



1.1. Regular essential surgical hospital activities (% of expected activities that is maintained) (R-4)

1.1.1. Documentation sheet

Description	Primary indicator
	(1) Share of expected (based on 2018-2019 data) regular essential surgical hospital activities that is maintained
	Secondary indicators
	(2) Share of expected (based on 2018-2019 data) regular non-essential surgical hospital activities that is maintained
	(3) Share of expected (based on 2018-2019 data) regular mixed (i.e. essential or not depending on the context) surgical hospital activities that is maintained
	(4) Change in expenditures for a selection of urgent and non-urgent hospital activities with respect to the same month in 2019
	(5) Standardised number of emergency room admissions per 100 000 insured persons
	(6) Number of admissions in psychiatric hospital wards per 10 000 population (in general or psychiatric hospitals)
Calculation	<p>(1,2,3) The following generalized linear mixed model, using negative binomial distribution and log-link is fit for essential, non-essential and mixed bundles of interventions separately: $\log(n) = \alpha + \beta_1 Time + \beta_2 Month + \beta_3 DevPeak + \beta_4 Covid + HCl_i + PREST_k$ where <i>Time</i> indicates the time since January 2018 until January 2023 and accounts for long-term changes, <i>Month</i> (January, February, ..., December) accounts for seasonal effects, <i>DevPeaks</i> (-1, 0 or 1) addresses the potential bias due to fluctuations in the data flow between hospital and insurance institutions. <i>Covid</i> represents the rank order of the month since March 2020, allowing the model to estimate how strong a specific month during the COVID-19 crisis deviates from the situation where the COVID-19 crisis did not take place. α is a constant and HCl_i allows health care institutions to deviate from the constant. Similarly, $PREST_k$ allows a specific type of intervention (billing code) to deviate. These two latter parameters allow for an interpretation of a hospital care decrease (or increase), given an average hospital and an average intervention. The parameters of interest are to be found in β_4: for each month during the COVID-19 crisis, a deviation from the expected (non-covid situation) is estimated. For instance, if this parameter for April 2020 = -2.303, it means that in April 2020, hospital activity falls to $\exp(-2.303) = 10\%$, a reduction of 90% as compared to pre-covid times. Hospital surgical activities are categorised in three groups (essential, non-essential and mixed), based on billing codes (see technical definitions hereafter).</p> <p>(4) Numerator = differences between expenditures for a specific hospital activity performed during the month and the expenditures for the same activity performed during the same month of 2019; denominator = expenditures for the considered activity performed during the considered month of 2019.</p> <p>(5) Numerator = number of emergency room admissions standardised per year (based on population in 2022), based on age, sex and preferential regime per arrondissement, province and region x 100 000; denominator = all insured persons residing in Belgium for which the district, the gender, age and reimbursement scheme are known or estimated in 2022.</p>



(6) Numerator = number of admissions in psychiatric hospital wards x 10 000; denominator = total mid-year Belgian population. Change in the number of admissions in psychiatric hospital wards between the pre-pandemic period (monthly average for the years 2017 to 2019) and the pandemic period (April 2020 and April 2021).

Rationale

Mid-March 2020, Belgian hospitals were asked by the Hospital & Transport Surge Capacity (HTSC) committee to stop all elective consultations, investigations and procedures in order to free up equipment, nurses and physicians for the treatment of COVID-19 patients. It was however specified that essential care could continue. Nevertheless, no concrete formal definition of essential and non-essential care was provided. Hospitals were allowed to resume regular hospital care in a stepwise manner from 4 May 2020. During this first wave of the COVID-19 pandemic, several analyses show indications of a decrease of non-essential care in Belgian hospitals, but also some decrease in essential regular care.¹⁻³ During subsequent waves of COVID-19, hospitals were asked to discontinue non-essential activities wherever this could impact the ICU capacity that was reserved for COVID-19 patients.

To assess the ability of hospitals to maintain essential activities, we use the change in hospital regular essential surgical hospital activities with respect to what was expected based on 2019 data following the methodology of the Hospital Audit Unit within RIZIV – INAMI, FPS Public Health and FAGG – AFMPS.⁴ Change in hospital regular non-essential surgical hospital activities will be presented as a secondary indicator. Only surgical interventions are considered here. The interested reader can find insights on reported hospital care in internal medicine, oncology, psychiatry, medical imagery, etc. in the reports of the Hospital Audit Unit.⁵

The results will also be complemented by additional analyses on the evolution of the number of hospital admissions and of a selection of urgent and non-urgent hospital activities using alternative sources.^{1,2} Also, the ability to maintain activity in emergency department will be analysed, using the evolution in the number of emergency room admissions as secondary indicator, based on RIZIV – INAMI billing data.

The capacity of hospitals to maintain mental healthcare activities was also essential. This can be measured using changes in the number of admissions in psychiatric hospital wards over time, as well as changes in the number of hospitalisation days and the number of stays in psychiatric hospital wards using FPS Public Health (MPG – RPM) data. This indicator also provides contextual information on the utilisation of mental healthcare services outside ambulatory setting. Changes in the number of admissions in psychiatric hospital wards may reflect changes in the mental health of the population, or changes in the delivery and organisation of mental healthcare in hospitals. Several European countries (Malta, Portugal, Romania, Italy) reported a reduction in the total number of admissions in psychiatric hospital wards during the COVID-19 pandemic compared to pre-pandemic period.⁶⁻⁹

Data source

(1,2,3) Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS
(4) RIZIV – INAMI (StatMD)
(5) RIZIV – INAMI (Appropriate Care Unit)
(6) RPM – MPG from FPS Public Health

Technical definitions

Selection of billing codes for the different indicators are given hereafter:

(1) Essential surgical interventions: arteriovenous fistula creation <12y (238254; 238265); removal of uterine cervix (432110; 432121); amputation (275052; 275063; 275074; 275085; 275096; 275100; 275111; 275122; 277572; 277583; 277594; 277605; 277616; 277620; 277631; 277642; 278390; 278401); appendectomy and partial caecum resection (244871; 244882); appendectomy (243154; 243165); surgical treatment of femur fracture (276570; 276581); surgical reduction or osteosynthesis (311054; 311065); breast-conserving tumour resection (227732; 227743); breast-conserving tumour resection and axillary lymph node dissection (227813; 227824); breast-conserving tumour resection and sentinel node resection with intraoperative pathological examination (227791; 227802); breast-conserving tumour resection and axillary lymph node dissection (227835; 227846); breast-conserving tumour resection and sentinel node resection (227776; 227780); surgical treatment of deep phlegmon (220253;

220264); conization of the cervix (432294; 432305); myocardial revascularisation (229574; 229585); curettage of the uterine cavity (220290; 220301); trepanation for decompression or drainage (230355; 230366); surgery for deep expansive tumours or lesions of the face or lips, including plastic surgery (220334; 220345); surgical removal of foreign bodies from deep tissue (220231; 220242); embolectomy or thrombectomy through the arteries of the limbs or neck (235130; 235141); total cure of bladder tumour (261391; 261402); plaster boot or Delbet apparatus (299176; 299180); elbow plaster (297172; 297183); forearm plaster (297150; 297161); hand or wrist plaster (297135; 297146); surgical evacuation of one or more extracerebral intracranial haematomas (230414; 230425); heart or heart-lung transplantation (318054; 318065); hemicolectomy (243051; 243062); surgical repair of an osteomeningeal breach (232713; 232724); intervention for intestinal obstruction (243331; 243342); internal drainage of hydrocephalus (230591; 230602); surgery on the heart or large intrathoracic vessels with extracorporeal circulation (229515; 229526); laser photocoagulation of retinal vasculopathy (248172; 248183); removal of the lung with lymphadenectomy (227216; 227220); incisional biopsy of the mammary gland (227091; 227102); mastectomy and sentinel node resection with intraoperative pathological examination of the sentinel node (227673; 227684); mastectomy and sentinel node resection (227651; 227662); mastectomy with axillary lymphadenectomy (227695; 227706); mastectomy (227636; 227640); colposcopy (431955; 431966); kidney transplantation (318010; 318021); surgical reduction of fracture or dislocation-fracture of the head or neck of the humerus (275376; 275380); surgery on the heart or large intrathoracic vessels with extracorporeal circulation (229596; 229600); osteosynthesis for lower jaw fracture (311113; 311124); computer-assisted intraoperative navigation (232315; 232326); pleurotomy (227496; 227500); finger fracture, closed reduction (296973; 296984); fractures of the distal end of one or both bones of the forearm, closed reduction (296936; 296940); breast-conserving resection of a non-palpable malignant tumour (227754; 227765); complete resection of the endometrium (432456; 432460); revascularisation of carotid or vertebral artery (235071; 235082); revascularisation of a limb artery (235093; 235104); salpingotomy or partial salpingectomy (432574; 432585); stereotaxy of intracranial areas with fixation of markers (232971; 232982); surgery for intracranial supratentorial expansive lesion via craniotomy (230473; 230484); ureteroscopy or therapeutic ureterorenoscopy (262371; 262382); total hepatectomy followed by orthotopic liver transplantation (318076; 318080); total prostatectomy (261796; 261800); trepanation of the maxilla for tumour, osteitis, sequestration or foreign body finding (311135; 311146); replacement of suprapubic catheter (262452; 262463); removal of a malignant skin or mucous membrane tumour with wound closure (251775; 251786); treatment of fracture of a bone of the face (312130; 312141); thoracotomy or thoracoscopy with biopsy (227452; 227463). In updated versions of the model, the following billing codes are also used: 227264; 227345; 227441; 227603; 228163; 229622; 231011; 235023; 240483; 243600; 243622; 243644; 243762; 244042; 244064; 251322; 251344; 256830; 261682; 261822; 262441; 275041; 275424; 275505; 275520; 275531; 275542; 275656; 275671; 276684; 277465; 283485; 283861; 287490; 290544; 290640; 290662; 290684; 295024; 295050; 296015; 296096; 296612; 296671; 296811; 296892; 296914; 296951; 297116; 297194; 297205; 298631; 298723; 298896; 298970; 298992; 299154; 299165; 299191; 317306; 23522; 237182; 243180; 243202; 243246; 244436; 260293; 260304; 260680; 280556; 294302.

(2) Non-essential surgical interventions: corrective ear surgery (253551; 253562); amygdallectomy (257390; 257401); circumcision (260934; 260945); corrective surgery on both ears (253573; 253584); total or bilateral subtotal thyroidectomy (257036; 257040); complete bilateral resection of a truncal varicose vein (238276; 238280); surgery for paradental cysts (311334; 311345); embryo placement after in vitro fertilisation (432714; 432725); total removal of the small saphenous vein (238136; 238140); extraction of impacted or retained tooth (317236; 317240); extracapsular extraction of the eye lens (246912; 246923); knee arthroplasty with total prosthesis (290275; 290286); follicular aspiration (432434; 432445); frenulum frenulectomy/frenuloplasty of the penis (261575; 261586); osteotomy hallux valgus (277115; 277126); radical haemorrhoid treatment (244554; 244565); surgical treatment of three or four sinuses (254855; 254866); surgical treatment of urinary incontinence with transvaginal sling (432751; 432762); surgical treatment of a primary abdominal wall hernia (241916; 241920); radical total hysterectomy with pelvic lymphadenectomy (431351; 431362); intrauterine insemination (432773; 432784); kymographic insufflation of salpinx, hysterosalpingography (431410; 431421); laser treatment of cataract (248275; 248286); meniscectomy of the knee (276636; 276640); ligation of more than 3 varicose veins (238114; 238125); ligation of one varicose vein (238070; 238081); ligation of 2 or 3 varicose veins (238092; 238103); ligation of vas deferens, vasectomy (260794; 260805); osteotomy with tooth germ extraction (312432; 312443); osteotomy with displacement of jawbone pieces or



reconstruction surgery (311415; 311426); osteotomy for retained tooth with pericoronary bone resection (312410; 312421); breast reconstruction with insertion of a breast implant or breast tissue expander (252593; 252604); breast reduction for hypertrophy (251613; 251624); reduction gastroplasty Mason/Sleeve (241776; 241780); plastic surgery of the heterolateral breast (252512; 252523); resection of the saphenofemoral junction and total removal of both saphenous veins (238210; 238221); resection of the saphenofemoral junction and ligations, fulguration or resection of varicose veins (238195; 238206); resection of the saphenofemoral junction and total removal of one of the two saphenous veins (238173; 238184); resection of abdominal fat tissue with skin plasty and transposition of the navel (241275; 241286); reduction gastroplasty Scopinaro (241835; 241846); subtotal hysterectomy (432655; 432666); subfacial ligation of perforating veins of the lower limb (238291; 238302); total hysterectomy by vaginal route (431314; 431325); total hysterectomy by abdominal route (431270; 431281); transtympanic drainage (257471; 257482); excision of scars (221196; 221200); urodynamic examination with five or more channels (261995; 262006); vaginal hysterectomy 432670; 432681); complete resection of a benign breast lesion (227850; 227861); complete resection of a non-palpable benign breast lesion (227872; 227883); carpal tunnel release (287836; 287840); removal of breast prosthesis (251591; 251602); endoscopic prostate resection (261553; 261564); trepanation of the maxilla for cystic tumour or osteitis (310951; 310962); surgical removal of dermal vegetations (220113; 220124). In updated versions of the model, the following billing codes are also used: 245733; 245814; 245851; 247575; 248835; 248846; 248953; 249255; 254752; 254763; 254833; 254844; 255021; 255065; 255146; 255323; 255894; 255905; 256103; 256513; 257644; 257736; 257740; 257806; 257891; 257902; 258300; 258650; 258661; 258683; 258812; 258823; 258834; 258845; 260643; 260875; 261914; 261925; 262150; 275192; 244160; 275306; 275634; 275645; 276216; 276220; 276231; 276242; 276474; 277200; 277222; 277270; 277281; 277325; 280151; 281702; 2287696; 287733; 287792; 287814; 290264; 292364; 293344; 311371; 312281; 312314; 317170; 317251; 431756; 431863; 432412; 432692.

(3) Mixed surgical interventions; essential or not depending on the context: hip arthroplasty (289074; 289085); autoplasmic closure of bucconasal or buccosinus fistula (311452; 311463); creation of arteriovenous fistula (235174; 235185); cystoscopy in men (260271; 260282); cystoscopy in women (260330; 260341); surgery for deep tumours or lesions of the face or lips (220312; 220323); removal of expansive subfacial soft tissue tumour (220275; 220286); surgical treatment of an incisional hernia of the abdominal wall (241931; 241942); surgical treatment of bilateral inguinal, femoral or obturator hernia (241894; 241905); surgical treatment of inguinal, femoral or obturator unilateral hernia (241872; 241883); skin or fascia-cutaneous flap in one operation, larger than 100 cm² (250213; 250224); skin or fascia-cutaneous flap (250176; 250180); diagnostic hysteroscopy (432390; 432401); intravitreal injection (248334; 248345); surgery for benign tumours of face or lips (220150; 220161); revascularisation of a limb artery, with saphenous vein graft (235115; 235126); sacrococcygeal cyst resection (221152; 221163); musculocutaneous flap (251893; 251904); removal of a skin tumour with plasty and/or grafting (251731; 251742); cholecystectomy with intraoperative cholangiography (242476; 242480); cholecystectomy (242454; 242465); curettage of inflammatory osteitis of the jaw (310914; 310925); curettage for alveolar osteitis (317052; 317063); lumbar laminectomy (232794; 232805); laparoscopic hysterectomy (432736; 432740); treatment of fractures of the lower jaw and facial bones without osteosynthesis (310995; 311006); trans pars plana vitrectomy (246654; 246665). In updated versions of the model, the following billing codes are also used: 244440; 248290; 248301; 248636; 248640; 248684; 248975; 248986; 249233; 249244; 257084; 260326; 260352; 260956; 260960; 432353; 432644; 220231; 220242; 230252; 241043; 244742; 246573; 249222; 257025; 258075; 258086; 258731; 260481; 260890; 276076; 276080; 276102; 276124; 276146; 277362; 278596; 278810; 279020; 280033; 280055; 280066; 280070; 280092; 280103; 281105; 281120; 281665; 281680; 281783; 286624; 287011; 287022; 287291; 289041; 293440; 293462; 294125; 296133; 297511; 299515; 299526; 432596; 432600; 432633.

(4) Urgent hospital activities: infarcts (589013; 589024; 589153; 589164); acute (cerebral) stroke (477724; 477746); treatment of cardiac arrhythmias (475952; 475963; 476210; 476221; 476254; 476265).

(4) Non-urgent hospital activities: sleep study (477374; 477385); male and female sterilisations (260794; 260805; 432692; 432703)



(5) Emergency room admissions: 590516; 590531; 590553; 590575; 590590; 590612; 590634; 590656; 590671; 590693; 590715; 590730; 590752; 590774; 590796; 590811; 590833

(6) Number of admissions in psychiatric hospital wards corresponds to the number of full-time and part-time stays started in the month in psychiatric wards of general or psychiatric hospitals. Based on the bed indexed at admission, part-time and full-time hospitalisation can be differentiated. During a full-time admission, patients cannot go home either during the day or at night, whereas during a part-time admission patients can. This distinction is made because new mental healthcare reforms aim to de-institutionalise patients as much as possible.¹⁰ Regional data is reported based on the region of the patient's residence.

International comparability

N.A.

Limitations

In Belgium, no official list or guideline exists that divide hospital care into essential and non-essential activities, nor an official definition of these terms. Therefore, the following arbitrary method was used. The most frequently billed codes of article 14 of the nomenclature for surgical activities were assessed by six physicians belonging to the hospital audit team, with the assistance of internal and external specialists in the discipline. Taking notably into account international recommendations,¹¹⁻¹⁴ they classified them into (grossly) essential care, (grossly) non-essential care, or a mix of both. The following types of care were considered as essential: urgent care (e.g. a large proportion of fractures), (chronic) care that is vital (e.g. dialysis) or care that determines the prognosis if it is delayed (e.g. mastectomy). Nevertheless, such classification is somewhat arbitrary and can be subject to discussion. No ex-post validation of the classification was performed, nor comparison with other existing lists that are relevant in the Belgian context (such as the VBS – GBS list of degrees of urgency by specialty¹⁵ or the classification between urgent and non-urgent care used in the RIZIV – INAMI monitoring of billing data¹). Trends for a selection of urgent and non-urgent care based on the RIZIV – INAMI monitoring of billing data¹ classification are presented as secondary indicators, but this classification is also somewhat arbitrary.

In addition, one cannot assess to what extent the care that was cancelled would have led to an over-use.^{16, 17} The cancellation of care may actually reflect some efficiency gain thanks to a stricter use of evidence-based guidelines. Also part of the cancelled care may not be needed afterwards (symptoms that spontaneously disappear, successful treatments in another setting, patient death, etc.) which may explain that not all cancelled care is reported. The change in habits during COVID-19 times (for instance a reduction of the number of accidents during lockdown periods, a general improvement of hygienic protective measures, etc.) may also reduce the need for some types of hospital care. On the other hand, one cannot assess to what extent COVID-19 led to an increased need of some types of hospital regular care (for instance pulmonary care).

Regarding admissions in psychiatric hospital wards, data were not available by age groups, diagnosis at discharge or voluntary vs involuntary status. Based on the analyses for this indicator it was not possible to assess if changes in the number of admissions were due to changes in mental health services in hospitals, in the mental health of the population or in the population's healthcare seeking behaviours. Changes from full-time to part-time admissions or vice versa were not taken into account, as the type of admission (full-time or part-time) is only identified at the time of admission. Therefore, these results must be interpreted with caution.

Dimension

Resilience; Accessibility; Quality (Appropriateness)

Reviewers

(1,2,3) Johan Pauwels on behalf of Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS team.

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1.1.2. Results

Hospital activities – Belgium

Figure 1 shows the share of expected (based on 2018 and 2019 data) regular surgical hospital activities that was maintained in 2020, 2021 and 2022.

In March 2020, non-essential hospital surgical activities were at 52.3% of their expected level based on 2018 and 2019 data. This means that non-essential hospital surgical activities dropped by 47.7% in March 2020 compared to pre-COVID-19 times. During the same period, also essential and mixed activities dropped. In March 2020, only 78.3% of essential hospital surgical activities were maintained. For mixed activities, that can be essential or not depending on the context, the share of maintained care was 63.0%.

The largest decline in regular surgical hospital activities was observed in April 2020. Only 5.7% of non-essential hospital surgical activities were maintained. This is consistent with the request made to hospitals to cancel non-essential care. For mixed activities, the share of maintained care was 29.8% and for essential activities it was 56.9%. It means that, although considered essential, almost half of these surgical activities were suspended in April 2020.

A small catch-up effect was observed during the summer 2020, when it occurred that the share of maintained regular care was above 100% (i.e. more surgical activities were performed than what was expected based on 2018 and 2019 data).

During the second COVID-19 wave, starting in September 2020, non-essential, mixed and essential regular hospital care dropped again, but less than during the first wave. In November 2020, the number of non-essential surgical activities fell to 32.8% of the expected level based on 2018 and 2019 data. This was again in line with the instruction to give priority to COVID-19 patients. But the number of essential and mixed surgical activities also fell to 76.8% and 55.0% of the expected levels, respectively.

In 2021 and 2022, the declines were much less marked. The number of essential activities never fell below 88.0% of the expected level based on 2018 and 2019 data. For non-essential activities this minimum share was 86.3% and for mixed activities it was 82.3%. However, the catch-up effects were slightly stronger. In December 2021, the number of essential surgical activities was 112.1% of its expected level based on 2018 and 2019 data (106.2% for mixed surgical activities and 100.7% for non-essential surgical activities). In December 2022, the catch-up was the highest for non-essential surgical activities (117.4%, compared to 102.0% for mixed surgical activities and 103.3% for essential surgical activities).



Figure 1 – Share of expected (based on 2018 and 2019 data) regular surgical hospital activities that was maintained, Belgium



Confidence intervals are given by the dotted lines.

Source: Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS

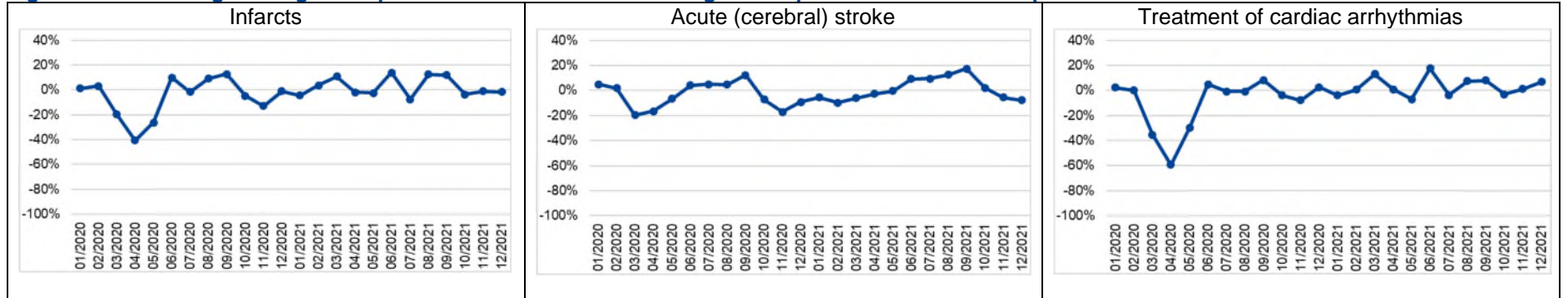
Similar results were observed for a selection of urgent and non-urgent hospital activities. Figure 2 and Figure 3 show the percentage change in expenditures for specific hospital activities performed during the month with respect to the expenditure for the same activity performed during the same month of 2019. Figure 2 shows activities that can be considered as urgent while Figure 3 focuses on activities that are considered as non-urgent.

A decline in activity was observed in April 2020 for urgent and non-urgent care, but the effect was stronger for non-urgent care. In April 2020, expenditures for sleep studies and sterilisations declined by 98.8% and 98.6% respectively compared to their level in April 2019. For urgent care, the declines were 16.4% (stroke), 40.6% (infarcts) and 59.4% (cardiac arrhythmias). For infarcts and for arrhythmias, after a large decline during the first COVID-19 wave, changes were less marked during the following periods. For acute (cerebral) stroke, changes were less marked, although



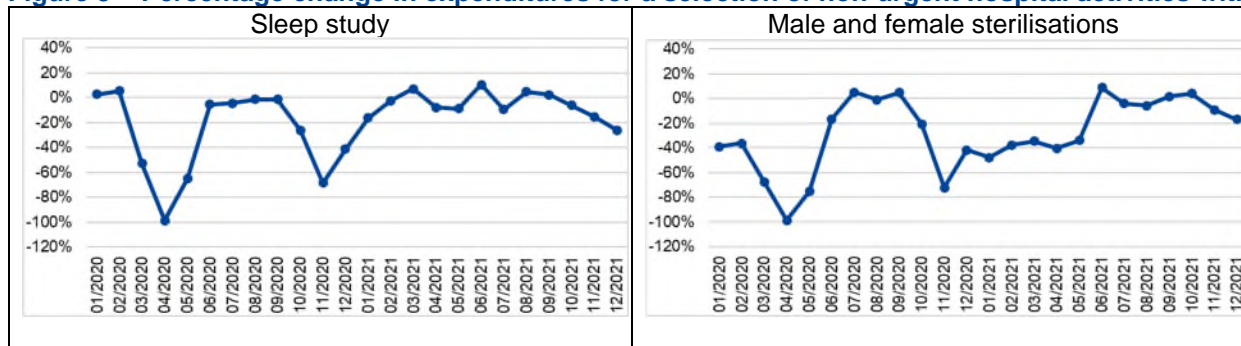
care was overall reduced compared to 2019. For non-urgent care (sleep study and sterilisation), a second large drop was observed in November 2020.

Figure 2 – Percentage change in expenditures for a selection of urgent hospital activities with respect to the same month in 2019



Source: RIZIV-INAMI.

Figure 3 – Percentage change in expenditures for a selection of non-urgent hospital activities with respect to the same month in 2019



Source: RIZIV-INAMI.

These results are in line with a previous IMA-AIM study that followed the evolution of hospital admissions during the COVID-19 pandemic (inpatient admissions in general hospitals).² Although, this analysis also presented a

number of limitations (no distinction between COVID-19 and non-COVID-19 patients, no analysis of bed occupancy or length of stay, no distinction between pathology groups, etc.), the IMA-AIM study provided a first



indication of the impact of the crisis on hospital activity. Admissions were identified using the admission documents (721bis) sent to the sickness funds.

During the lock-down period (16 March 2020 – 4 May 2020), the number of inpatient admissions in general hospitals in Belgium was 47% lower than during the corresponding weeks of 2019. Then, during the period between 4 May 2020 and 29 June 2020 the number of admissions increased again (by 75%) and was 23% lower than the level of 2019. During the summer 2020, the number of admissions stayed 10% lower than the 2019 level. During the second COVID-19 wave (5 October 2020 – 31 December 2020), the number of admissions was 26% lower than the level of 2019. Overall, from 16 March 2020 to the end of the year, the number of admissions was 26% lower than the corresponding level in 2019. In 2021, the number of admissions was 11% lower than the corresponding level in 2019. In the first half of 2022, it was still 9% lower than the corresponding level in 2019.

Hospital activities – Regional comparison

Figures 4 to 6 show the same results as Figure 1 but divided by region. The evolution of the number of essential (Figure 4), non-essential (Figure 5) and

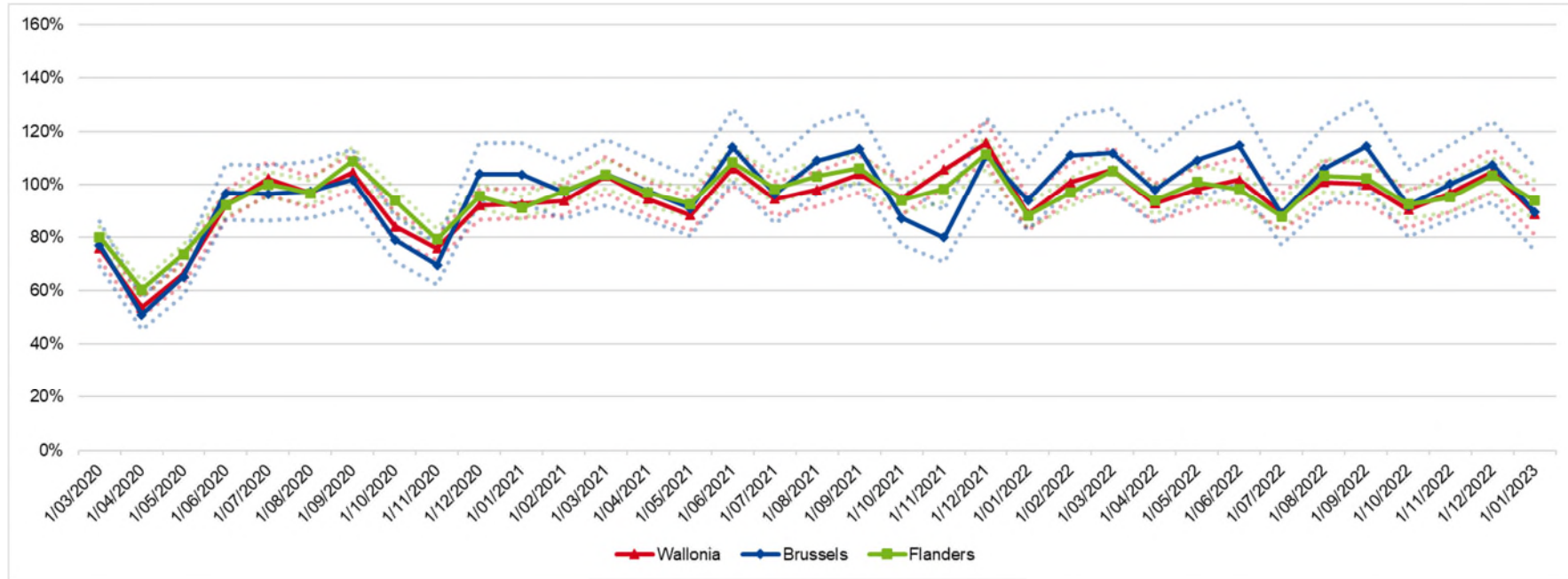
mixed (Figure 6) surgical hospital activities followed a similar pattern in the three regions, although more variability was observed in Brussels than in Flanders and Wallonia.

In particular for non-essential surgical activities, the level of activity was above what was expected based on 2018 and 2019 data from January 2021 onwards (except a small decrease in November 2021). In June 2021, the number of non-essential surgical activities in the Brussels region was even 36.1% above what was expected based on 2018 and 2019 data. Overall, the increase in the number of non-essential surgical activities (compared to what was expected based on 2018 and 2019 data) was higher in Brussels than in the other regions (except for one month).

The decrease observed in April 2020 was important in the three regions of the country for all categories of activities, although slightly less marked in Flanders. In Flanders, 60.5% of essential surgical activities were maintained while these percentages were 53.7% in Wallonia and 51.1% in Brussels (Figure 4). Regarding non-essential activities, only 6.9% were maintained in Flanders, 3.3% in Wallonia and 3.9% in Brussels (Figure 5). For mixed activities, the percentages of maintained care were 33.5% in Flanders, 26.4% in Wallonia and 24.6% in Brussels (Figure 6).



Figure 4 – Share of expected (based on 2018 and 2019 data) regular essential surgical hospital activities that was maintained, regions

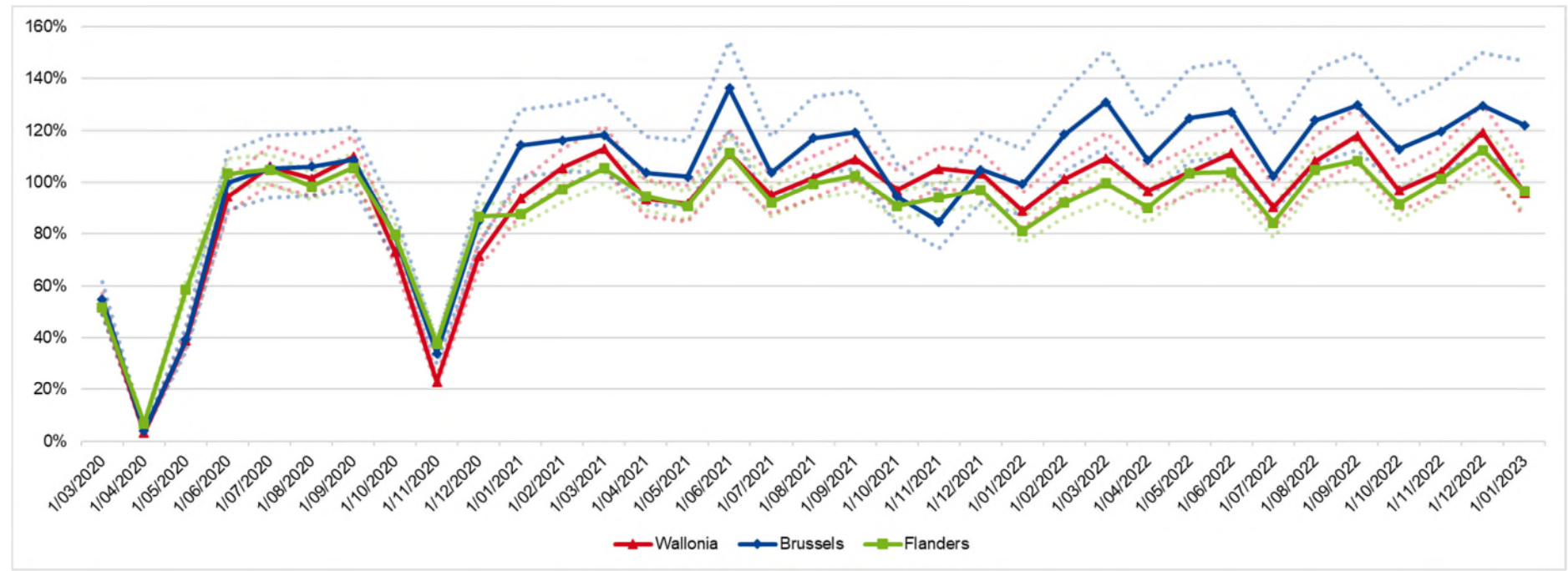


Confidence intervals are given by the dotted lines.

Source: Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS



Figure 5 – Share of expected (based on 2018 and 2019 data) regular non-essential surgical hospital activities that was maintained, regions

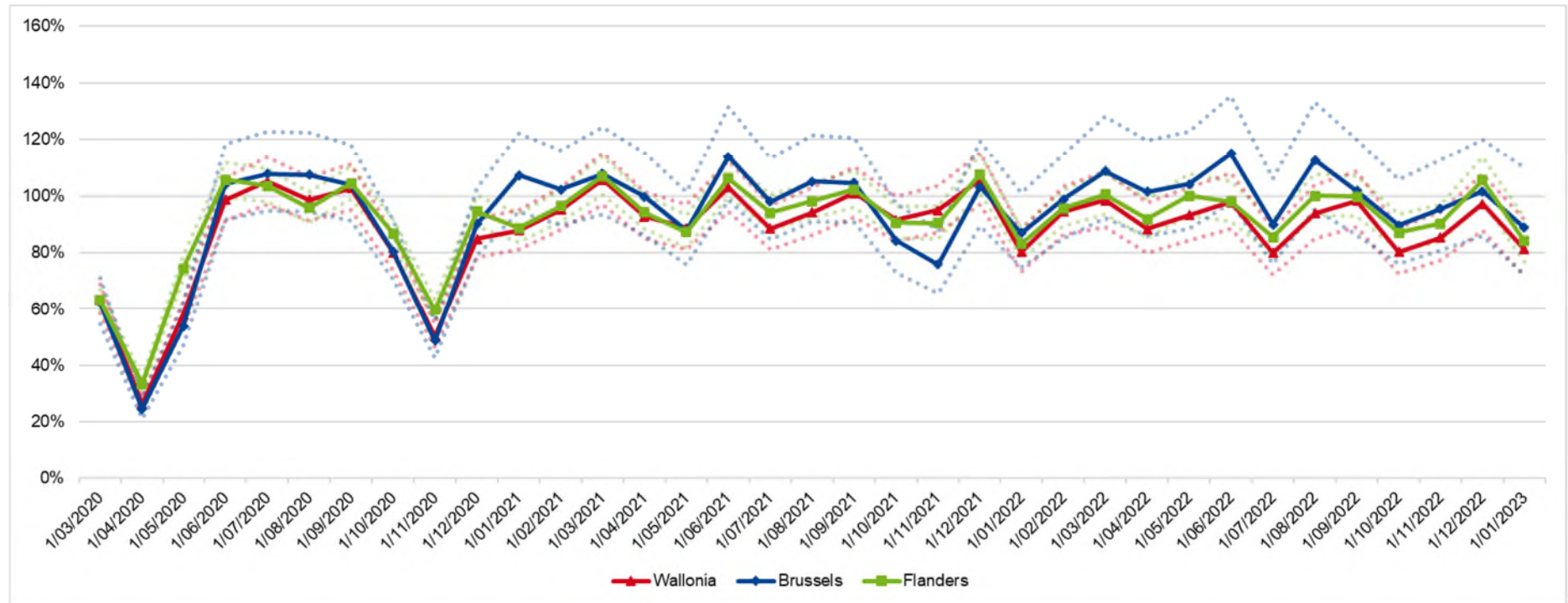


Confidence intervals are given by the dotted lines.

Source: Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS



Figure 6 – Share of expected (based on 2018 and 2019 data) regular mixed surgical hospital activities that was maintained, regions



Confidence intervals are given by the dotted lines.

Source: Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS

Emergency room admissions – Belgium

Figure 7 shows the evolution of the (standardised) number of emergency room admissions per 100 000 insured persons between 2012 and 2022. While an upward trend is globally observed a disruption appears in 2020. Overall, the average annual growth rate was 1.65% between 2012 and 2022, but was 2.27% during the period 2012-2019 and only 0.24% during the period 2020-2022. Also for emergency room admissions, a decrease of

activity due to the pandemic is observed, followed by a catch-up effect. In 2020 and 2021, the standardised number of emergency room admissions per 100 000 insured persons was below its 2019 level, and only in 2022 it reached its 2019 level.

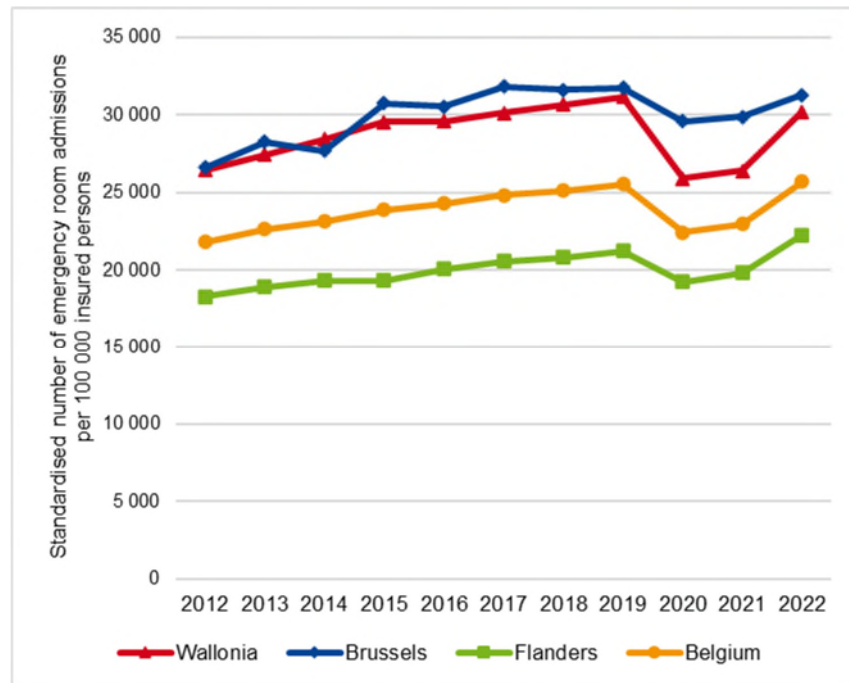
Emergency room admissions – Regional comparison

Figure 7 also shows the evolution of the (standardised) number of emergency room admissions per 100 000 insured persons in the three



regions of the country. It can be seen that the evolution was similar in Flanders and Wallonia (upward trend with a disruption in 2020), although the disruption was more marked in Wallonia than in Flanders. In Brussels, both the upward trend before 2020 and the disruption in 2020 were less marked.

Figure 7 – Standardised number of emergency room admissions per 100 000 insured persons



Source: RIZIV – INAMI

Admissions in psychiatric hospital wards – Belgium

Compared to the monthly average number of admissions in psychiatric hospital wards in 2017-2019, the total number of new admissions was 29.7% lower in April 2020, which was driven by a decrease of 34.9% in full-time admissions and 20.2% in part-time admissions (see Table 1). This sharp decline in the number of admissions in psychiatric hospital wards during the first wave of COVID-19 pandemic was potentially due to the saturation of services, the absence of care staff, changes in criteria for psychiatric admissions and/or the population's fear of going to hospital.

In April 2021, the total number of admissions in psychiatric hospital wards was 2.1% lower than the 2017-2019 monthly average number of admissions, which consisted of a 3.6% decrease for full-time admissions and a 6.7% increase for part-time admissions.



Table 1 – Percentage changes (%) in the number of admissions in psychiatric hospital wards during and after the COVID-19 pandemic compared to 2017-2019

	Total admissions		Full-time admissions		Part-time admissions	
	2017-2019 vs 04/2020	2017-2019 vs 04/2021	2017-2019 vs 04/2020	2017-2019 vs 04/2021	2017-2019 vs 04/2020	2017-2019 vs 04/2021
Belgium	-29.7	-2.1	-34.9	-3.6	-20.2	6.7
Brussels	-25.0	16.9	-24.5	10.9	-27.2	45.9
Flanders	-2.9	-7.2	-0.7	-8.4	-16.9	1.0
Wallonia	-43.9	1.8	-48.2	1.7	-23.1	2.4

Figure 8 – Trends in the total number of admissions in psychiatric hospital wards between 2017 and 2021, by region

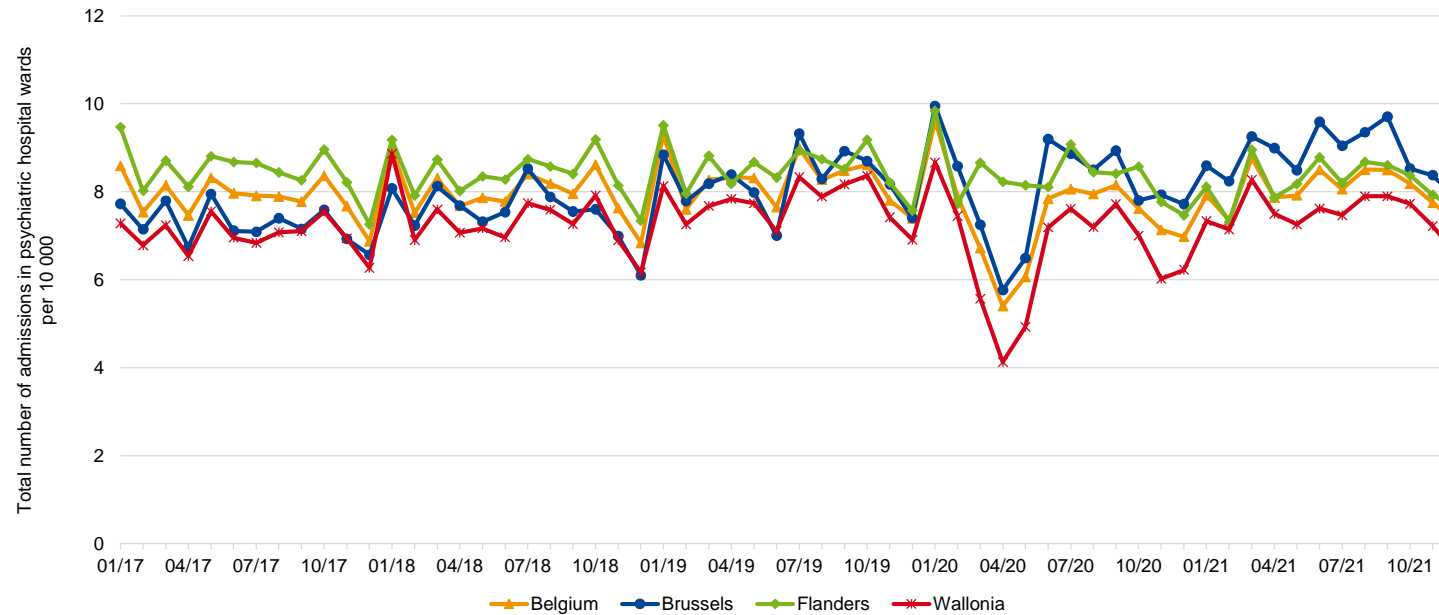
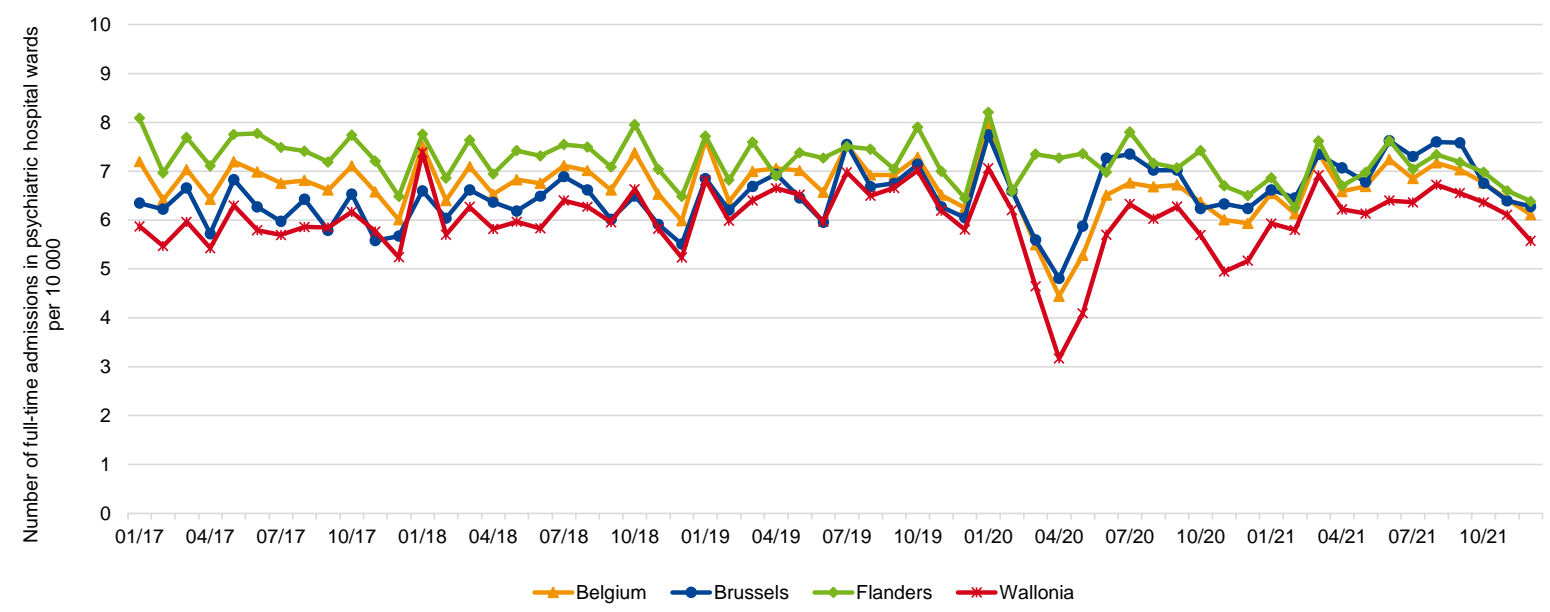
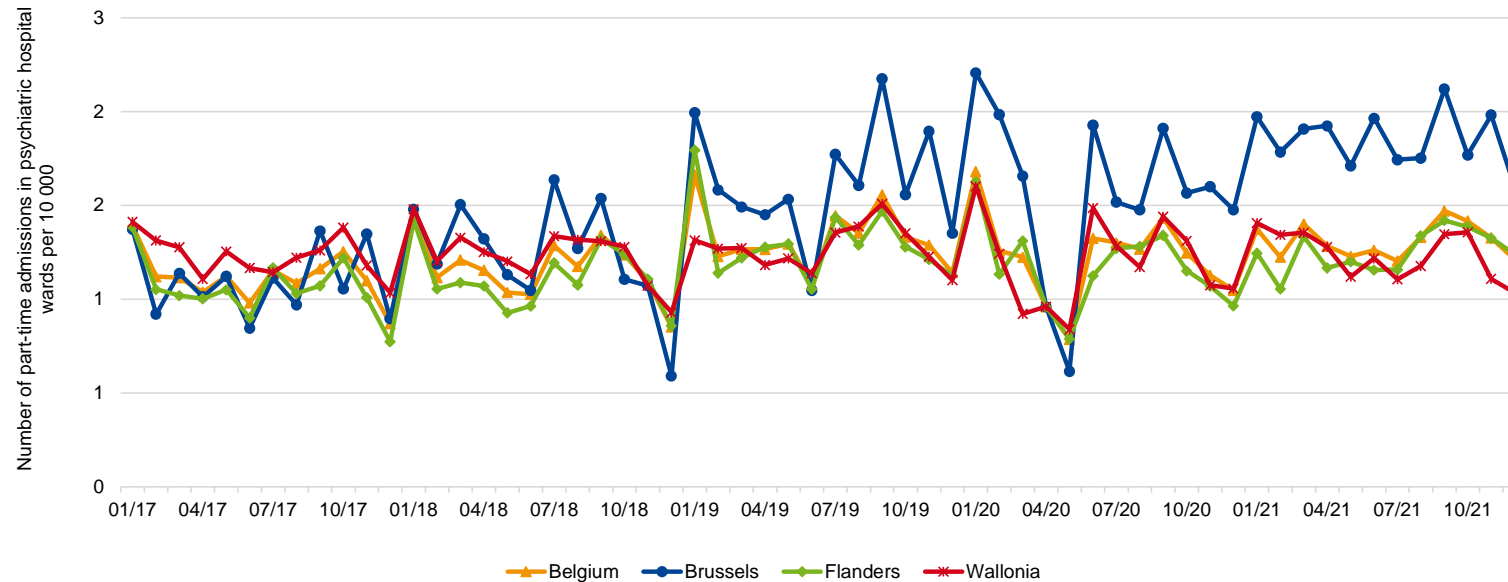




Figure 9 – Trends in the number of full-time admissions in psychiatric hospital wards between 2017 and 2021, by region



**Figure 10 – Trends in the number of part-time admissions in psychiatric hospital wards between 2017 and 2021, by region**

Admissions in psychiatric hospital wards – Regional comparison

The total number of admissions in psychiatric hospital wards declined in all regions in April 2020 compared to the monthly average in 2017-2019, but to different degrees. The decrease was highest in Wallonia (-43.9%), then Brussels (-25.0%) and Flanders (-2.9%) (see Figure 8). The smaller decrease in psychiatric admissions in Flanders might be related to the fact that Flemish hospitals implemented alternative stays very quickly (e.g. part-time stay of 3 hours instead of 7 hours, hospital at home and digital follow-up). In Brussels and Flanders, the decrease in the number of part-time admissions was higher than the decrease in the number of full-time admissions (see Figure 9 and Figure 10).

In April 2021, the total number of admissions in Brussels and Wallonia was higher than the 2017-2019 monthly average (+16.9% and +1.8%, respectively), indicating signs of recovery after the large reductions in admissions in April 2020. In Flanders, the total number of admissions remained 7.2% lower than the 2017-2019 monthly average, which was due to a lower number of full-time admissions. The number of part-time admissions increased in all regions and especially in Brussels (+45.9%).



Key points

- In April 2020, 5.7% of non-essential hospital surgical activities were maintained, 29.8% of mixed activities (that can be essential or not depending on the context) and 56.9% of essential activities. This means that, although considered essential, almost half of these surgical activities were suspended in April 2020. These decreases were slightly less marked in Flanders than in the other regions.
- A second drop was observed in November 2020 but was less important. During this second wave, 32.8% of non-essential hospital surgical activities, 55.0% of mixed activities and 76.8% of essential activities were maintained.
- In 2021 and 2022, variations were much less marked. A minimum of 86.3% of non-essential hospital surgical activities were maintained, 82.3% of mixed activities and 88.0% of essential activities. In Brussels, overall, a larger share of non-essential activities was maintained than in the other regions.
- For a selection of urgent hospital care, a large decrease in expenditure was observed in April 2020 compared to April 2019 (stroke: -16.4%, infarcts: -40.6%, cardiac arrhythmias: -59.4%). After that, expenditures went back to a level close to the 2019 level.
- For a selection of non-urgent hospital care, a large decrease in expenditures was observed in April 2020 compared to April 2019 (sleep studies: -98.8%, sterilisations: -98.6%) and again in November 2020 compared to November 2019. After that expenditures went back to a level close to the 2019 level.
- The standardised number of emergency room admissions per 100 000 insured persons followed an upward trend between 2012 and 2022, with a disruption (more marked in Wallonia than in Flanders) in 2020. In Brussels, both the upward trend before 2020 and the disruption in 2020 were less marked.

- In April 2020, the total number of new admissions in psychiatric hospital wards was 29.7% lower than the 2017-2019 monthly average. The decrease in the total number of admissions was higher in Wallonia (-43.9%) than in Brussels (-25.0%) and Flanders (-2.9%).
- In April 2021, the total number of admissions in psychiatric hospital wards was 2.1% lower than the 2017-2019 monthly average, illustrating potential signs of recovery in admissions following the first waves of the COVID-19 pandemic. The total number of admissions in April 2021 was higher than the 2017-2019 monthly average in Brussels (+16.9%) and Wallonia (+1.8%), and lower in Flanders (-7.2%).

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