

ANALYSIS OF SUBSTITUTION PROCUREMENT AGREEMENTS AND FINANCIAL IMPACT IN A UNIVERSITY HOSPITAL STRUCTURE

Guichard L¹, Delion M¹, Monnier M¹, Vergne H¹, Ribault M¹, Degrossat Theas A^{1,2}, Paubel P^{1,2}, Hehn M¹

¹Service Évaluations Pharmaceutiques et Bon Usage (SEPBU), Agence Générale des Équipements et Produits de Santé (AGEPS), Assistance Publique Hôpitaux de Paris (AP-HP), Paris, France

²Faculté de pharmacie de Paris, Institut Droit et Santé, Inserm UMR S1145, Université Paris Cité, Paris, France

Background

- The number of pharmaceutical supply chain disruptions is increasing these last years in France. To prevent the consequences of shortages, our university hospital structure establishes Substitution Procurement Agreements (SPA) with an alternate supplier. In a previous study led in our establishment¹, we showed that the number of SPA contracted had been threefold increased between 2016 and 2019.
- These agreements are set up with costs to be paid by the defaulting holder. However the overcost is borne by the hospital if the defaulting supplier is regarded as not responsible for the shortage, like during the Covid-19 crisis.



The aim is to analyze retrospectively the SPA contracted in our hospital between 2019 and 2021 and to quantify their financial impacts, especially for our hospital due to the Covid-19 crisis.

Methods

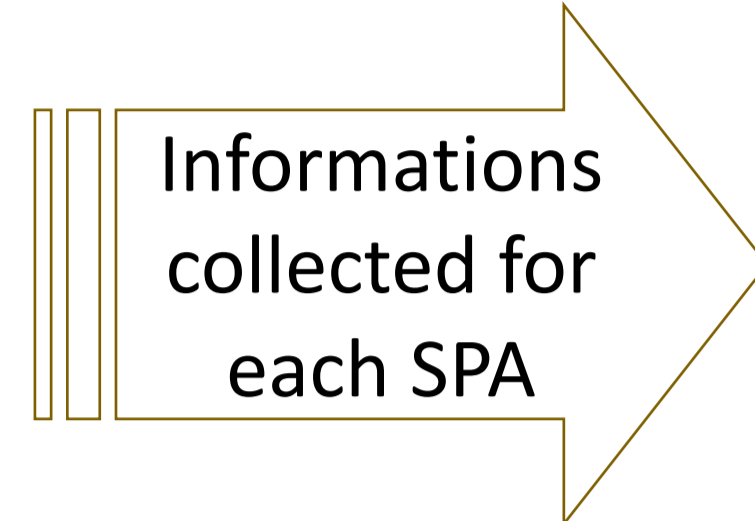


Analyse period : between 2019 and 2021



Data collected from :

- SPA tracking file Excel[®] filled over time by our service
- Management Software for consumption data (SAP[®])



- ☐ Type of drug (galenic form, ATC class)
- ☐ Substitute medication
- ☐ Defaulting and alternate holder's prices
- ☐ Amount used

- ☐ Disruption delay
- ☐ Overcost borne by hospital or defaulting holder
- ☐ Financial impact

Results

Figure 1 : Number of SPA for which the additional cost is charged to the defaulting holder or to the hospital between 2019 and 2021

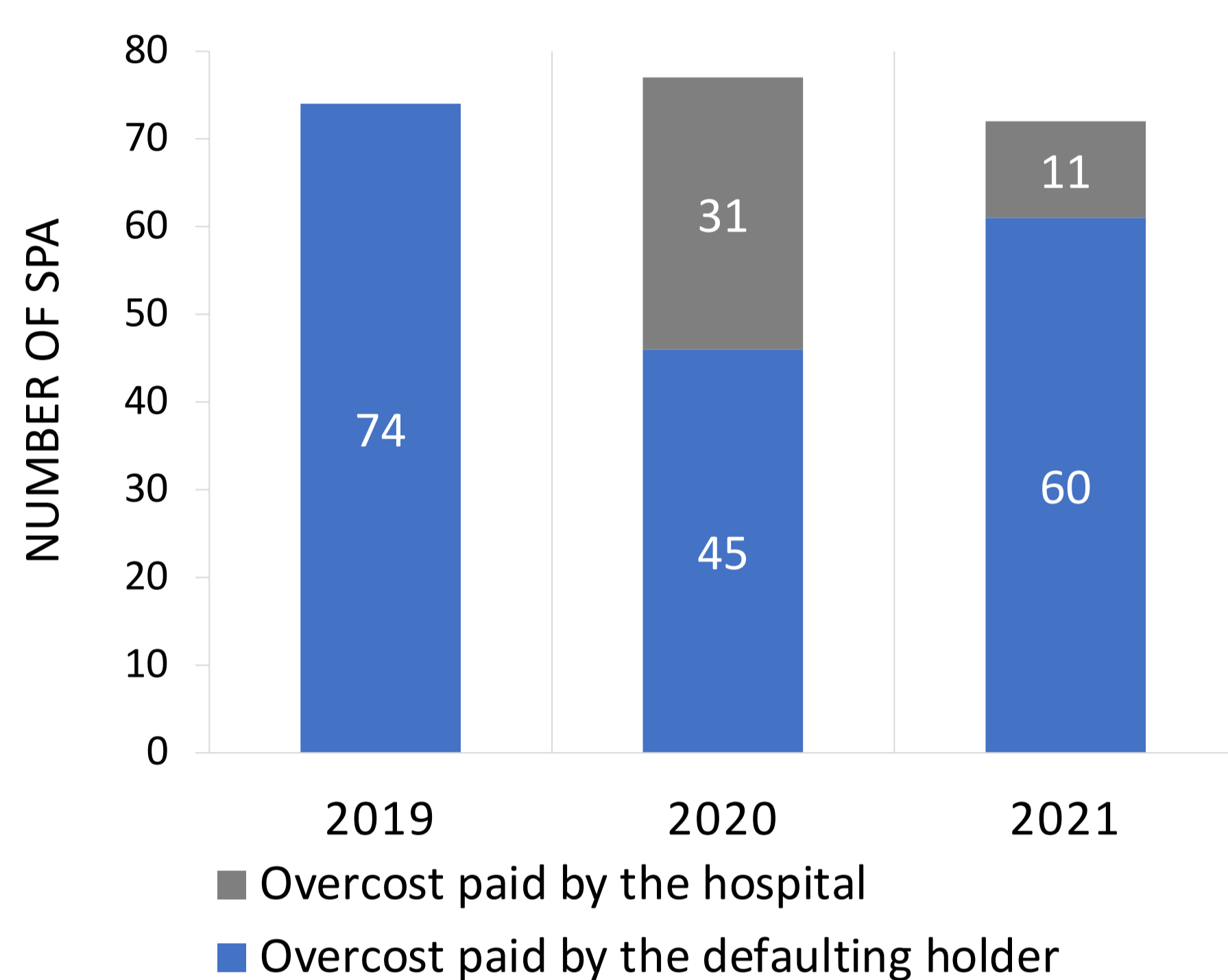


Figure 2 : Galenic form of the drugs in shortage

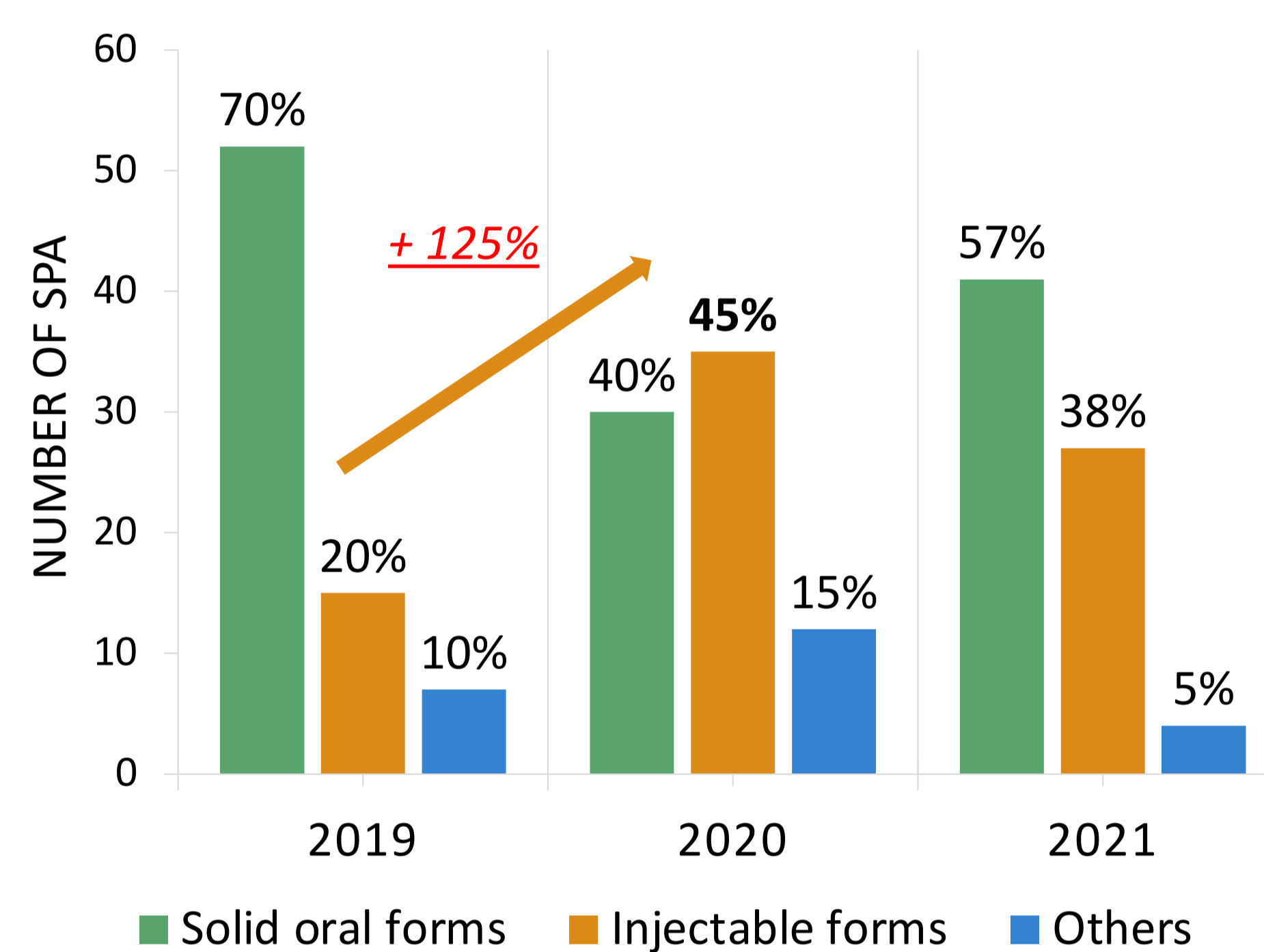
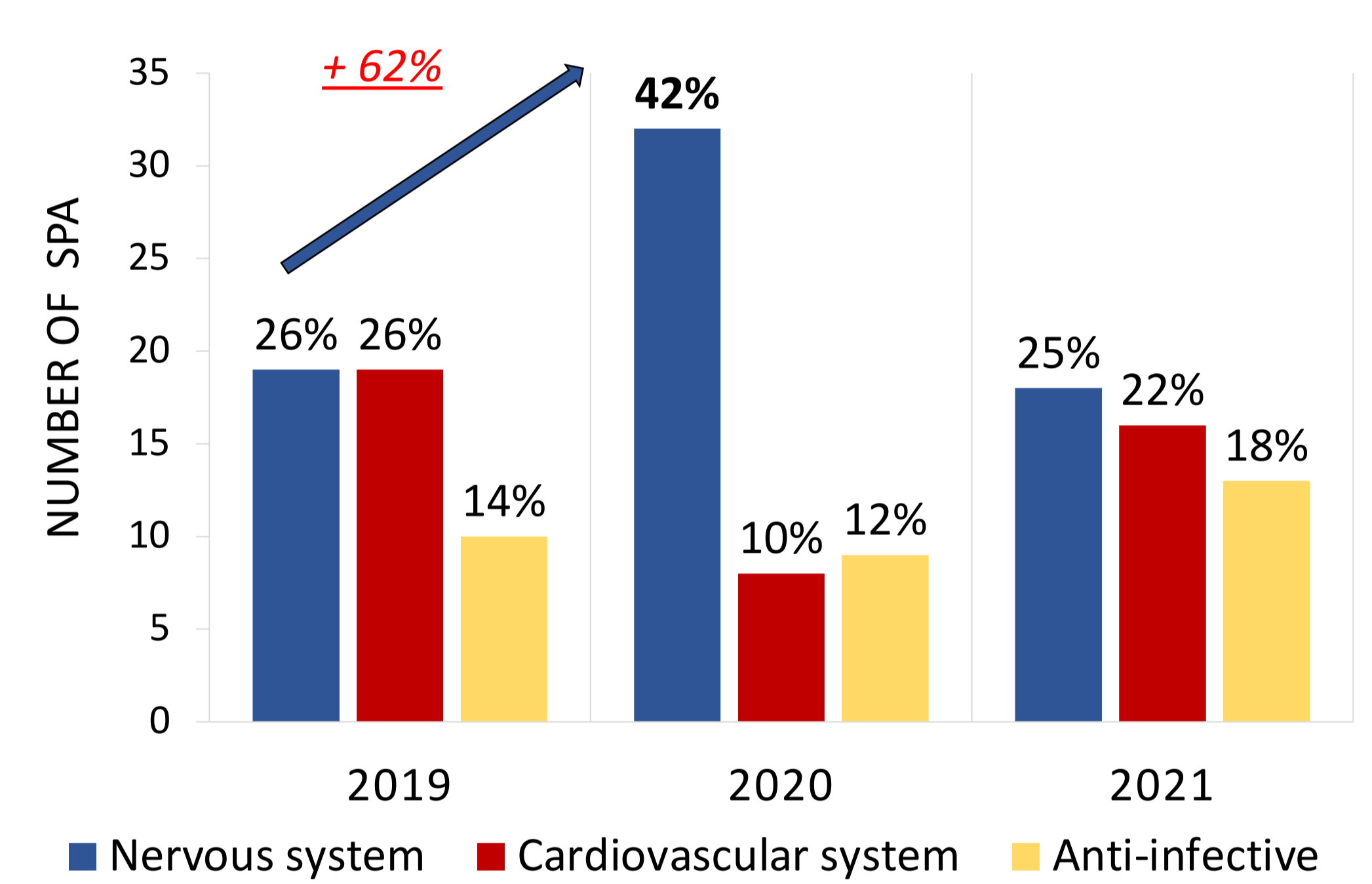


Figure 3 : Main ATC classes affected by shortages



DESCRIPTIVE ANALYSIS

- The SPA involved 75% of generics and the average period is 155 days [1 – 934].
- Between 2019 and 2021, 221 SPA have been contracted in 3 years with a constant average around 70 SPA per year (Fig.1).
- The SPA affected mainly oral solid forms except in 2020 where an increase of injectable forms is noticed. This rise comes primarily from injectable medications used in intensive care units (Fig.2).
- A recurrence is observed on the main ATC classes affected by shortages over the years : Nervous system, Cardiovascular system and Anti-infective for systemic use. The shortages affected nervous system's drugs rose in 2020 due to the significant increase of sedative (Midazolam) and anesthetic drugs (curares, sufentanil) used during the Covid-19 crisis (Fig. 3).

Figure 4 : Comparison of median unit drug price (excluding taxes) between defaulting and alternate supplier

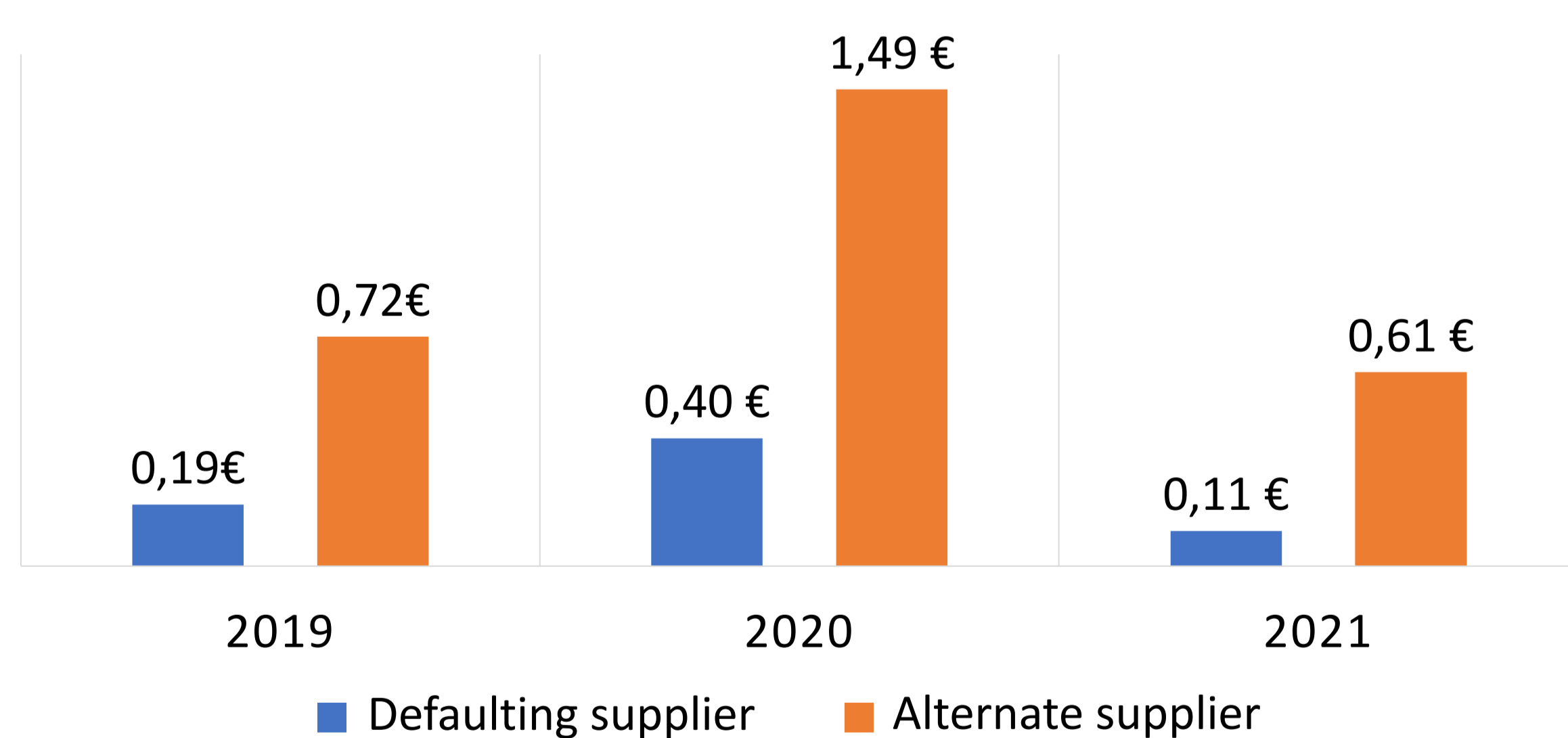


Table 1 : Financial impact of the overcost applied by the alternate supplier for the defaulting holder or the hospital

	Paid by the defaulting holders	Paid by the hospital	Total
2019	1 406 585€	0€	1 406 585€
2020	793 000€	3 007 000€	3 800 000€
2021	432 000€	388 000€	820 000€

In our University Hospital Structure, annual drug budget is around 1,1 billion euros.

FINANCIAL IMPACT



Average percentage price's increase = 270%



- Shortages affect mostly low-cost drugs (Fig.4). Less than 10% of the shortages affect medicine with a price higher than five euros. The high proportion of low-cost generics in shortage shows a correlation between low prices and supply tensions.
- In 2020, more than 70% of the overcost paid by the hospital was due to the shortages of nervous system injectable's medicines (Midazolam, Curares, Ketamin, Sufentanil and Remifentanil) for which the substitute drug price rose on average by 480%.
- The others mainly drugs causing an overcost were anti-infective injectable's medicines as cefotaxim, piperacillin, amoxicillin or linezolid.

Conclusion

The covid-19 led to an increase of injectable drug shortages and an important financial impact for the hospital. However, a stabilisation of the number of SPA is observed these last years. This can be explained partly by French legislation, which requires since 2021 that pharmaceutical companies, selling medicinal products of major therapeutic interest, have a stockholding obligation equal to at least 2 or 4 months.

¹Drug Supply Chain Disruption: Retrospective Analysis of Substitution Procurement Agreements in a University Hospital Structure. Mouret, V.; Anfosso, M.; Vergne, H.; Ribault, M.; Degrossat-Théas, A.; Hehn, M.; Paubel, P. *Value in Health* ; 25(1):S151, 2022.