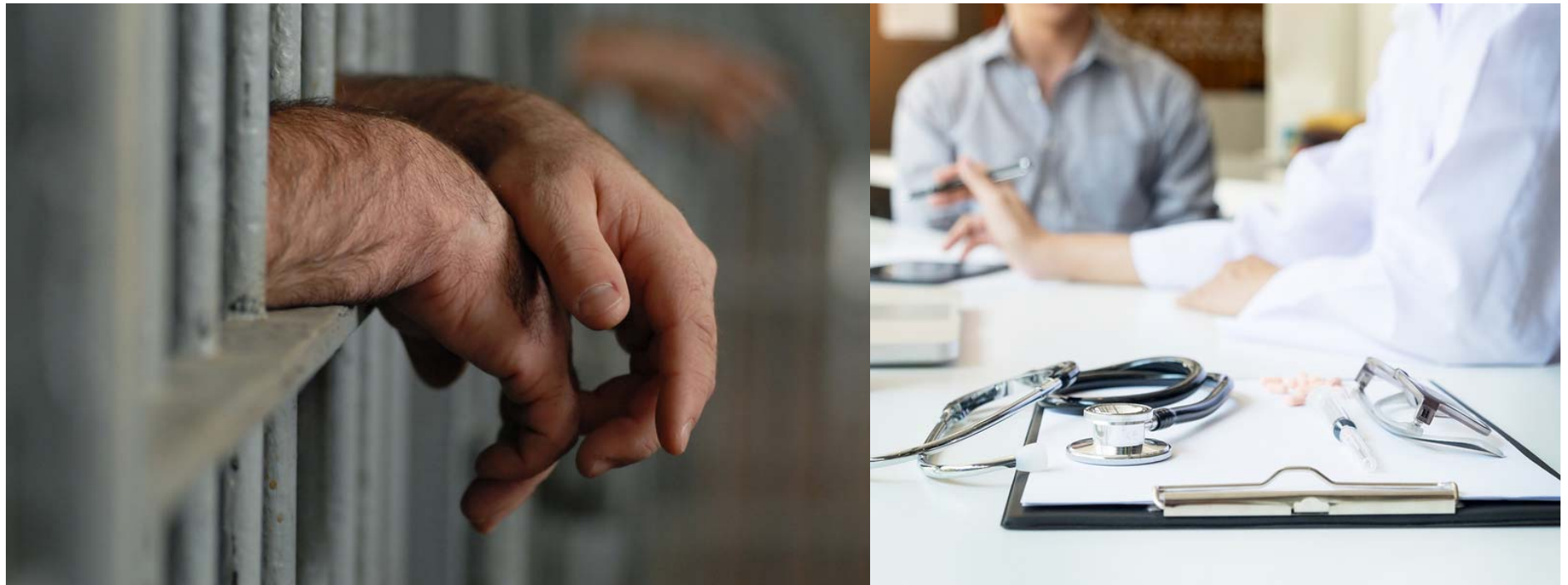


FINANCIAL ASPECTS OF HEALTH CARE IN BELGIAN PRISONS



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GREGORY GOURDIN, VEERLE VYNCKE, FRANCISCO FELGUEROSO-BUENO, JEROEN TRYBOU, SIMON MALFAIT, PASCAL SEMAILLE, SARA WILLEMS, DOMINIQUE ROODHOFT, SÉBASTIEN VAN HOOF, LORENA SAN MIGUEL.



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LIST OF ABBREVIATIONS

Abbreviations	Definition
CAP	Centraal Aanmeldingspunt Drugs
CGG	Centrum voor Geestelijke Gezondheidszorg
CMC	Centre Médical/Medisch Centrum
ECG	ElectroCardioGram
FPS	Federal Public Service
FTE	Fulltime-equivalent
GP	General Practitioner
HCS	Health Care Service
HIS	Health Insurance System
INAMI	Institut National d'Assurance Maladie-Invalidité
MHC	Mental Health Care
PHC	Prison Health care
PrimHC	Primary Health Care
PSS	PsychoSocial Service
RIZIV	Rijksinstituut voor Ziekte- en Invaliditeitsverzekering
UN	United Nations
WHO	World Health Organisation



■ SCIENTIFIC REPORT

1 INTRODUCTION

Detained persons in prisons are currently not part of the national Health Insurance System (HIS)¹. Their health care is nevertheless free of charge for them^a and the expenditure derived from it is covered by the federal state. If care is delivered intra-muros, it is covered by the FPS Justice². Health care provided to inmates for extra-muros hospitalisations, and for the intra-muros medication consumption^{2, 3} is partly paid for by the RIZIV – INAMI. This financing by the HIS relies on a fixed-budget system which will be briefly explained later on in this chapter. All exceeding expenses are assumed by the FPS Justice¹. The HIS covers the costs of internees staying outside of prison.

The objective of this chapter is to provide a description of health care costs in Belgian prisons. The description is based on the limited available data and has therefore an exploratory nature.

^a There are only two exceptions:
-when inmates wish to consult a freely chosen MD (e.g. his/her personal GP), they have to cover the cost of the consultation
-when inmates opt for buying over-the-counter medicines at the canteen of the prison, they have to pay them out of pocket.



2 METHODS

Data used in this chapter refers to the year 2015 unless otherwise stated. They originate from different sources:

Prisons' population figures are derived from the 2015 annual report of the Directorate General for Penitentiary Institutions.⁴ However, the budgetary estimates provided in these annual reports could not be used in our analysis given their lack of detail and transparency.^b Instead, cost data come primarily from invoices from the Service of Health in Penitentiary Institutions (2015). Data on staff costs, which were not available directly from invoices were requested to the accounting department of the FPS Justice. Such data were provided directly in a tabular form at a prison level.

According to the Annual report of the DG-EPI there were in 2015 35^c prisons in Belgium (17 in the Flemish region, 16 in the Walloon region, and 2 in the Brussels region)⁴. Part of the prisoners registered in Wortel prison were in reality jailed in Tilburg, in the Netherlands (this ended in December 2016).

All data were extracted from the previously mentioned sources and captured in a common excel file for analysis. All 35 Belgian prisons are included in this chapter and represented in all figures for completeness. However, given the "outlier" nature of Paifve (i.e. internees only), and Tilburg (located in the Netherlands and for which not all data are available), when estimating means or looking at ranges, those two prisons are excluded to minimise their "noise" in our analysis.

^b After completion of our costing exercise, a new 2016 annual report from DG EPI Justice was published⁵. While their population data did not differ much from the 2015 estimates here used, the budgetary figures presented are much higher than the ones presented in their 2015 report. Time limits, coupled with lack of detail, prohibited us to explore these differences.

^c There is some inconsistency in the way the number of prisons is reported. The figure most often reported (35) counts in most cases the prisons of Forest and

3 RESULTS

3.1 Overall costs of healthcare provision in Belgian prisons

Overall, approximately € 100mill is spent yearly on healthcare for prisoners and people that fall under the care of the Belgian Minister of Justice⁶. While the Federal Minister of Justice is responsible for the cost of prisoners within Belgium prisons, a significant proportion of the costs of healthcare delivered outside the prison is covered by the National Institute for Health and Disability Insurance (RIZIV – INAMI) (i.e. € 7.732.000 specifically for extra-muros hospital care and medical treatment in 2015). The RIZIV – INAMI is also responsible for most of the costs linked to the health care of internees (also called mentally ill offenders).

The FPS Justice is responsible for any costs exceeding the budget transferred by the RIZIV – INAMI.

This section will focus on the part of the costs covering health care for prisoners paid for by the Federal Minister of Justice (i.e. € 43.060.148). Health care of internees outside prisons as well as that of prisoners with an ankle bracelet or on leave are out of the scope of this analysis and out the mentioned € 43.060.148. Nevertheless, when considering the transfer of funds from FPS Justice to the RIZIV – INAMI the part of the health care costs for internees currently covered by FPS Justice (€21.156.284 in 2015) as well as those for prisoners on leave or with an ankle bracelet (i.e. €2.224.779 in 2015) would need to be considered.

Berkendael as 1 prison. However, when individual prison statistics are reported, these prisons are separated, resulting in an overall number of prisons of 36.



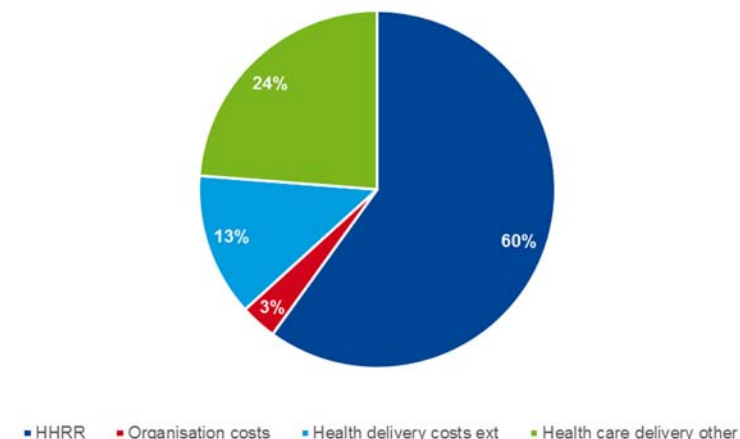
3.2 Costs of healthcare provision in Belgian prisons by type of cost

Figure 1 gives an overview of the overall healthcare expenditure in Belgian prisons. As shown, the budget can be divided into three major types of costs:

1. **Staff/human resources costs:** Cost paid for employees (interims and permanent staff) and external caregivers not employed by the Directorate General of Penitentiary Institutions (i.e. freelancers). These costs amounted to €25.825.740 in 2015 and were split as follows: €12.532.856 spent on permanent staff, €4.795.008 on interim nurses, and €8.497.876 on freelancers.
2. **General health care organisation costs:** Costs of equipment and its necessary maintenance and general disposables (not prisoner specific), as well as cooperation agreements. These costs cannot be attached to the healthcare of a specific prisoner but instead reflect expenditure incurred in to ensure a smooth organisation of health care. In 2015 these accounted for €1.423.095.
3. **Health care delivery costs:** Expenditure linked to prisoner specific healthcare delivery (e.g. pharmaceuticals, magistral formulae, anaesthetics, orthoses and prostheses, clinical biology, hospitalisations, external consultations transport costs, etc.). These costs were €15.811.313 in 2015, of which €5.575.801 represented the necessary costs to treat inmates outside of the prison walls (i.e. hospitalisations, external consultations, transport and clinical biology).

Therefore, from the total estimated FPS Justice costs for inmates in 2015 (i.e. € 43.060.147), approximately 60% were spent on staff/human resources; 3% was linked to healthcare organisation and the remaining 37% was linked to health care delivery costs (13% for inmate care given outside of prison walls, and 24% on other health care delivery costs).

Figure 1 – Cost of health care provision for inmates in Belgian Prisons - 2015



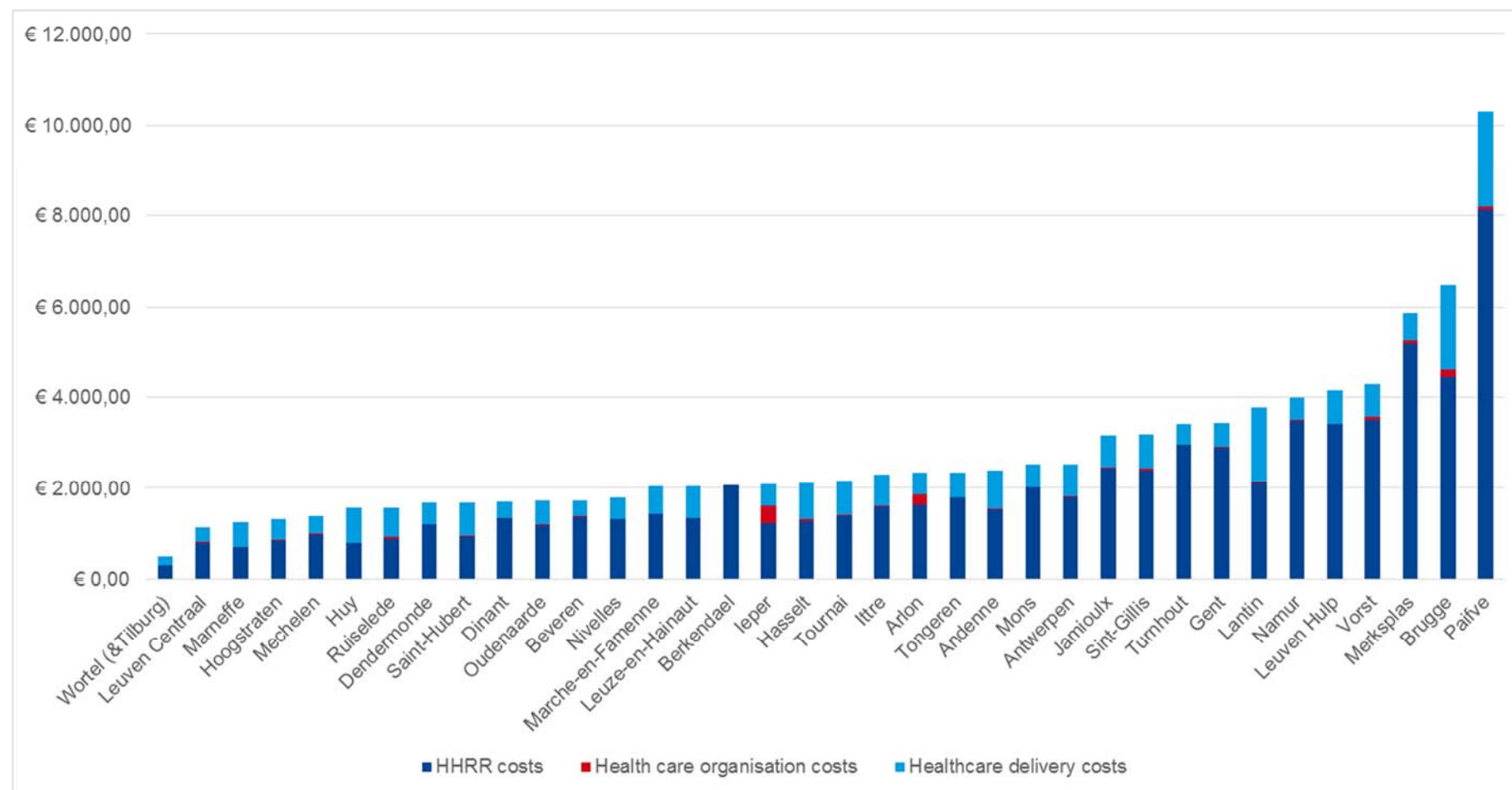
Given the difference in size for the existing 35 Belgian prisons, as well as in the flow of prisoners (detention facilities versus prisons), and in order to facilitate comparisons, the authors of this report used mean per capita (per prisoner year) health care costs as the main unit of measurement throughout this chapter. Overall, health care costs per prisoner-year spent in individuals staying within prison walls amounted in 2015 to €3900.

Prison specific health care costs (i.e. excluding any costs borne at the central level), were divided by the mean daily population of each prison. Figure 2 illustrates large variations in per capita costs between prisons. Excluding Wortel & Tilburg and Paifve because of their “outlier” nature, the costs varied from a minimum of € 1.118 in Leuven central to a maximum of € 6477 in Brugge. The mean per capita costs were € 2.564 (SD € 1.239), and although in the case of Brugge, the very high costs may be (at least partly) explained by the presence of a CMC within the prison, Figure 2 shows that a number of other prisons remain well above the mean per capita costs without any obvious explanation. It is also important to mention that as expected, most of the prisons with a psychiatric annex appear on the right hand side of the graphic due to their higher per capita health care costs.



There are two exceptions to this, with Mons and Antwerpen having costs just below the Belgian average.

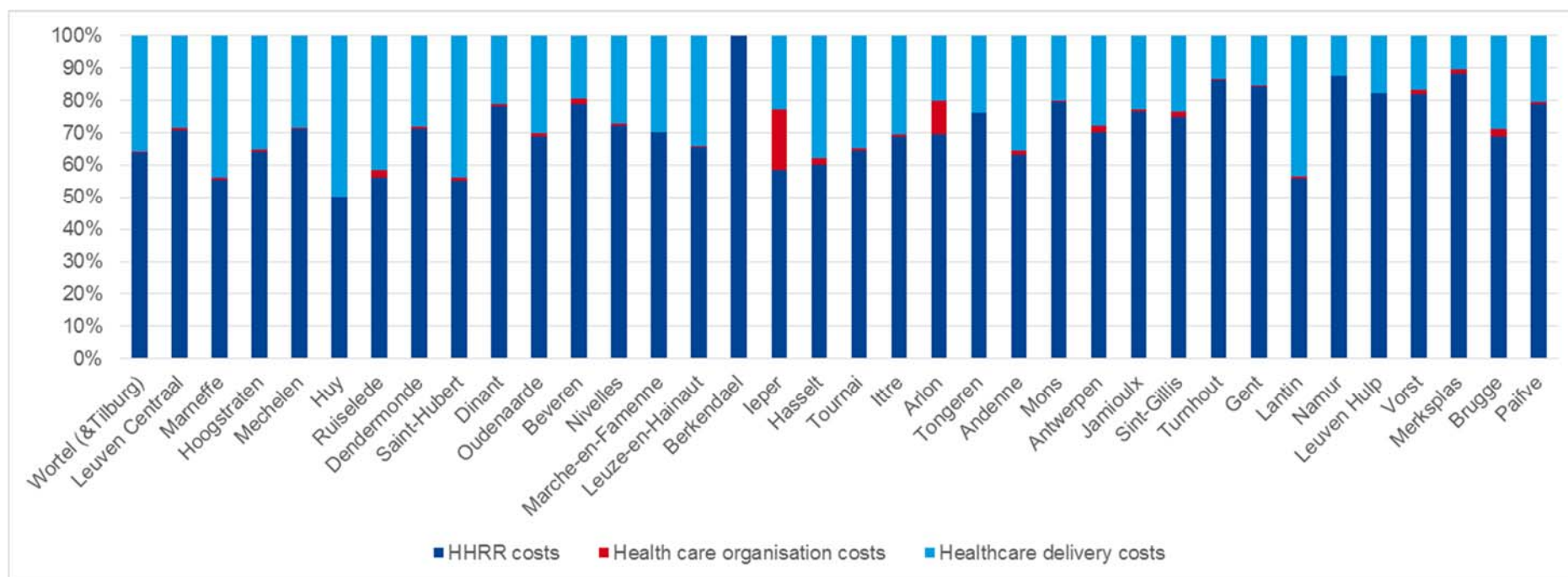
Figure 2 – Mean per capita cost per prison in 2015





Total costs were decomposed by the three categories previously explained in order to evaluate their relative importance (see Figure 3). While there is variation in relative importance between prisons, the figure illustrates that in all cases human resources represent the largest proportion of costs, followed in some cases closely, by costs of health care delivery (e.g. Huy, Marneffe, Saint-Hubert or Lantin). Human resources costs and health care delivery costs will be explored further in the next sections of this chapter.

Figure 3 – Relative importance of different types of cost per prison

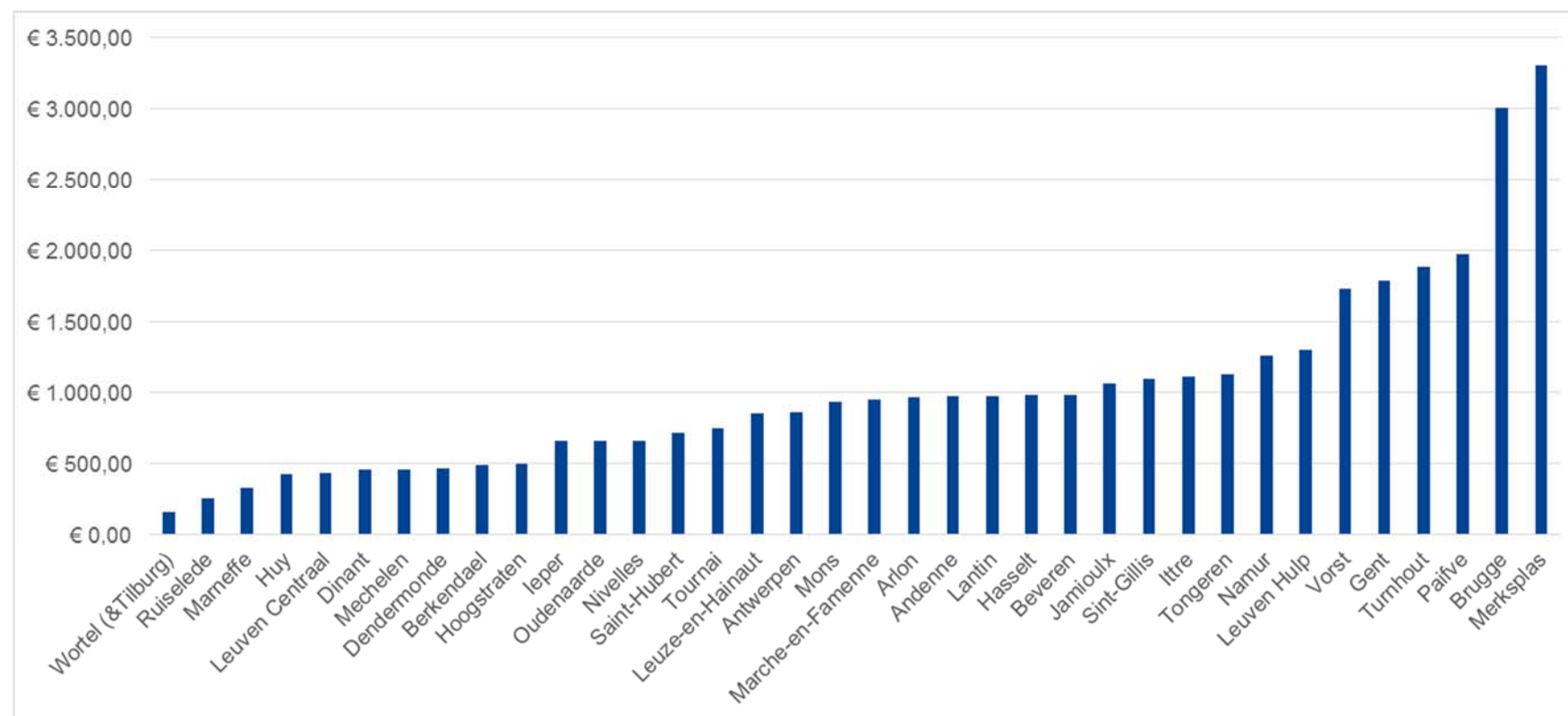




3.2.1.1 Nursing costs

Looking first at the per capita costs per nursing care per prison, we can see important variations (see Figure 5). These costs ranged from a minimum of €257 in Ruiselede to a maximum of €3.304 in Merksplas (Wortel & Tilburg and Paifve excluded). The overall mean per capita nursing costs were €1.013 (SD €666).

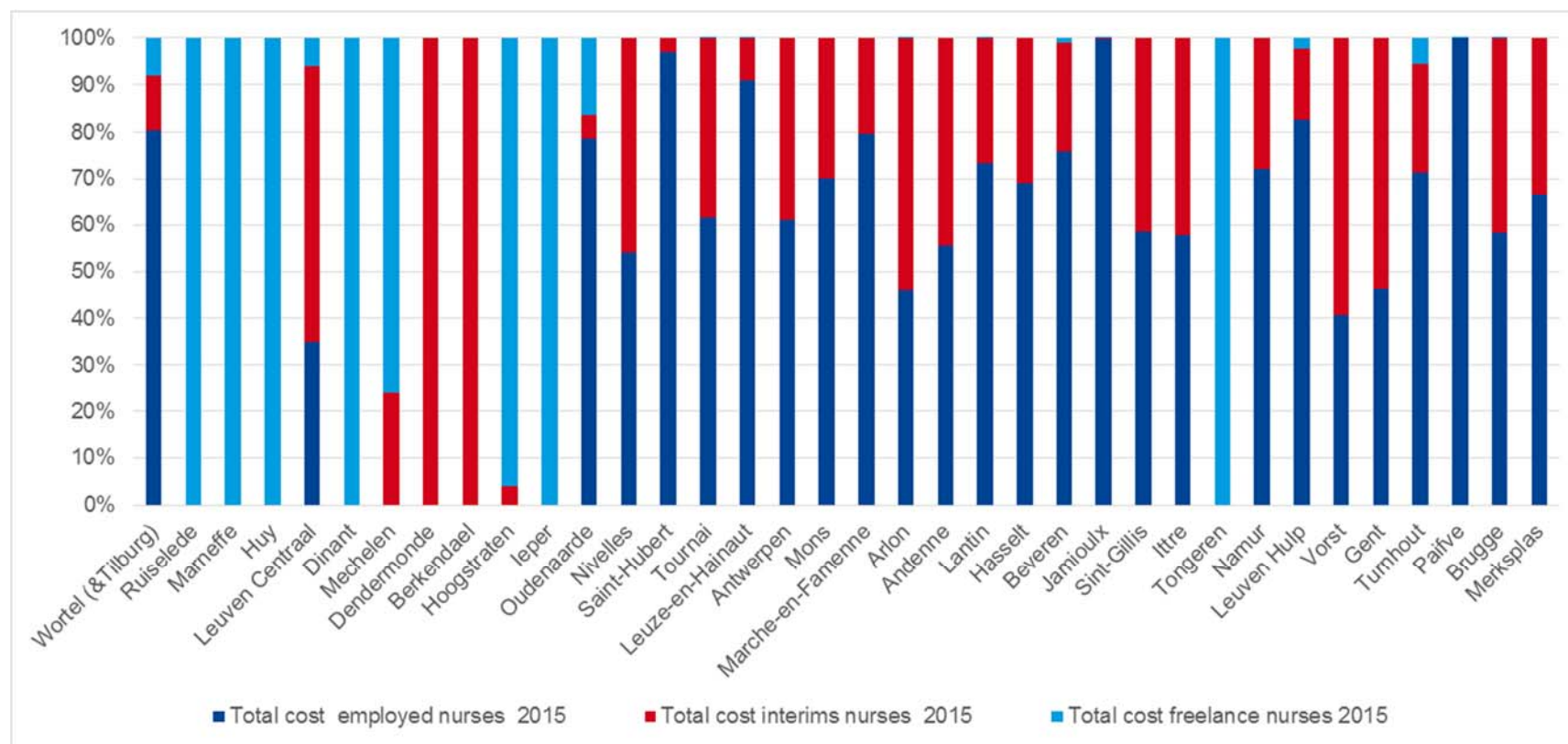
Figure 5 – Mean per capita nursing costs per prison





As shown in Figure 6, there are differences also in terms of the relative weight given by the different prisons to permanent staff versus interims. Some prisons such as Ruiselede, Marneffe, Huy, Dinant, Ieper and Tongeren used in 2015 only freelancer nurses, while other such as Dendermonde or Berkendael used exclusively interim nurses.

Figure 6 – Nursing force composition per prison



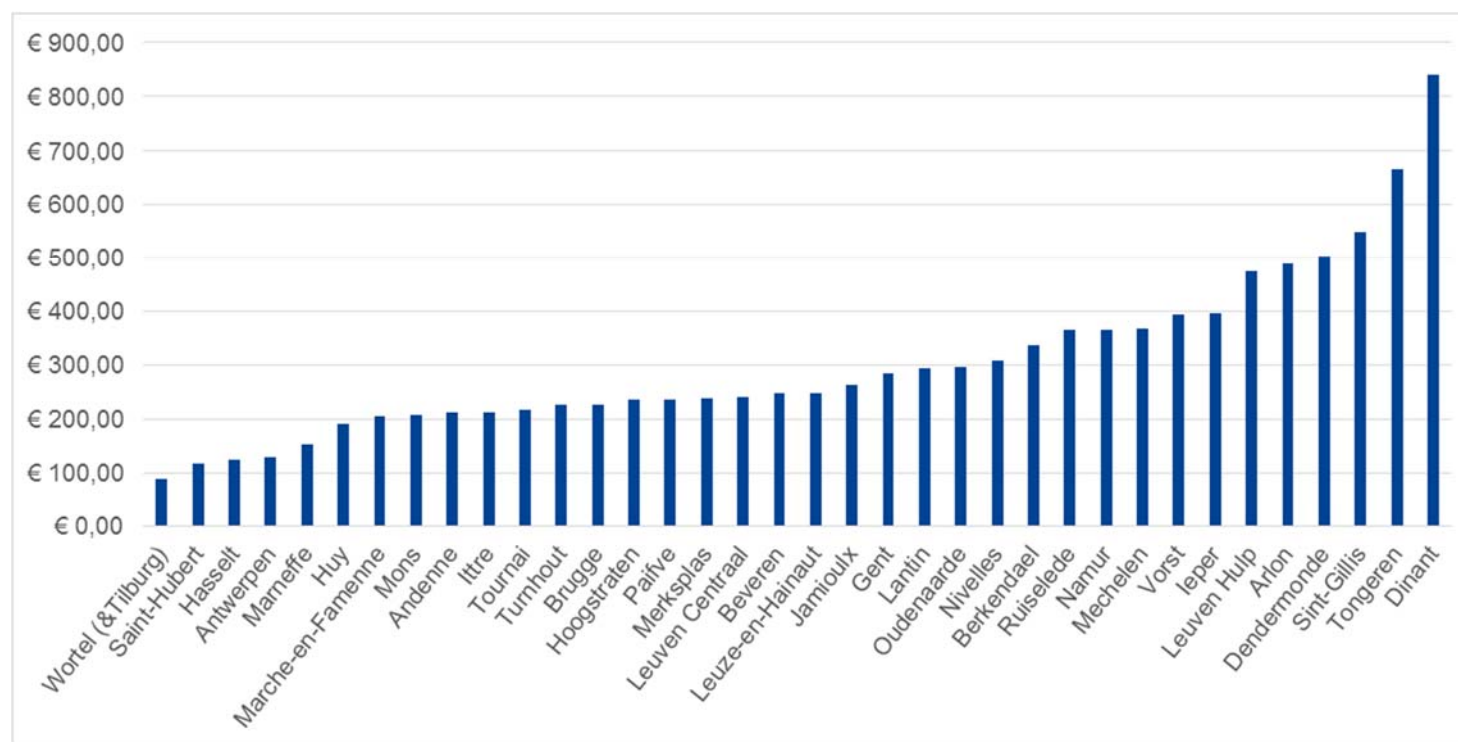


3.2.1.2 GP costs

Variations in per capita costs remain when looking at GP costs per prison (as seen in Figure 7). Costs ranged from a minimum of €117 in Saint-Hubert to a maximum of €841 in Dinant (Wortel & Tilburg and Paifve excluded). The overall mean per capita GP costs were €313 (SD €155).

In this case, only 5 prisons (Lantin, Vorst, Arlon, Dendermonde, and Saint-Gilles/Sint-Gillis), relied to a certain extent on “employed” GPs, with the large majority of costs (90 %) reflecting the use of freelancers.

Figure 7 – Mean per capita GP costs per prison





3.2.1.3 Psychiatric costs

Regarding psychiatric care per prisoner, data from 2015 appear to show that 10 prisons (29% of all Belgian prisons) do not incur in any such costs, despite the fact that mental problems are thought to be highly prevalent in prisons and not only limited to internees (patients categorized as mentally ill)⁷⁻⁹. However, when these data were compared to those registered in EPICURE, it became clear that some psychiatric consultations were being held in those prisons where no costs were captured. Indeed, our field visits revealed that, in the cases of Beveren, Hoogstraten and Leuven Centraal, the PSS (psychosocial services) psychiatrists were solicited when a psychiatrist consultation was necessary. Since their main responsibilities are legal and social and not medical, their costs are not reflected under the “medical bills” of the FPS Justice. Our interviews also revealed that when prisoners from Mechelen needed to see a psychiatrist, the psychiatrist of Leuven Hulp was used, so the costs may have been billed for just one of these two prisons (i.e. Leuven Hulp).

While these explanations may tackle some doubts that came up during our analysis, they mainly highlight the serious data limitations faced at the time of this research. More importantly, they illustrate the fact that the costs here used for Psychiatric services are likely to be an underestimation of the “real” costs.

With these important limitations in mind, our figures show mean psychiatric care cost per prisoner (Wortel & Tilburg and Paifve excluded) of €138 (SD €172).

As expected, prisons having mentally ill offenders (internees), showed higher mean per prisoner costs, when compared to those without it.

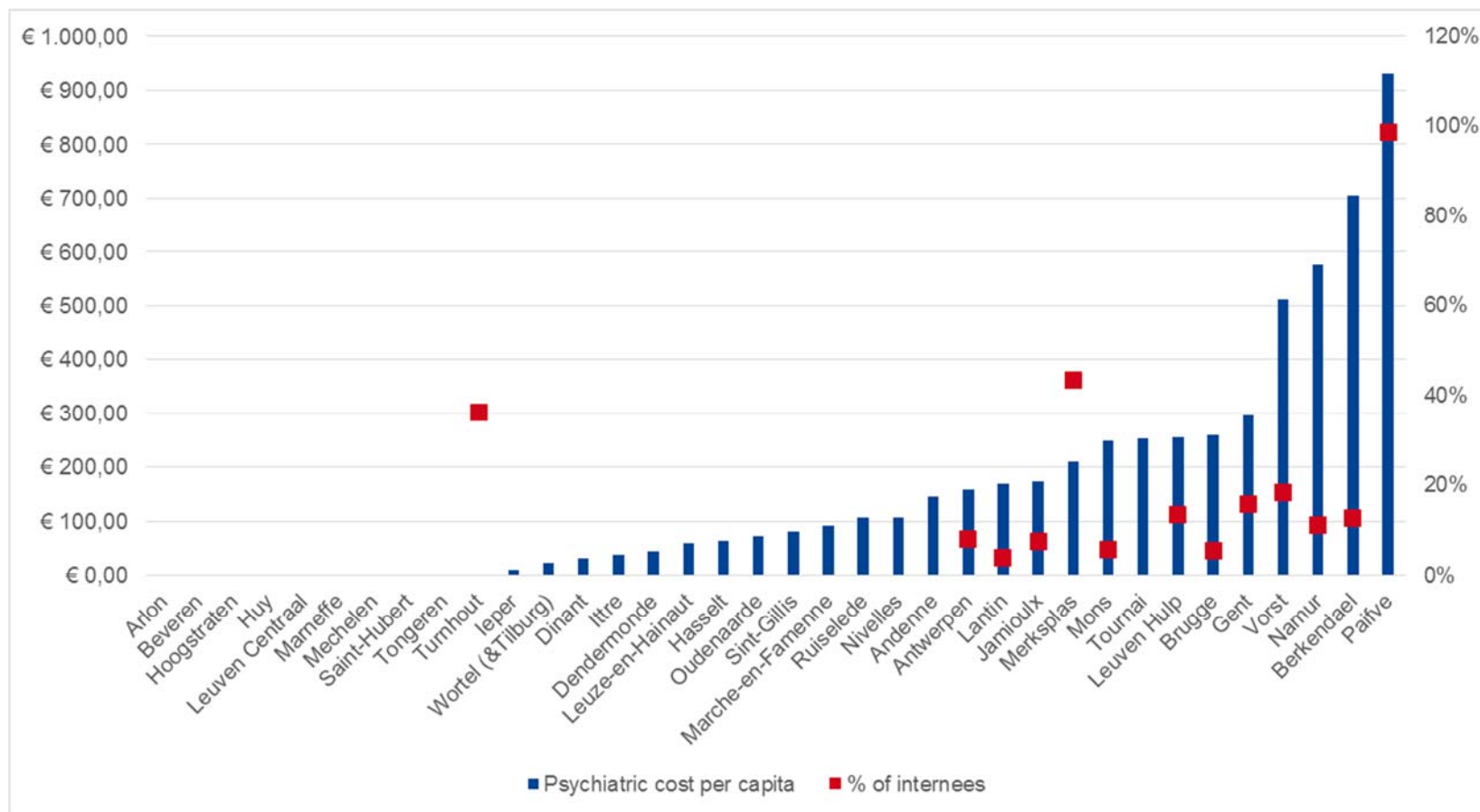
An overview of these costs is presented on the bar chart of Figure 8. The axis on the right helps to illustrate the percentage of mentally ill offenders in each prison (represented in red). When the number of mentally ill offenders was 0 or close to 0 (<0, 5%), no percentage point was represented in order to facilitate the visual separation between prisons with and without this type of prisoner.

The prison of Turnhout appears to be a special case. This prison has over 36% of mentally ill offenders, but no costs for psychiatric costs were registered in the 2015 billing data. A clear explanation for this is missing. In contrast with this, the prison of Tournai, with no internees, still incurred in important psychiatric expenses, above the Belgian mean.

Finally the prison of Berkendael showed very high psychiatric expenses even when their percentage of internees is not that high (12, 6%).



Figure 8 – Mean per capita psychiatric costs per prison





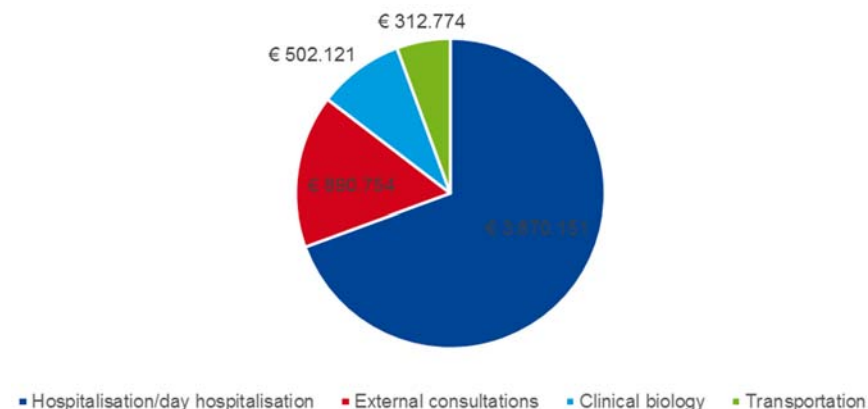
3.2.2 Health care delivery costs

From the 2015 expenditure on health care delivery costs (€15.811.313 overall), €5.575.801 represented the necessary costs to treat inmates outside of the prison walls (i.e. hospitalisations, external consultations, transport and clinical biology). The split of these costs is provided in Figure 9. The majority of these cost is induced by hospitalizations (69%). Other (more limited) costs are linked to external consultations (16%), clinical biology (9%) and transportation (6%).

It is important to highlight that the costs linked to transportation here captured only represent a small proportion of such costs. This is due to the fact that an important number of transfers are done by the police but no detailed data is available to know the proportion of those used purely for medical purposes. Thus, the figures here presented represent only transports specifically done by ambulance and by taxi (the latter when it is clearly specified that it is only for medical reasons). Similarly, no costs linked to the security guards required for medical transfers could be analyzed.

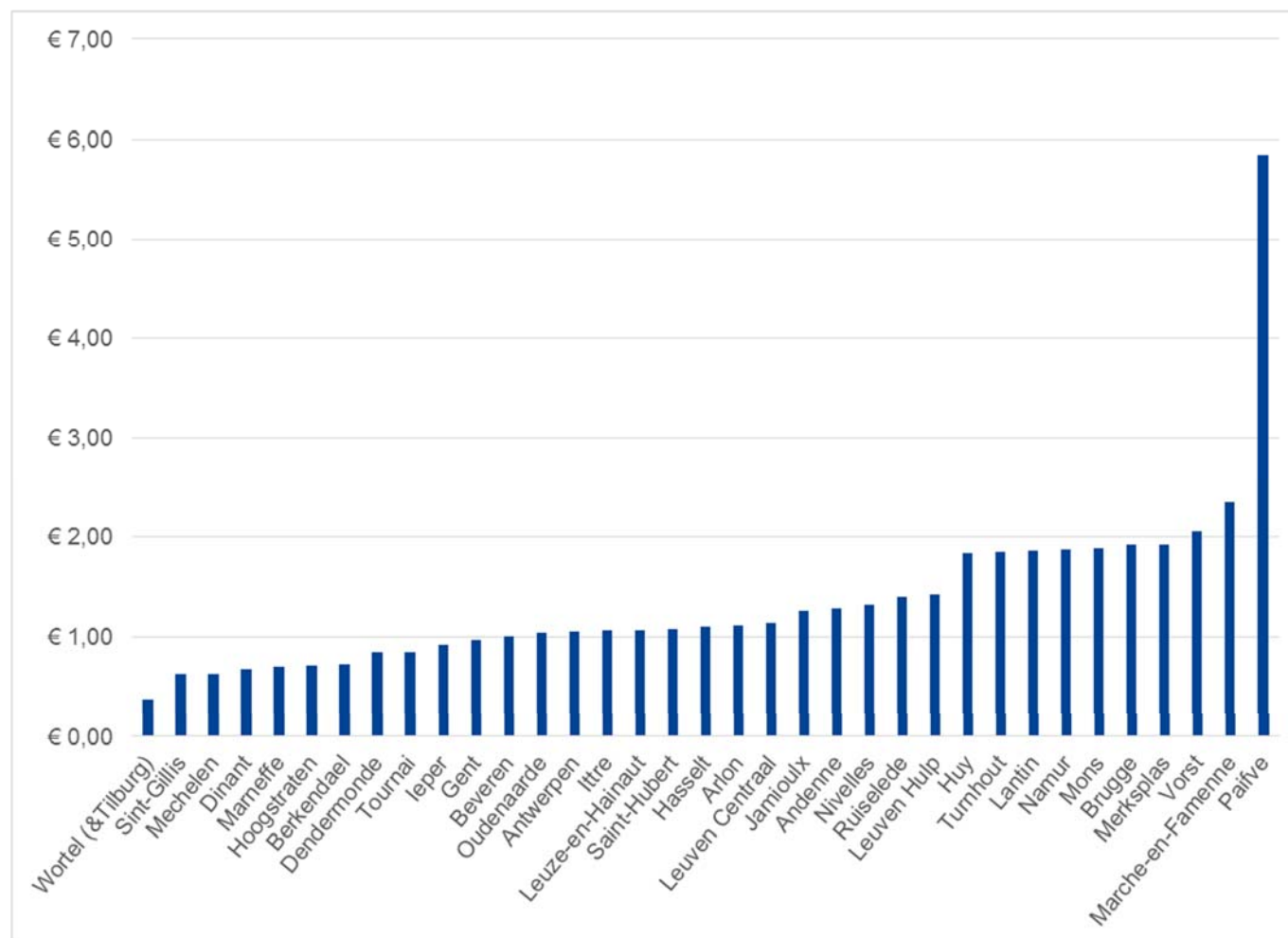
The remaining €10.235.512 represented costs such as pharmaceutical costs, costs of magistral formulae, orthoses and prostheses or honoraria for local pharmacists.

Figure 9 – Overview of the prisoners' health care delivery costs extra-muros (excludes ankle bracelets and prisoners on leave)



3.2.3 Pharmaceutical Costs

Although the overall yearly pharmaceutical costs are thought to be of the order of €6.000.000, these were difficult to separate in the accounting data from other pharmacy related costs such as costs of magistral formulae, anesthetics, orthoses and prostheses or consumables. Overall, these costs together amounted to €8.427.324 in 2015. The average daily cost per capita in Belgian prisons for pharmaceuticals in 2015 was of approximately €1,26 (SD = 0,47), with large variations ranging from a low of €0,63 in Saint-Gilles/Sint-Gillis to a high of € 2,35 in Marche-en-Famenne (Wortel & Tilburg and Paifve excluded). Data for Tongeren on this regard was missing and thus, the prison is not presented in the graphic (see Figure 10).

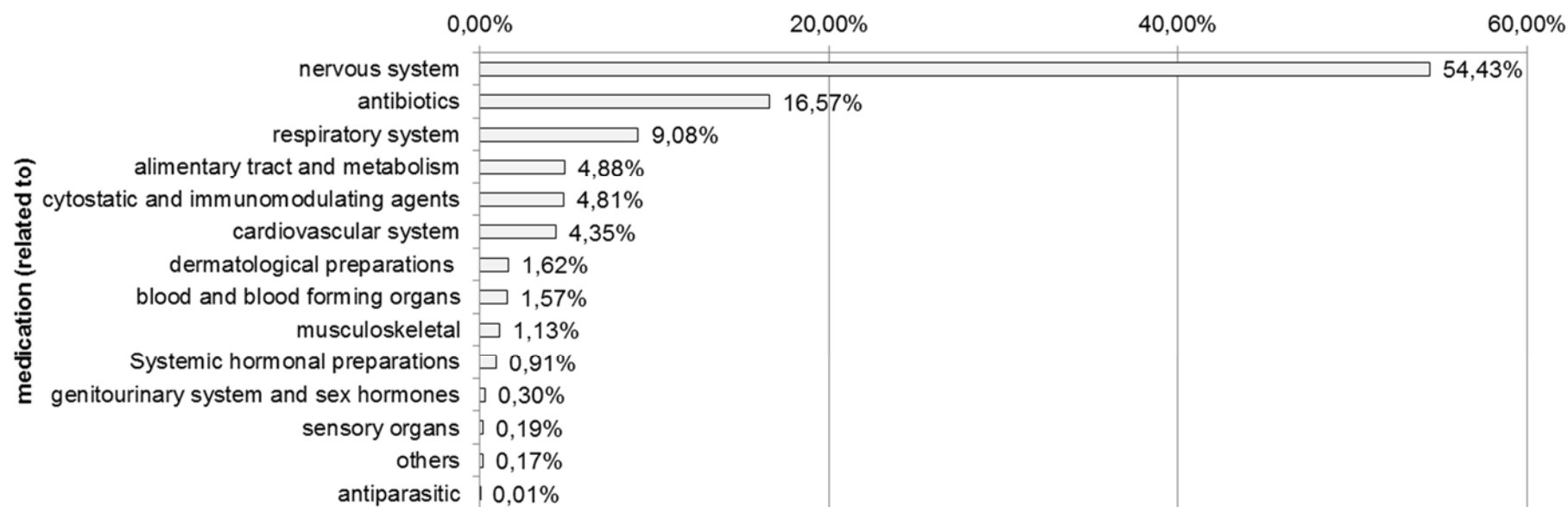
**Figure 10 – Overview of the mean per capita daily cost of pharmaceuticals per prison – 2015**



Internal billing data from the FPS Justice for the year 2014 shows that most of the pharmaceutical costs incurred in were for reimbursed medication (87%)^d. Reimbursed medication can be separated into 14 groups, as shown in Figure 11. The three principal budget lines were on that year 'medication for the nervous system' (54,4%), 'antibiotics' (16,6%) and pharmaceuticals

for the 'respiratory system' (9,1%). Other important groups (4-5%) include medication for the 'alimentary tract and metabolism', 'cytostatic and immunomodulating agents' and pharmaceuticals for the 'cardiovascular system'.

Figure 11 – Proportion of the budget per pharmaceutical groups (ATC1)



^d Medication that can be acquired without a prescription (e.g. paracetamol)



3.3 Costs of healthcare provision in Belgian prisons by line of care

3.3.1 First line versus second line healthcare costs

Although splitting the costs as previously done between human resources, organisation and delivery of care is a common and logical way to look at funding given that different budget lines are often available for different types of costs, a further way to look at current health care costs for inmates would be to split costs between first line and second line care. This provides a very informative vision from an organisational perspective, which will be helpful later when looking at the different health care scenarios proposed.

Overall, first line health care costs amounted in 2015 to € 14.021.486 (33% of all costs spent in the care of inmates). Most of these costs accounted for nurses (€ 10.010.408), followed by GPs (€ 3.221.580). The remaining 789.498 were spent in physiotherapists and other supporting personnel.

Second line costs in 2015 were € 8.161.569, 19% of the total costs spent in prisoners. From these, a large proportion were spent extra muros (€ 5.434.837), while € 2.726.733 are spent intra-muros on specialist, nurses working at the CMCs or medical CMC guards. As already mentioned, no full costs of transport or security required for medical purposes were available at the time of our analysis.

3.3.2 Mental healthcare costs

Mental health costs cannot easily be linked to either first line or secondary line care since it is care offered in both settings. In total, costs on mental health for prisoners within prison walls were € 7.304.890, (17% of total costs of the FPS Justice for inmates), with freelancer and employee psychiatrists costing € 1.514.091, nurses working in the annex amounting to € 2.414.930, and the remaining of the annex “care team” costing € 3.375.869.

As previously discussed, psychiatric costs are likely to be underestimated given that some PSS psychiatrist appear to perform consultations when required in prisons where there is no psychiatrist available. The costs linked to such consultations are not captured in the “medical” bills of the FPS

Justice, given that the responsibilities of the PSS team are mainly juridical-social.

Table 1 provides the split between 1st line, 2nd line and other health care costs.

Table 1 – Overview of 1st vs 2nd line healthcare costs and other costs for prisoners in Belgium 2015

Health care prisoners in Belgium 2015	Total (€)
1st Line care costs	€ 14.021.486
2nd line care costs	€ 8.161.569
Mental care - intramuros	€ 7.304.890
Dental care	€ 1.628.286
Pharmacy related costs	€ 10.511.320
Other	€ 1.432.597
TOTAL	€ 43.060.148

The large differences between prisons previously seen, remained when looking at costs from this perspective.



4 DISCUSSION

A number of limitations must be acknowledged.

First, costs related to health in this chapter are only linked to 'the treatment of physical or mental diseases or illnesses'. Other important aspects of health, like prevention and promotion, are not included in this chapter.

Second, the data used comes primarily from accounting sources and as a consequence the existence of related codes, late payment requests, or late reimbursements may have deviated the absolute figures here mentioned from the real costs. Nevertheless, the comparative exercise between prisons and the relative variations between them should have suffered less from such limitations.

Third, patient specific diagnosis data as well as detailed patient characteristics (such as age) which would have been required to further investigate the key cost drivers in this field, were missing. The lack of such detailed data made it impossible for us to make the necessary adjustments to the data to further explore the large variations found in costs, and impeded the development of an activity-based or capitation-based funding model (see section on payment modalities in chapter on scenarios). Nevertheless, individual patient data available via EPICURE made it possible to look at potential factors which could explain medication and health care (consultations) use. The results from such analysis are available in a separate chapter of this report.

However, when comparing mean per capita costs per prison and per capita health care usage (i.e. consultations) per prison¹⁰, important differences were seen and the correlation between both appeared to be weak. This emphasizes the need for a better and more complete registration system.

Finally, our analysis of the psychiatrist costs, as well as the limited registration of transport, security costs linked to transfers (police and internal transport between prisons not captured) or fixed costs (infrastructure-related costs) indicate that the overall costs here analyzed are likely to be an underestimation of the real costs. So far, there is no central database available for these numbers. Therefore, the overview here provided should be interpreted with caution, purely as a first approximation to the real costs. If the financial aspects of healthcare is to be studied in the future, the authors advice that a comprehensive database is produced by centralizing all available data. Moreover, when this theme is further studied, a prospective research design could be used with an inclusion of all aspects of a contemporary definition of health. There should be particular interest in both preventive as curative measures, social well-being and the mapping of prisoner characteristics like age and frequent pathologies/diagnoses. It would be valuable for a future study to get an insight into the evolution of the budget and the different cost categories both globally and at an individual prison level.

Despite these limitations, our analysis shows a very large variation on per capita costs between prisons. Besides variance based on individual prisoner characteristics, this could be an indication that an aligned policy across all prisons is missing. A lack in shared policy could lead to differences in access to healthcare services for prisoners and induce additional costs ¹¹.



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