



1.1. Projection of the number of practising nurses (Supply), evolution in % (S-22)

1.1.1. Documentation sheet

Description	<p>Primary indicator Projected number of practising nurses in the healthcare sector in FTEs in 2023, 2028, 2033, 2038 and 2043.</p> <p>Secondary indicators Projected number of practising nurses in the healthcare sector in headcounts in 2023, 2028, 2033, 2038 and 2043. Projected number of practising nurses in the sector, by sector (hospital, nursing homes, home care, community health) in FTEs in 2023, 2028, 2033, 2038 and 2043. Projected number of practising nurses in the sector, by sector (hospital, nursing homes, home care, community health) in headcounts in 2023, 2028, 2033, 2038 and 2043.</p>
Calculation	<p>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 (hereafter called the Planning Commission and the Planning Unit).</p> <p>The Planning Unit uses a stock-and-flow model to quantify the evolution of healthcare professionals' workforce. The model for nurses is illustrated by Figure 1 where parameters are defined in Table 1. More details can be found in the report from the Planning Unit (2022).¹ The number of nursing graduates is the number of person with bachelor's degree A1 (<i>bachelier – bachelor</i>) or diploma degree A2 (<i>brevet – HBO5</i>) obtained in Belgium. Almost all persons are supposed to be automatically registered (<i>cadastre – kadaster</i>) as the registration rate (parameter #2) is set equal to 0.99. This inflow of newly registered nurses is separated by type of degree (bachelor or diploma) and nationality (Belgian vs non-Belgian) using parameter #3. To this inflow of nurses trained in Belgium an additional inflow of newly registered nurses trained abroad is added (parameter #4). The sum of these inflows is the total inflow of nurses who are newly licensed to practice. It is calculated by age, type of degree, nationality and linguistic community.</p> <p>The total inflow is added to the existing stock of nurses. A survival rate (parameter #5) is applied to take into account losses due to mortality. At this step, all persons aged 70 or above are also removed in order to limit the supply forecast to those in age of working. From this future stock, only active nurses are kept, using the participation rate (parameter #6). In scenario 1, these are divided into four sectors (three inside the healthcare sector, one outside) using the sector repartition rate (parameter #7). This provides the projected number of practising nurses (the number of individual nurses active in the healthcare sector) that are presented below. Applying the activity rate (parameter #8) allows to calculate the number of FTEs active in the healthcare sector that are also presented below.</p> <p>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 #9). These results are not presented here but can be found in the report from the Planning Unit (2022).¹</p>
Rationale	<p>Projections of the number of nurses, both in number of headcounts as well as in FTEs, are used to quantify the future workforce supply. These projections should be compared to projections for the demand of nurses, that should be carried out separately.</p>



In 2019, KCE report 325 stated that, in order to ensure sustainable safe patient-to-nurse ratios in hospitals, an increase in staffing of 5 527 FTEs would be required within five years.² It also advocated for an immediate increase of 1 629 FTEs in order to “put an end to patient-to-nurse ratios that expose patients to a manifest unsafe care environment”. Projections of the number of FTEs for practising nurses in the hospital sector can be used to assess if such an increase is expected.

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. First, they mix both supply and demand components which render the interpretation complex. Second, they assume care consumption in constant within each segment of the population. If on the contrary the consumption increases within some segments of the population, the weighted density reported by the Planning Unit will be overestimated.

The Planning Commission also develops alternative scenarios (not yet available) that take into account potential changes in supply and demand using conclusions of a project based on a horizon scanning method.³ In these alternative scenarios, the following elements would be taken into account: increased complexity of care, increased demand for individualised care and home care, increased patient turnover in hospitals and increased patient mobility between different types of care.^{4, 5}

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.
Technical definitions	<p>Scenario 1 concerns the number of practising nurses in the healthcare sector, scenario 2 concerns the number of practising nurses in the hospital sector, scenario 3 concerns the number of practising nurses in the nursing homes sector, scenario 4 concerns the number of practising nurses in the home care sector, scenario 5 concerns the number of nurses active in the community health sector.</p> <p>In scenarios 2, 3, 4 and 5, practising nurses are further divided into respectively those active in the hospital sector and those active in other healthcare sectors; those active in nursing homes and those active in other healthcare sectors; those active in the home care sector and those active in other healthcare sectors; and those active in the community health sector and those active in other healthcare sectors. Some nurses may be active in several sub-sectors. When it is the case, they are included in each of the sub-sectors. Therefore, the sum of the individuals in all sub-sectors may be greater than the total number of nurses active in the healthcare sector.</p> <p>When calculating the number of FTEs, only practising nurses for at least 0.1 FTE are included. For nurses who are active (in the home care sector) as self-employed (in 2018, 10 728 nurses were fully self-employed and 5 985 combined self-employed and salaried status), the calculation of FTEs is based on the amounts reimbursed by the sickness funds for provided care. The reference value is determined using the observed median number of acts and total amount paid for care provided by the reference group (fully self-employed, aged 45-54). In 2018, one FTE corresponded to 8 170 acts and a total reimbursement amount equal to € 75 781.⁶ The final number of FTEs is then fixed as the mean of both computations.</p> <p>For nurses who are practising as employees, FTEs estimates were provided by the Datawarehouse on Labour Markets and Social Protection using the activity rate provided in each healthcare sector delimited by NACE-code during the last quarter of the year.</p>
International comparability	N.A.
Limitations	FTE estimates for self-employed nurses are based on the number of acts and the amount associated with the acts, which is not proportional to the time taken to perform them. However this allows to reflect potential differences according to the age, the nationality and the type of degree. This limitation only concerns a part of the total number of FTEs active in the healthcare sectors (scenario 1) and the number of FTEs active in the home care sector (scenario 4).



Also, the results presented here are only based on the baseline scenarios of the Planning Commission. They aim to quantify the evolution of the nursing 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.

Dimension

Sustainability

Related indicators*(S-23 (Projection (horizon scanning) on the demand for nurses (Demand), evolution in %))*

A-11 Practising nurses (/1000 population)

QS-9 Health workers thinking that staffing levels are sufficient to handle the workload and work hours appropriate to provide the best care for patients (% of respondents, HSPSC)

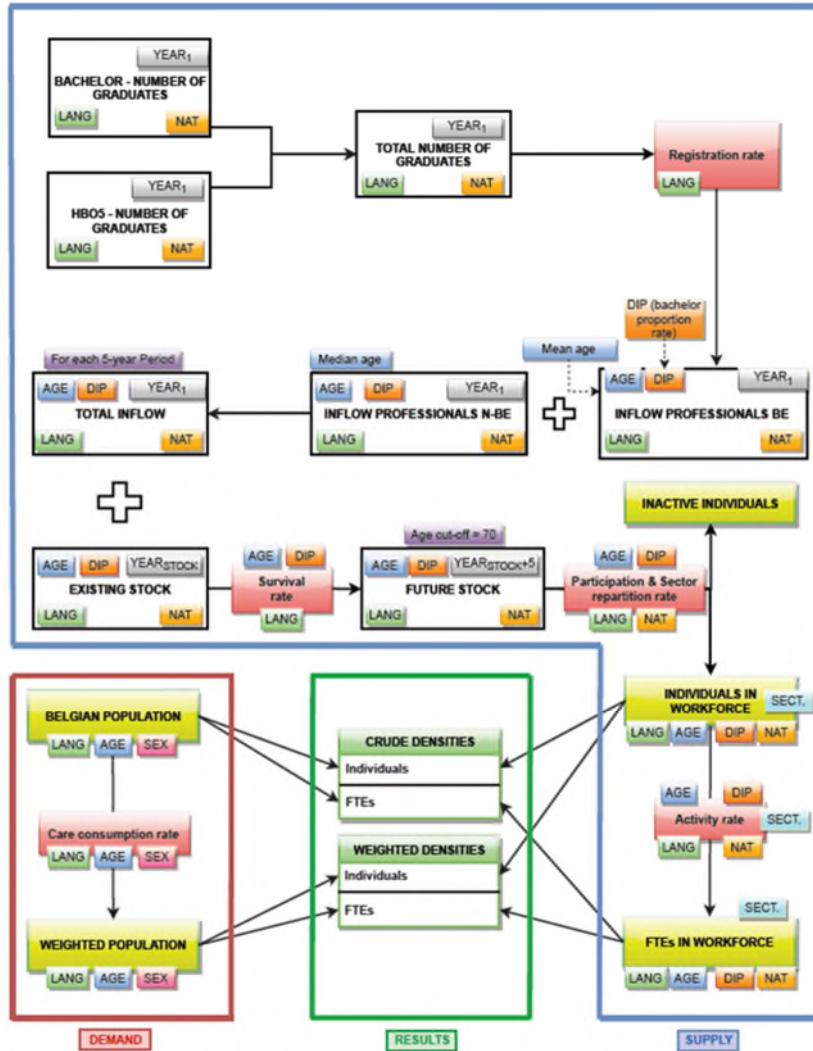
S-19 Projection of the number of GPs active in the healthcare sector (Supply), evolution in %

Reviewers

Christelle Durand (SPF Santé Publique – FOD Volksgezondheid)



Figure 1 – Stock-and-flow model for the projection of healthcare workforce



Source: Planning Unit (2022).¹



Table 1 – Parameters used in the stock-and-flow projection model

Parameter	Definition	Projection
All calculations are made separately for the French and the Flemish Community		
#1 Number of graduates	Number of persons with a Belgian nursing degree (bachelor's degree A1 or diploma degree A2) (separated between Belgian and non-Belgian).	Average number of graduates based on the 3 most recent academic years for which data are available (2017, 2018, 2020), without including the year 2019 (except for HBO5 - A2 diploma in Flanders)* (separated between Belgian and non-Belgian). * 2019 was impacted by the extension of studies from 3 to 4 years to obtain the bachelor's degree A1 and from 3 to 3.5 in the French community to obtain a diploma degree A2 decided in 2016. Such extension was not performed in the Flemish community for diploma degree A2.
#2 Registration rate	The number of persons registered (<i>cadastre – kadaster</i>) divided by the number of persons with a Belgian nursing degree (= number of graduates).	Registration rate is fixed at 0.99.
#3a Nationality repartition rate	Repartition by nationality (Belgian vs non-Belgian) of the number of persons registered (<i>cadastre – kadaster</i>).	Average repartition (based on the 3 most recent years for which data are available – excluding 2019) in four groups (Belgian bachelor, non-Belgian bachelor, Belgian diploma, non-Belgian diploma).
#3b Diploma repartition rate	Percentage of bachelor's degrees in the persons registered (<i>cadastre – kadaster</i>) (calculated separately for Belgian and non-Belgian).	
#4 Inflow professionals N-BE Dip	Inflow of professionals who have obtained their degree abroad (separated by nationality and type of degree). Nursing degrees obtained in European countries are classified as a bachelor while degrees obtained outside Europe are classified as diploma.	Average number of professionals who have obtained their degree abroad in four groups (Belgian bachelor, non-Belgian bachelor, Belgian diploma, non-Belgian diploma) based on the 3 most recent years for which data are available.
#5 Survival rate	Survival rate based on mortality tables by age. In addition, all persons aged 70 or above are removed.	Survival rates of 2017, 2018 and 2019.
#6 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, type of degree and nationality).	Participation rates of 2018.
#7 Sector repartition rate	Repartition of active professionals between (1) active in the healthcare sector as salaried worker, (2) active in the healthcare sector as self-employed, (3) active in the healthcare sector with a mixed status (self-employed and salaried) and (4) active outside the healthcare sector (calculated by age, type of degree and nationality). The first three groups are called practising nurses. In further analyses the group of practising nurses is divided between: <ul style="list-style-type: none"> - Those active in the hospital sector* and those active in other healthcare sectors (basis scenario 2) 	Sector repartition rates of 2018.



- Those active in nursing homes* and those active in other healthcare sectors (basis scenario 3)
- Those active in the home care sector* and those active in other healthcare sectors (basis scenario 4)
- Those active in the community health** sector and those active in other healthcare sectors (basis scenario 5)

* including nurses who work in that sector but are salaried of a CPAS – OCMW.

** refers to all other health care sectors within the “social care”, “personal care” and “other healthcare” sectors: it includes nurses working in medical and dental practices, medical laboratories and general public services (police, fire departments, defence), nurses working in residential and non-residential social service institutions(e.g. for people with physical or mental disabilities).

#8 Activity rate

Activity rate calculated by age, type of degree, nationality and sector (only for the first three sectors, i.e. only for practising nurses). For salaried workers, the rate of activity takes into account activities for all employers of the sector. For self-employed nurse (in the home care sector), the activity rate is calculated using the number of performed acts and the amounts paid by the sickness funds for performed acts. A reference full time equivalent is determined using the observed median number of performed acts and observed median total amount reimbursed for care provided by a reference group.

Mean activity rates of 2018.

#9 Care consumption rate

Consumption rate based on reimbursed fees for nursing care observed over three years (2017, 2018 and 2019) 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 2017, 2018 and 2019 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 (2022).¹



1.1.2. Results

Practising nurses

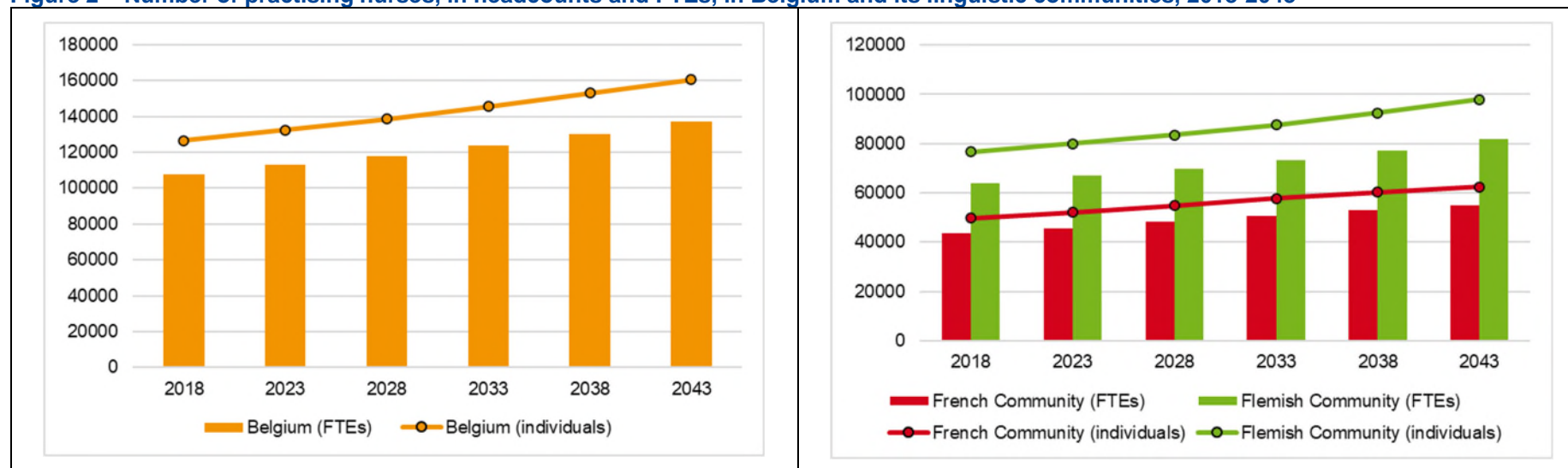
In 2018, there were 126 446 practising nurses (i.e. active in the healthcare sector) in Belgium (49 739 in the French Community and 76 707 in the Flemish Community). This number is expected to increase to 132 334 in 2023, 138 534 in 2028, 145 487 in 2033, 152 855 in 2038 and 160 532 in 2043, which corresponds to five-year increases of respectively 4.7%, 4.7%, 5.0%, 5.1% and 5.0%. On Figure 2, the (projected) number of practising nurses 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 2018, the equivalent of 107 505 FTEs were active as nurses in the healthcare sector in Belgium (43 529 in the French

Community and 63 976 in the Flemish Community). These numbers are expected to increase on average by 4.9% between 2018 and 2043.

Overall, in the French Community, the model predicts that the nurses workforce will increase on average by 4.7% over five years between 2018 and 2043, but this increase is expected to be stronger in the short term (+5.0% between 2018 and 2023) than in the long run (+3.6% between 2038 and 2043). This trend in the number of practising nurses translates to an almost identical evolution in the number of FTEs.

In the Flemish Community, the expected increase of the number of practising nurses is on average 5.0% over five years between 2018 and 2043. There, the expected increase is stronger in the long term (+6.0% between 2038 and 2043) than in the short term (+4.4% between 2018 and 2023). This also translates almost identically in the evolution of the number of FTEs.

Figure 2 – Number of practising nurses, in headcounts and FTEs, in Belgium and its linguistic communities, 2018-2043



Source: Planning Unit (2022).¹



Table 2 – Projected five year evolution of workforce for practising nurses, in FTEs

	Belgium	French Community	Flemish Community
2018-2023	5.0%	5.3%	4.8%
2023-2028	4.6%	5.1%	4.2%
2028-2033	4.9%	5.0%	4.9%
2033-2038	5.2%	4.6%	5.5%
2038-2043	5.1%	3.7%	6.0%

Source: Planning Unit (2022).¹

Evolution by sector

Hospitals represent the largest sector of employment for nurses. In 2018, there were 80 099 practising nurses in the **hospital sector** in Belgium (33 237 in the French Community and 46 862 in the Flemish Community), corresponding to 66 601 FTEs in Belgium (27 921 in the French Community and 38 680 in the Flemish Community) (see Figure 3 panel a). The number of FTEs nurses active in the hospital sector is expected to increase to 69 802 in 2023, 72 356 in 2028, 74 923 in 2033, 77 882 in 2038 and 81 271 in 2043, which corresponds to five-year increases of respectively 4.8%, 3.7%, 3.5%, 3.9% and 4.4% (see Table 3). The increase is expected to be slightly more marked in the French Community (on average 4.3% over five years between 2018 and 2043) than in the Flemish Community (on average 3.9% over five years between 2018 and 2043).

In 2018, there were 22 544 practising nurses in **nursing homes** (8 286 in the French Community and 14 258 in the Flemish Community), corresponding to 18 058 FTEs in Belgium (6 883 in the French Community and 11 175 in the Flemish Community) (see Figure 3 – panel b). The number of FTEs nurses active in the nursing home sector is expected to increase to 19 392 in 2023, 20 684 in 2028, 22 161 in 2033, 23 861 in 2038 and 25 408

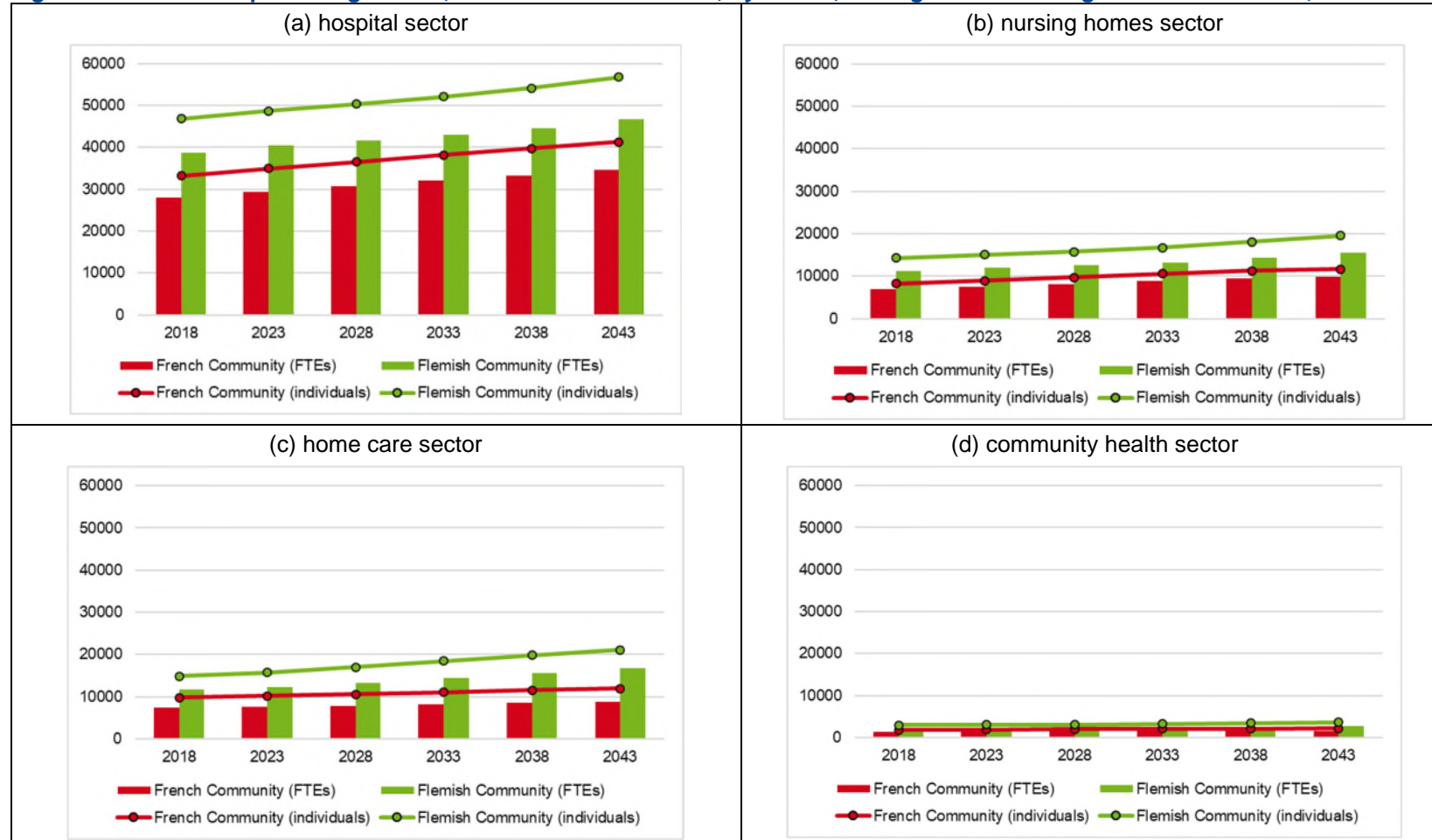
in 2043, which corresponds to five-year increases of respectively 7.4%, 6.7%, 7.1%, 7.7% and 6.5% (see Table 3). In the French Community, the increase is expected to be higher in the short run (+8.5% during the period 2018-2023) than in the long run (+3.6% during the period 2038-2043). The opposite is true in the Flemish Community where the increase is expected to be +6.7% during the period 2018-2023 and +4.9% during the period 2023-2028, while is expected to be +8.4% during the period 2038-2043.

In the **home care sector**, there were 24 694 practising nurses in 2018 (9 845 in the French Community and 14 849 in the Flemish Community), corresponding to 19 263 FTEs in Belgium (7 465 in the French Community and 11 798 in the Flemish Community) (see Figure 3 – panel c). The number of FTEs nurses active in the home care sector is expected to increase to 19 850 in 2023, 21 092 in 2028, 22 672 in 2033, 24 192 in 2038 and 25 656 in 2043, which corresponds to five-year increases of respectively 3.0%, 6.3%, 7.5%, 6.7% and 6.1% (see Table 3). However, the evolution at the Belgian level hides strong regional disparities. Indeed, the number of FTEs nurses active in the home care sector is expected to increase by, on average, 3.5% over five years between 2018 and 2043 in the French Community, compared to 7.3% in the Flemish Community. Although the increase is expected to be smaller in the short run (an expected 3% increase between 2018 and 2023 at the Belgian level), this is stronger for the French Community (+1.0%), than for the Flemish Community (+4.3%).

The **community health sector** only concern a small proportion of the practising nurses in Belgium (4 804 nurses in 2018 – 1 799 in the French Community, 3 005 in the Flemish Community) (see Figure 3 – panel d). The number of FTEs (3 638 in 2018) is expected to increase, up to 4 474 in 2043, at an average growth rate of 4.2% over five years (see Table 3). The average growth rate shows little regional differences (on average + 4.1% over five years in the French Community and + 4.3% in the Flemish Community between 2018 and 2043) but the increase is expected to be stronger in the short run in the French Community while stronger in the long run in the Flemish Community.



Figure 3 – Number of practising nurses, in individuals and FTEs, by sector, in Belgium and its linguistic communities, 2018-2043



Source: Planning Unit (2022, 2023).⁷⁻¹⁰



Table 3 – Projected five year evolution of nurses workforce, by sector, in FTE

	Hospital sector			Nursing home sector			Home care sector			Community health sector		
	Belgium	French Community	Flemish Community	Belgium	French Community	Flemish Community	Belgium	French Community	Flemish Community	Belgium	French Community	Flemish Community
2018-2023	4.8%	5.4%	4.4%	7.4%	8.5%	6.7%	3.0%	1.0%	4.3%	2.8%	4.8%	1.5%
2023-2028	3.7%	4.3%	3.2%	6.7%	9.4%	4.9%	6.3%	4.5%	7.4%	3.0%	4.9%	1.8%
2028-2033	3.5%	4.2%	3.0%	7.1%	9.0%	6.0%	7.5%	4.1%	9.5%	5.6%	4.2%	6.5%
2033-2038	3.9%	4.0%	3.9%	7.7%	6.9%	8.2%	6.7%	4.3%	8.1%	4.9%	4.6%	5.1%
2038-2043	4.4%	3.8%	4.8%	6.5%	3.6%	8.4%	6.1%	3.7%	7.3%	4.9%	1.9%	6.8%

Source: Planning Unit (2022, 2023).⁷⁻¹⁰

Comparing supply and demand evolutions

Although alternative scenarios on the evolution of future demand are not available yet, the analysis of weighted densities (not shown here) already provides some insights for potential future imbalance.

Regarding hospital care, the future densities of practising nurses and FTEs are higher in the French Community than in the Flemish Community.⁷ In the Flemish Community, the decrease in weighted densities over the coming years indicates that the increase in the number of nurses working in the hospital sector will not be sufficient to meet the increase in future needs for hospital nursing care. In the French Community, on the other hand, the increase in the number of nurses working in the hospital sector seems sufficient to meet the increase in future needs for hospital nursing care.

In 2019, KCE report 325 stated that, in order to ensure sustainable safe patient-to-nurse ratios in hospitals, an increase in staffing of 5 527 FTEs would be required within five years. Projections of the number of FTEs for nurses active in the hospital sector presented above show that this increase will not be achieved (expected increase of 3 201 FTEs between 2018 and 2023).

For care in nursing homes, the analysis of weighted densities indicates that, for both linguistic communities, the increase in the number of nurses working in the nursing home sector will not be sufficient to meet the increase in future care needs.⁸

For home care, the analysis of weighted densities indicates that, in both linguistic communities, the increase in the number of nurses working in the home care sector will not be sufficient to meet the increase in future care needs.⁹ The decrease in the French Community will be higher than in the Flemish Community.



Key points

- **The number of FTEs nurses active in the healthcare sector (practising nurses) is expected to increase by 5 345 FTEs (5.0%) between 2018 and 2023 and by 5 198 FTEs (4.6%) between 2023 and 2028.**
- **Although the average expected increase between 2018 and 2043 is similar in both linguistic communities, a higher increase is expected in the short run for the French Community and in the long run for the Flemish Community.**
- **The number of FTEs nurses active in the hospital sector is expected to increase by 3 201 FTEs (4.8%) between 2018 and 2023 and by 2 554 FTEs (3.7%) between 2023 and 2028.**
- **The average increase of FTEs nurses active in the hospital sector between 2018 and 2043 is expected to be slightly more marked in the French Community (on average 4.3% over five years) than in the Flemish Community (on average 3.9% over five years).**
- **The expected increase of 3 201 FTEs nurses in the hospital sector between 2018 and 2023 is insufficient to ensure sustainable safe patient-to-nurse ratios in hospitals as defined by KCE report 325 (required increase in staffing of 5 527 FTEs within five years).**
- **The number of FTEs nurses active in nursing homes is expected to increase by 1 334 FTEs (7.4%) between 2018 and 2023 and by 1 292 FTEs (6.7%) between 2023 and 2028.**
- **The number of FTEs nurses active in the home care sector is expected to increase by 587 FTEs (3.0%) between 2018 and 2023 and by 1 242 FTEs (6.3%) between 2023 and 2028.**

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