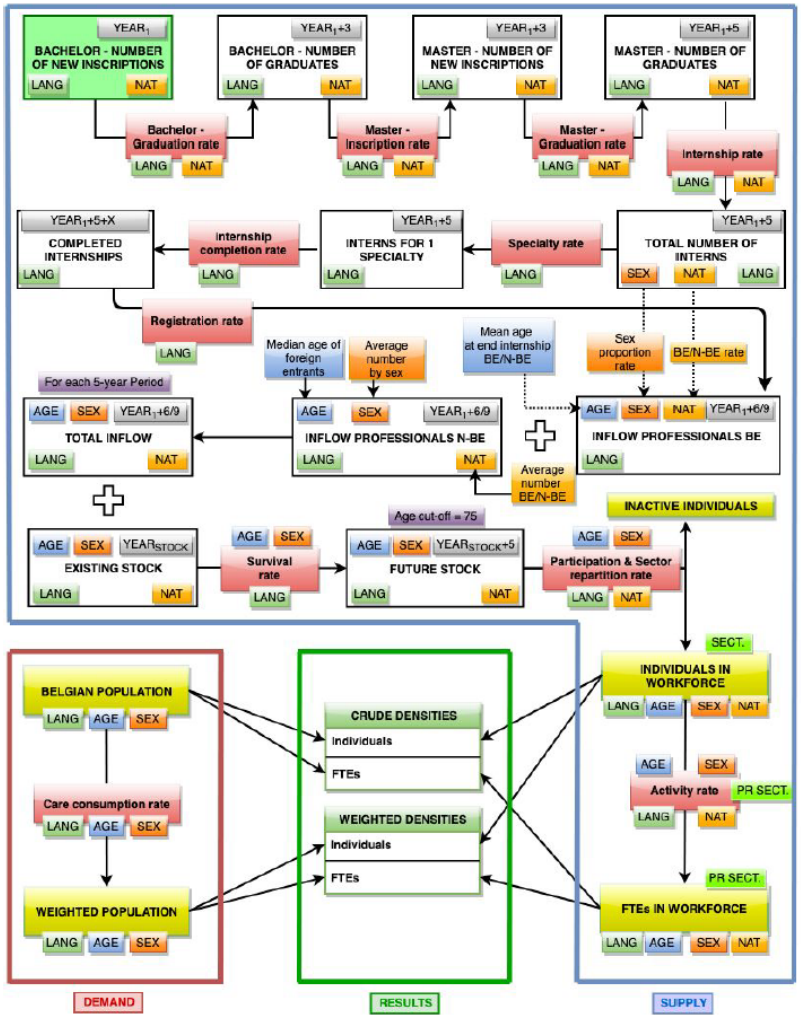
1.2. Physician workforce supply (S-19)

1.2.1. Documentation sheet

Description	Projections of supply of GPs in individuals and FTEs in 2021, 2026, 2031 and 2036. Projections of supply of all physicians in individuals and FTEs in 2021, 2026, 2031 and 2036.
Calculation	Supply projections to quantify the evolution of the workforce of healthcare professionals are carried out by the Planning Commission of medical supply supported by the Planning Unit for the Supply of the Healthcare Professions, depending on the FPS Public Health, Food Chain Safety and Environment (hereinafter called the Planning Commission and the Planning Unit). The Planning Unit uses a stock-and-flow model to quantify the evolution of healthcare professionals' workforce. The model for physicians is illustrated by Figure 6 where parameters are defined in Table 5. More details can be found in the report from the Planning Unit (2020).[1] The number of bachelor graduates is obtained by multiplying the number of bachelor new inscriptions (parameter #1) by the bachelor graduation rate (parameter #2). Applying the master inscription rate (parameter #3) gives the number of master new inscriptions. Then applying the master graduation rate (parameter #4) gives the number of master graduates. From that, the number of persons starting a training (number of interns) is obtained by applying the internship rate (parameter #5). These calculations are made separately by linguistic community and nationality (Belgian vs non-Belgian) and are common to all medical specialists including GPs. From there, specific calculations are made for each medical specialty. The number of persons starting each specialty training is obtained by applying the specialty rate (parameter #6) to the number of interns. The internship completion rate (parameter #7) allows to calculate the number of completed internships in each specialty. All these persons are supposed to be automatically registered (*cadastre – kadaster*) as the registration rate (parameter #8) is set equal to 1. This inflow of newly registered physicians is separated by sex and nationality (Belgian vs non-Belgian) using parameter #9. To this inflow of physicians trained in Belgium an additional inflow of physicians trained abroad is added (parameter #10). The sum of these inflows is the total inflow of physicians who are licensed to practice. It is calculated by age, sex, nationality and linguistic community. The total inflow is added to the existing stock of physicians. A survival rate (parameter #11) is applied to take into account losses due to mortality. At this step, all persons aged 75 or above are also removed in order to limit the supply forecast to those in age of working. From this future stock, only active physicians are kept, using the participation rate (parameter #12). These are divided into four sectors (three inside the healthcare sector, one outside) using the sector repartition rate (parameter #13). This provides us with the projected **number of practising physicians (the number of individual physicians active in the healthcare sector)** that are presented below. Applying the activity rate (parameter #14) allows to calculate the **number of FTEs active in the healthcare sector** that are also presented below. One must note that the model also allows to calculate crude and weighted densities according to the evolution of the population and the application of a care consumption rate (parameter #15). These results are not presented here but can be found in the report from the Planning Unit (2020).[1] The model allows to calculate the number of individuals and FTEs in the workforce for each medical specialty separately. However, in what follows, all physicians are aggregated together to ensure comparability with indicator S-18, for which no result per specialty was available. Projections for GPs are presented separately.
Limitations	For physicians who are active as self-employed (more than 80% of the physicians in 2016),[2] the calculation of FTEs is based on the amounts reimbursed by the sickness funds for provided care. The reference value is determined by specialty, using the observed median of the total amount paid for care provided by the reference group. For GPs for instance one FTE corresponds to a total reimbursement amount equal to € 124 396. For surgeons, the amount is

	€ 226 520.[2] This presents an important limitation, especially for medical specialists, as the amount associated with the acts is not proportional to the time taken to perform them.[3] Another important limitation comes from the aggregation of all physicians together. This aggregation may hide important differences between specialties. We refer the interested reader to the report of the Planning Unit (2020) for more details per specialty.[1] Finally, the results presented here are only based on the baseline scenarios of the Planning Commission. They aim to quantify the evolution of the medical workforce in an unchanged policy situation. In the future, the Planning Commission will examine alternative scenarios to explore the effects of changes in policy or other external context.
Rationale	Projections of the number of physicians, both in number of individuals as well as in FTEs, are used to quantify the future workforce supply. Although the Planning Unit model allows to take into account care consumption and to calculate crude and weighted workforce densities, these projections are not used here because they mix both supply and demand components. Demand for healthcare workforce is projected separately (see indicator S-18).
Data source	Planning Commission of medical supply supported by the Planning Unit for the Supply of the Healthcare Professions, depending on the FPS Public Health, Food Chain Safety and Environment
Dimension	Sustainability
Related indicators	S-18 – physician workforce demand (projected number of contacts with general practitioners; projected number of contacts with physicians). A-5 – Practising physicians per 1000 inhabitants

Figure 6 – Stock-and-flow model for the projection of healthcare workforce



Source: Planning Unit (2020).[1]

Table 5 – Parameters used in the stock-and-flow projection model

Parameter	Definition	Projection
All calculations are made separately for the French and the Flemish Community		
General		
#1 Bachelor – number of new inscriptions	Number of students enrolled for the first time in a bachelor's programme in medicine (separated between Belgian and non-Belgian).	Average number of enrolments based on the 2 (French Community) or 3 (Flemish Community) most recent academic years for which data are available (separated between Belgian and non-Belgian).
#2 Bachelor – graduation rate	Number of bachelor diplomas obtained divided by the number of new enrolments 3 years earlier (separated between Belgian and non-Belgian).	Average graduation rate based on the 3 most recent academic years for which data are available (separated between Belgian and non-Belgian). In the French Community, from 2020 onward, the rate is fixed at 80% for Belgian and 75% for non-Belgian students.
#3 Master – inscription rate	Number of students enrolled for the first time in a master programme in medicine divided by the number of bachelor diplomas of that year (separated between Belgian and non-Belgian).	Average inscription rate based on the 3 most recent academic years for which data are available (separated between Belgian and non-Belgian).
#4 Master – graduation rate	Number of master diplomas obtained divided by the number of new enrolments 3 years earlier (separated between Belgian and non-Belgian).	Average graduation rate based on the 3 most recent academic years for which data are available (separated between Belgian and non-Belgian). Year 2018 counts for two years in the calculation (because in 2018, there was a double cohort of students due to the shortening of medical training from 7 to 6 years).
#5 Internship rate	Number of persons who started post-graduate training (internship) divided by the number of persons who graduate from the master programme the same year.	The following rates are used: - French Community: 0.92 for Belgian graduates and 0.50 for non-Belgian graduates - Flemish Community: 0.95 for Belgian graduates and 0.80 for non-Belgian graduates
For each specialty		
#6 Specialty rate	The number of persons who started the practical training for this specialty divided by the number of persons who started a practical training.	Specialty rate for GPs is fixed at 0.42 in the French Community and 0.4 in the Flemish Community. For other specialists, the average specialty rate (based on the 3 most recent academic years for which data are available) is proportionally reduced or increased accordingly.
#7 Internship completion rate	The number of persons who successfully completed their practical training in a given specialty (= internship) divided by the number of persons newly enrolled in this training x years before, where x is the average length of the training.	Stage completion rate is fixed at 0.95.

#8 Registration rate	The number of persons registered (*cadastre* – *kadaster*) and authorised to practice as specialists (licensed-to-practice) divided by the number of persons who have completed their post-graduate training (= internship).	Registration rate is fixed at 1 (automatic registration).
#9 BE/non-BE rate	Repartition by nationality (Belgian vs non-Belgian) of the number of persons registered (*cadastre* – *kadaster*) and authorised to practice.	Average distributions (based on the 5 most recent years for which data are available) in four groups (Belgian male, non-Belgian male, Belgian female, non-Belgian female) at the start of the training x year before, where x is the average length of training.
#9 Sex proportion rate	Percentage of females in the persons registered (*cadastre* – *kadaster*) and authorised to practice (calculated separately for Belgian and non-Belgian).	
#10 Inflow professionals N-BE	Inflow of professionals who have obtained their diploma abroad (separated by nationality and sex).	Average number of professionals who have obtained their diploma abroad in four groups (Belgian male, non-Belgian male, Belgian female, non-Belgian female) based on the 3 most recent years for which data are available.
#11 Survival rate	Survival rate based on mortality tables by age and sex. In addition, all persons aged 75 or above are removed.	Survival rates of 2015-2017.
#12 Participation rate	Repartition between professionals who are (1) active in Belgium, (2) not active in Belgium but living in Belgium, and (3) not active and living abroad (calculated by age, sex and nationality).	Participation rates of 2016.
#13 Sector repartition rate	Repartition of active professionals between (1) active in the healthcare sector as self-employed (minimum activity threshold of 5% of the median income of the group of physicians aged 45–54 years old, defined per specialty), (2) active in the healthcare sector with a mixed status (self-employed and salaried), (3) active in the healthcare sector as salaried worker (at least 0.1 FTE), and (4) active outside the healthcare sector (calculated by age, sex and nationality). The first three groups are called practising physicians.	Sector repartition rates of 2016.
#14 Activity rate	Activity rate calculated by age, gender, nationality and sector (only for the first three sectors, i.e. only for practising physicians). For salaried workers, the rate of activity takes into account activities for all employers of the healthcare sector. For self-employed physicians, the activity rate is calculated using the amounts paid by the sickness funds for performed acts. A reference full time equivalent is determined by specialty, using the observed median of the total amount reimbursed for care provided by the reference group.	Activity rates of 2016.
#15 Care consumption rate	Consumption rate based on reimbursed fees for physician care observed over three years (2015, 2016 and 2017) in the context of the compulsory health insurance (calculated by age and sex of the patient).	Demographic forecasts from the Federal Planning Bureau multiplied by the observed consumption rate in 2015, 2016 and 2017 by age and sex of the patient. The consumption rate is therefore supposed constant in each segment of the population, only the composition of the population changes.

Source: Planning Unit (2020).[1]

1.2.2. Results

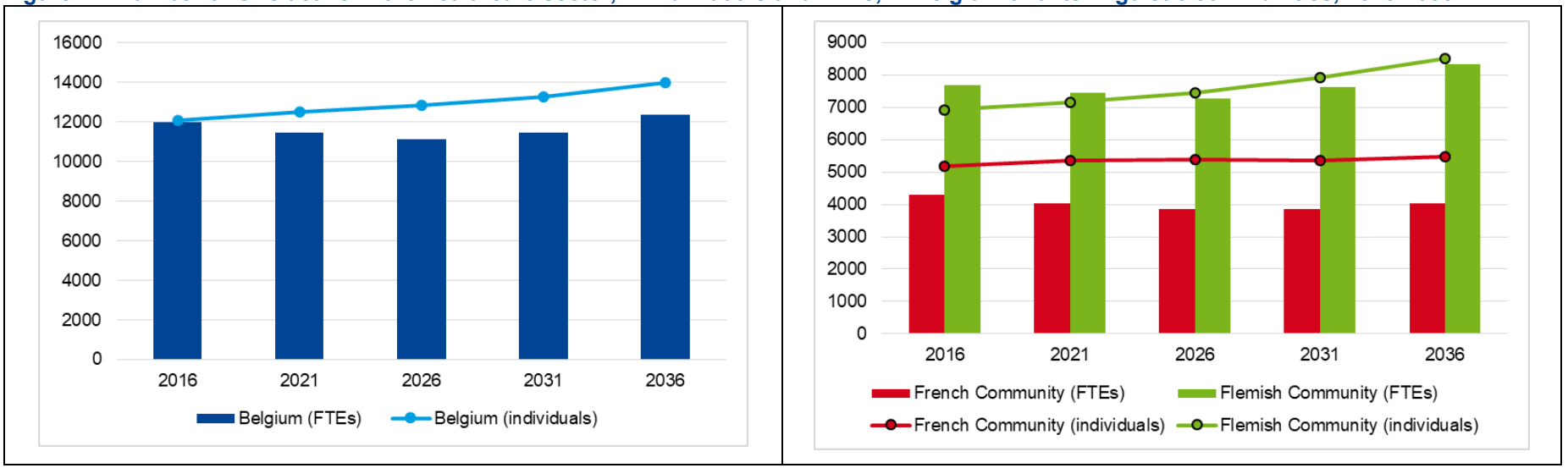
General practitioners

In 2016, there were 12 099 practising general practitioners (i.e. active in the healthcare sector) in Belgium (5 192 in the French Community and 6 907 in the Flemish Community). This number is expected to increase to 12 525 in 2021,12 844 in 2026, 13 269 in 2031 and 13 999 in 2036, which corresponds to five-year increases of respectively 3.5%, 2.6%, 3.3% and 5.5%. On Figure 7, the (projected) number of practising general practitioners in Belgium is depicted by a line for Belgium (left panel) and both linguistic communities (right panel). On the same figure, the bars indicate the number of FTEs. In 2016, the equivalent of 11 977 FTEs were active as GPs in the healthcare sector in Belgium (4 284 in the French Community and 7 693 in the Flemish Community). These numbers are expected to decrease in 2021 and 2026 before increasing in 2031 and 2036.

Overall, in the French Community, the model predicts that the GP workforce will slightly increase between 2016 and 2036 (from 5 192 to 5 489, i.e. an increase of 297 individuals). This increase in the number of active individuals in the GP workforce (+5.7%) does not translate into an increase in the number of FTEs for which a drop of 5.7% is expected between 2016 and 2036.

In the Flemish Community, the expected increase of the number of GPs is higher: from 6 907 to 8 510 between 2016 and 2036, which is an increase of 1 603 individuals. This important increase (+23.2%) only partially translates into an increase in the number of FTEs (+8.5%).

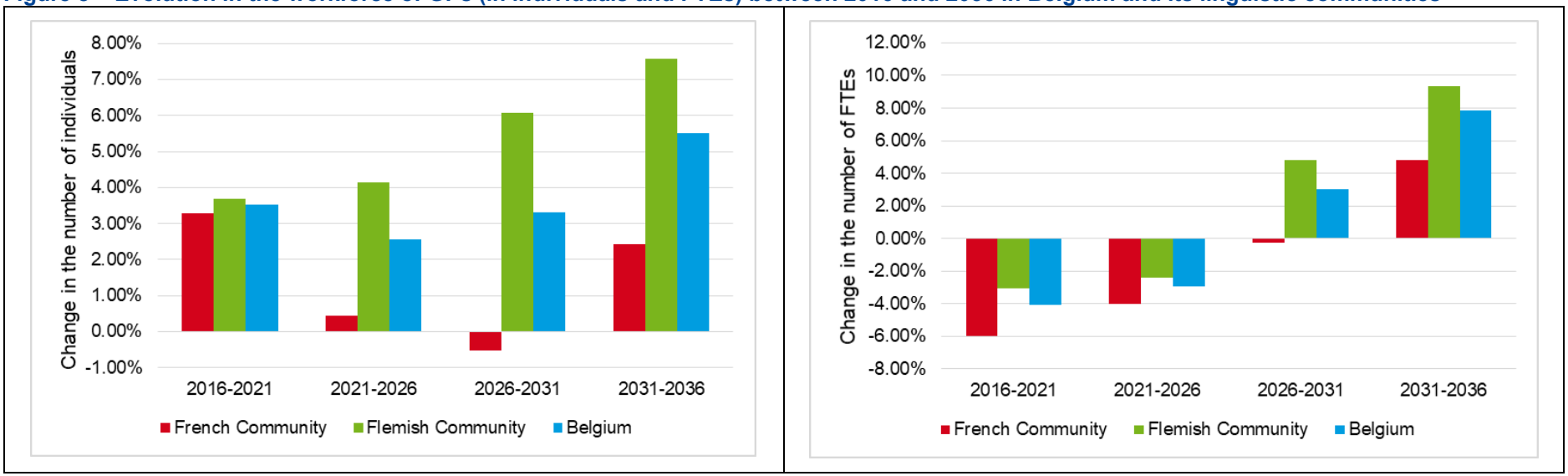
Figure 7 – Number of GPs active in the healthcare sector, in individuals and FTEs, in Belgium and its linguistic communities, 2016-2036



Source: Planning Unit.

Figure 8 depicts five-year growth rates for the number of practising general practitioners and their full time equivalents. The number of individuals in the GP workforce is expected to increase in Belgium during the entire period 2016-2036. However, this is mainly due to a large increase in the Flemish Community. The increase in the French Community is expected to be much smaller and a decrease is even expected between 2026 and 2031, despite the large increase of the share of interns choosing to specialise in general medicine (in the French Community, this share was 23.1% in 2011, rising to 32.2% in 2015 and 41.9% in 2019[1]; in the projections, this share is set at 42%, see parameter #6). Regarding FTEs, a drop is expected in both linguistic communities between 2016 and 2021 and between 2021 and 2026. Then, the number of GP FTEs is expected to increase by 3% between 2026 and 2031 (with still a slight decrease in the French Community) and by 7.8% between 2031 and 2036 (see also Table 6).

Figure 8 – Evolution in the workforce of GPs (in individuals and FTEs) between 2016 and 2036 in Belgium and its linguistic communities



Source: Planning Unit.

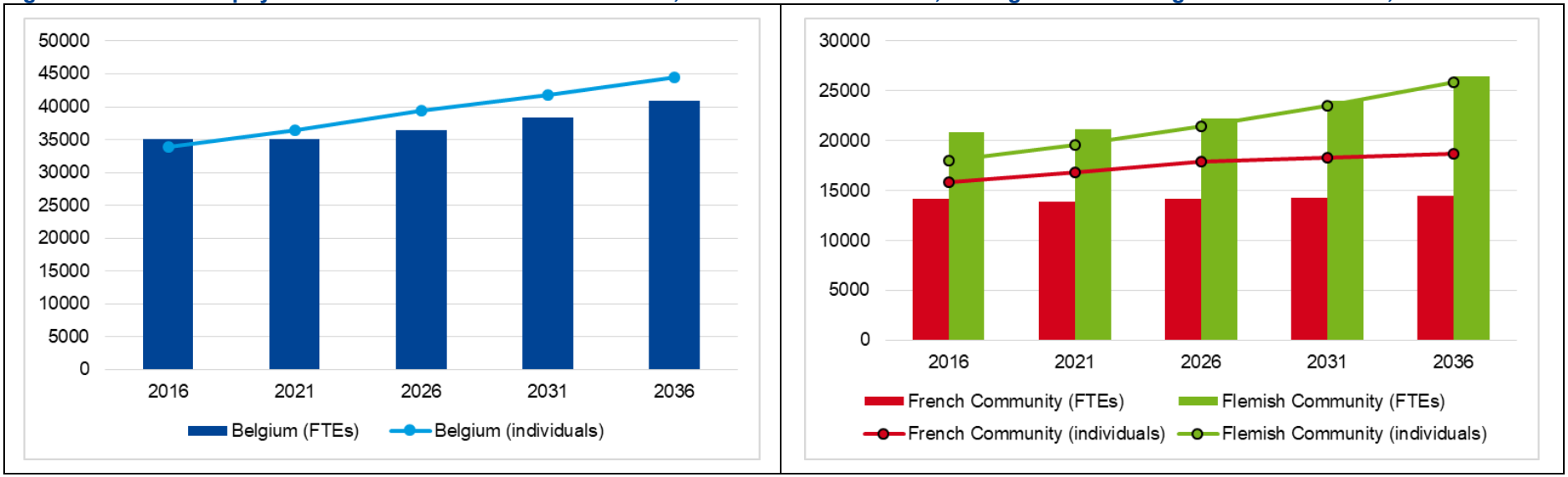
All physicians

In 2016, there were 33 891 physicians active in the healthcare sector in Belgium (15 841 in the French Community and 18 050 in the Flemish Community), corresponding to 35 067 FTEs in Belgium (14 209 in the French Community and 20 859 in the Flemish Community) (see Figure 9). The number of physicians is expected to increase to 36 357 in 2021, 39 440 in 2026, 41 799 in 2031 and 44 505 in 2036, which corresponds to five-year increases of respectively 7.3%, 8.5%, 6.0% and 6.5%.

In the Flemish Community, the number of physicians is projected to strongly increase between 2016 and 2036 (from 18 050 to 25 850, i.e. an increase of 7 800 individuals or +43.2%). This increase in the number of active individuals (partially) translates into an increase in the number of FTEs (+26.9%). In the French Community the number of physicians is expected to increase only by 17.8% between 2016 and 2036 (from 15 841 to 18 656) while the number of FTEs will stay relatively stable (from 14 209 to 14 502 i.e. an increase of 2.1%).

One must keep in mind that these numbers hide an important variability between specialities. Detailed results by specialty can be found in the report from the Planning Unit (2020).[1]

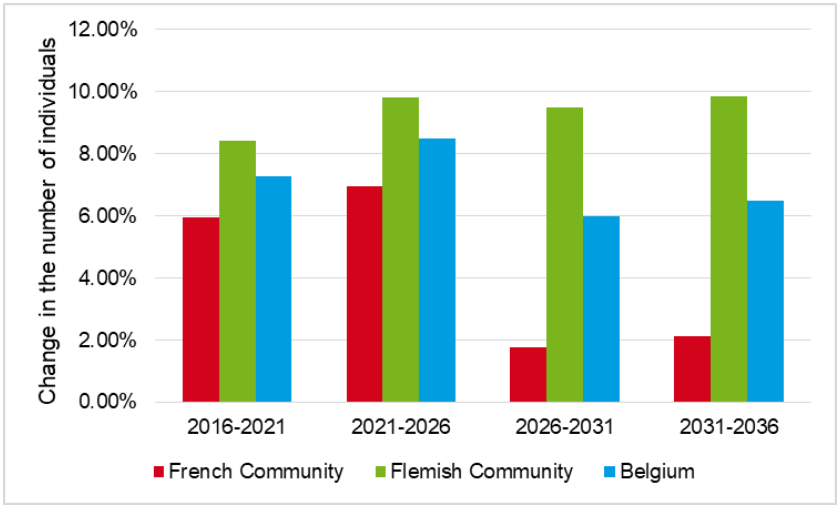
Figure 9 – Number of physicians active in the healthcare sector, in individuals and FTEs, in Belgium and its linguistic communities, 2016-2036

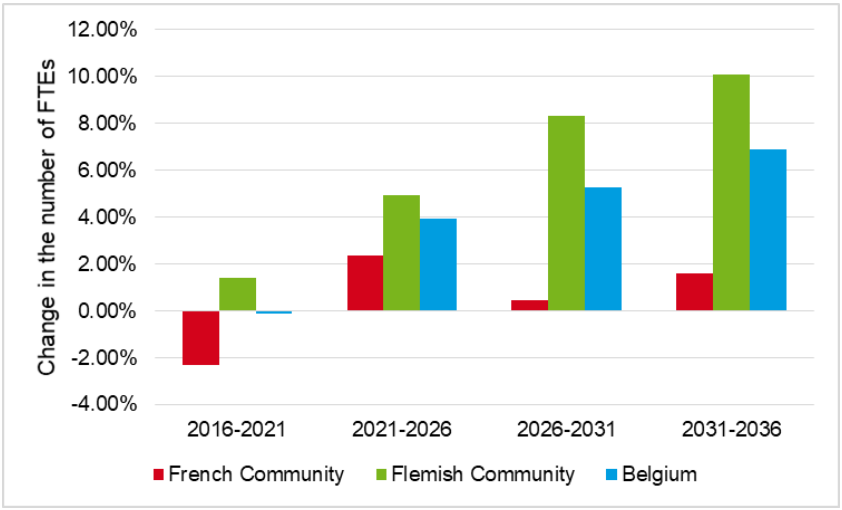


Source: Planning Unit.

Five-year growth rates for the number of individuals and FTEs in the physician workforce are shown on Figure 10 and Table 6. The number of physicians is expected to increase in Belgium during the entire period 2016-2036, mainly driven by a large increase in the Flemish Community. The increase in the French Community is expected to be much smaller, especially for the periods 2026-2031 and 2031-2036. Regarding FTEs, an increase is expected in the Flemish Community during the entire considered period. In the French Community however, a drop is expected for the period 2016-2021, followed by small increases.

Figure 10 – Evolution in the physician workforce (in individuals and FTEs) between 2016 and 2036 in Belgium and its linguistic communities





Source: Planning Unit.

Table 6 – Projected five year evolution of physician workforce

	GPs		Physicians	
	Individuals	FTEs	Individuals	FTEs
2016-2021	3.52%	-4.08%	7.28%	-0.09%
2021-2026	2.55%	-2.95%	8.48%	3.92%
2026-2031	3.31%	3.04%	5.98%	5.26%
2031-2036	5.50%	7.83%	6.47%	6.91%

Source: Planning Unit.

References

[1] Cellule Planification des professions de soins de santé, Service Professions des soins de santé et pratique professionnelle. Scénario de base de l'évolution de la force de travail Médecins 2016-2036. Bruxelles: DG Soins de santé, SPF Santé publique, Sécurité de la chaîne alimentaire et Environnement; 2020.

[2] Cellule Planification des professions de soins de santé, Service Professions des soins de santé et pratique professionnelle. PlanCad Médecins 2004-2016. Bruxelles: DG Soins de santé, SPF Santé publique, Sécurité de la chaîne alimentaire et Environnement; 2019.

[3] Benahmed N, Hendrickx E, Adriaenssens J, Stordeur S. Health workforce planning and midwifery-specific data. Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2016 12/2016. KCE Reports 278