excluding unknown nationality)^c with Belgian diploma^d, by Community, 2010-2021



Source: FPS Public Health, Cadastre; KCE calculation. Nationality at the time of data extraction (December 2022). This may mostly have an impact on distant years (i.e. people may have acquired Belgian nationality recently).

International comparison

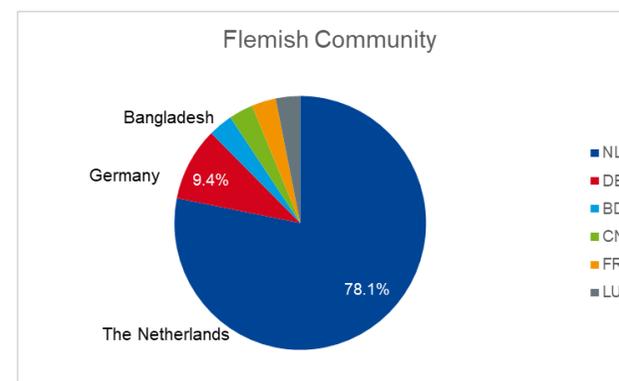
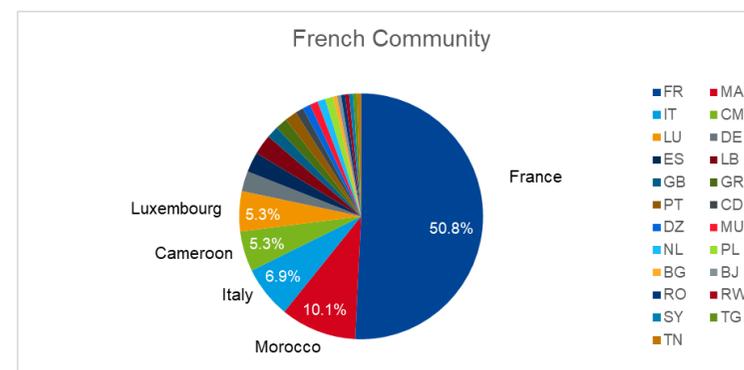
Belgium follows a similar pattern compared to the average observed across EU countries but between 2010 and 2015, the medical density was slightly below the EU averages (both EU-14 and EU-27) while from 2016, it was slightly above. The high density observed in Belgium in 2018 is due to the reduction of studies (double cohort in 2018) and should not be taken into account. In 2020, there were 2.3 more medical graduates in Belgium than on average across the EU-14 countries (based on 11 of these countries) and 1.3 more compared to the EU-27 average (based on 18 of these countries).

Impact of COVID-19 pandemic

Compared to 2019, the number of medical graduates decreased by 4.7% in 2020 and by 5.5% in 2021. This lower number of medical graduates could

be due to a higher number of people having left the studies during the pandemic but this is also related to the double cohort created by the shortening of medical studies, impacting 2018 but also to a lesser extent 2019. Compared to 2017, the number of medical graduates is higher in 2020 and 2021.

Figure 2 Nationality of foreign medical graduates with a Belgian diploma, by Community, 2021



Source: FPS Public Health, Cadastre; KCE calculation

^c Percentages are similar if we include the number of medical graduates with unknown country of origin in the foreign medical graduates.

^d Number of “visa/visum” delivered to people with a foreign nationality divided by the total number of “visa/visum” (Belgian, foreigners, unknown).

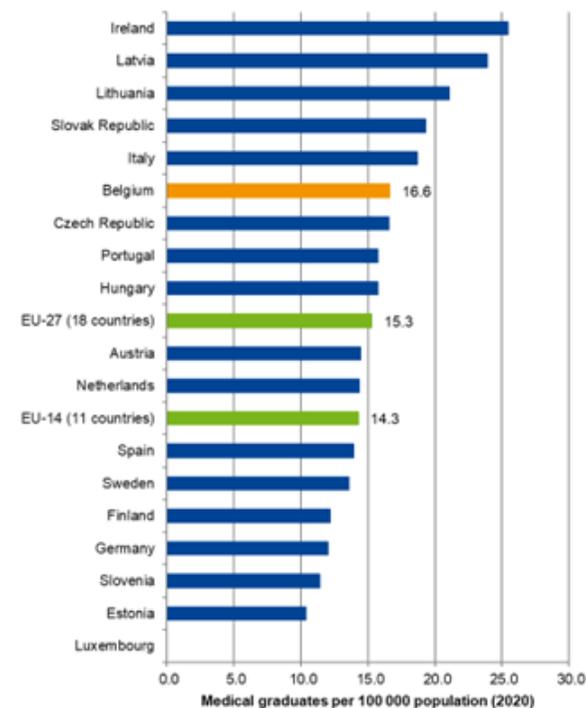
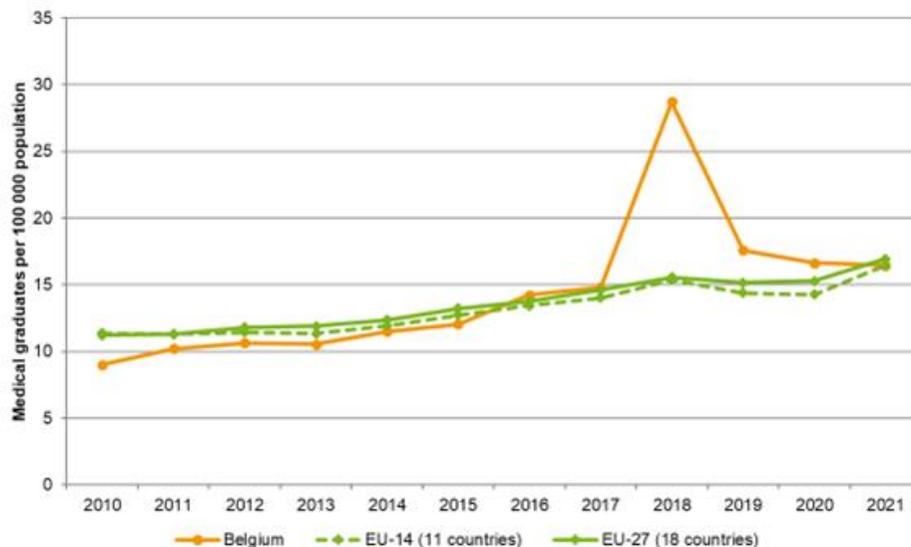


Table 2 – Medical graduates per 100 000 population, evolution 2010-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019	2020	2021
Belgium	8.99	10.19	10.62	10.54	11.50	12.05	14.24	14.80	28.72	17.58	16.61	16.43
EU-14	11.38	11.29	11.42	11.34	11.93	12.71	13.42	14.00	15.36	14.37	14.26	
EU-27	11.23	11.32	11.80	11.88	12.35	13.22	13.77	14.59	15.54	15.16	15.29	

Source: OECD Health Statistics 2023^e *Double cohort due to the reduction of studies

Figure 3 – Medical graduates per 100 000 population: international comparison (2010-2020)^f



Source: OECD Health Statistics 2023

^e Data extracted from OECD Health Statistics 2023 are slightly different from original data source from FPS Public Health (see the documentation sheet)

^f Because of the lack of data from other European countries in 2021, 2020 is taken as the reference in the calculation.



Key points

- The number of medical graduates has increased more than expected from the introduction of the quota system limiting access to specialisation.
- In 2021, the number of students graduating from Belgian medical schools almost doubled compared to 2010 and exceeded the overall quota by 674 students (1904 medical graduates against a quota of 1230 for 2021). The excess was more pronounced in the French Community than in the Flemish Community. Most of them had access to specialisation but in order to avoid further surpluses, additional measures were taken and an entrance exam combined with a numerus fixus was introduced from 2023-2024, limiting the number of students starting medical studies.⁷
- The pattern of medical graduates with a Belgian diploma and a foreign nationality differs greatly from one community to another: a share of between 4% and 7% in the Flemish Community (with 78% of them coming from the Netherlands in 2021) and an increasing share of up to 20% in the French Community in 2020 (with half of them coming from France).
- The density of medical graduates in Belgium follows a similar pattern to the EU-14 and EU-27 averages between 2010 and 2015, but from 2016 the density in Belgium was slightly higher. In 2021, Belgium had 2.3 more medical graduates than the average of the EU-14 countries (based on 11 of these countries) and 1.3 more than the EU-27 average (based on 18 of these countries). It should be noted, however, that many foreign medical students (mainly from France), seeking to avoid the difficulties of access to medical studies in their own country, complete their studies in Belgium and then return to their country. This is mainly a problem in the French community. For this reason, the French community has now set a limit in the percentage of people living abroad who are admitted to basic medical training in the French community.

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