


# Hospital pharmaceutical expenditure: a need to focus on an 'obscure' and growing component of pharmaceutical spending

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## INTRODUCTION

Pharmaceutical expenditure is an important component of total health expenditure, accounting for approximately one-sixth of the total and representing the third largest health spending component in European Union countries after inpatient and outpatient care.<sup>1</sup> The trend of outpatient (or retail) pharmaceutical expenditure has been increasing over time in most OECD (Organization for Economic Co-operation and Development) countries.<sup>2</sup>

While outpatient pharmaceutical expenditure is systematically captured and reported by international databases (e.g., OECD System of Health Accounts (SHA), Eurostat Database, WHO), expenditure on pharmaceuticals that are administered through the hospital setting (henceforth 'hospital pharmaceutical expenditure') remains a rather 'obscure' and relatively underdeveloped part of international healthcare statistics. This omission can be partially attributed to the fact that during recent decades (the period that coincides with that of the development of the SHA), in-hospital pharmaceuticals, along with capital and labour,<sup>3</sup> were considered inputs to the production function of hospital services. For this reason, metrics have usually been focused on the final product (services) rather than systematically disaggregating expenditure for partial inputs of the production process.

This, however, constitutes a rather outdated approach to the measurement of in-hospital expenditure, as in recent years for a variety of reasons, hospitals in many countries have evolved to become a major channel for the distribution of innovative (and expensive) drugs.<sup>4,5</sup> In this sense, a refocus on hospital pharmaceutical expenditure is imperative in order to assess the current situation, foresee future needs

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and, if necessary, establish appropriate financing and evaluation mechanisms under evidence-based pharmaceutical policies that ensure patients' access to optimal treatment choices.

## HOSPITAL PHARMACEUTICAL EXPENDITURE TRENDS IN EUROPE: AN OVERVIEW

Currently, there is a sparsity of evidence regarding the magnitude and trends of hospital pharmaceutical expenditure that could be used for cross-country comparisons or benchmarking. We performed an exploratory analysis to retrieve publicly available data on pharmaceutical spending for European countries, by reviewing the literature for published evidence in the form of peer reviewed papers, 'grey' publications, official reports or country-specific data available from official web-based sources (e.g., organisation websites) from 2010 onwards. For each country we aimed to (a) calculate hospital pharmaceutical expenditure as a share of total spending on pharmaceuticals (inpatient and outpatient) by third-party payers, and (b) identify trends in hospital pharmaceutical expenditure (namely the proportional change

between years and the compound annual growth rate) by comparing point estimates of expenditure referring to different years, where available. We retrieved data for a total of 13 European countries (table 1). For reasons of comparability, the respective country-specific trend in outpatient pharmaceutical expenditure in the corresponding years is also reported. The data concerning both inpatient and outpatient pharmaceutical expenditure were extracted from the same source.

## DISCUSSION

A degree of heterogeneity in data reporting was observed, mainly with respect to the reference year(s). Although the available data are not in the same systematic and detailed form in which outpatient pharmaceutical expenditure have been reported throughout the years (which itself, in the case of hospital pharmaceutical expenditure, highlight both an issue and a need) some important conclusions can be drawn.

Hospital pharmaceutical expenditure constitutes a considerable part of total expenditure on pharmaceuticals, accounting for 20–50% of the third-party payers' drug spending in the European countries included in the sample. The variations of the ratio and the proportional changes in pharmaceutical expenditure (inpatient, outpatient and total) between European countries highlights, among other things, countries' different preferences/strategies regarding the role of hospitals as dispensing channels.<sup>6</sup> Between-year comparisons reveal a clear trend of increases in hospital

**Table 1** Estimates and trends of hospital and outpatient pharmaceutical expenditure in European countries

Country; reference years	Percentage (%) of hospital PE to total PE (reference year)	Change in hospital PE, %	CAGR of hospital PE, %	Change in outpatient PE, %	Change in total PE, %
Belgium; 2013-2019 <sup>9</sup>	49.3 (2019)	88.2	9.5	1.1	31.1
Denmark; 2012-2020 <sup>10</sup>	47.5 (2020)	51.0	4.9	6.0	23.5
Finland; 2012-2018 <sup>11</sup>	22.2 (2018)	56.9	6.7	12.6	19.3
France; 2010-2014 <sup>12</sup>	20.0 (2014)	6.8	1.6	-3.0	-1.5
Germany; 2010-2014 <sup>12</sup>	21.4 (2014)	-2.3	-1.1	2.3	1.0
Greece; 2012-2019 <sup>13</sup>	23.5 (2019)	-21.6	-3.4	-32.5	-30.2
Ireland; 2012-2016 <sup>14</sup>	21.2 (2016)	38.5	8.5	-2.8	3.8
Italy; 2011-2019 <sup>15</sup>	38.1 (2019)	88.1	8.2	-4.3	17.8
The Netherlands; 2010-2014 <sup>12</sup>	28.4 (2014)	41.7	9.2	-5.6	1.9
Poland; 2010-2014 <sup>12</sup>	33.5 (2014)	31.0	7.0	0.7	5.7
Spain; 2014-2016 <sup>16</sup>	38.3 (2016)	18.3	8.8	5.9	10.3
Sweden; 2010-2016 <sup>17</sup>	23.5 (2016)	16.2	2.5	8.9	10.5
UK; 2011-2020 <sup>18</sup>	55.9 (2020)	179.9	12.1	4.4	60.7
<b>Average</b>	<b>32.5</b>	<b>45.6</b>	<b>5.7</b>	<b>-0.5</b>	<b>11.8</b>

CAGR, compound annual growth rate; PE, pharmaceutical expenditure.

pharmaceutical expenditure across all countries in the sample, with the exception of Germany (where it declined slightly) and Greece, where it declined by 21.6% from 2012-2019, probably as a result of the country's fiscal adjustment programme.<sup>7</sup> On the other hand, there is a mix of trends regarding the evolution of outpatient pharmaceutical expenditure. Eight out of the 13 countries in the sample present increases, whereas the other five decreased outpatient spending. Overall, trends in total pharmaceutical expenditure in Europe reveal that hospital pharmaceutical expenditure has grown at a higher rate than outpatient pharmaceutical spending.

The underlying dynamics of the pharmaceutical market, driven by the changes in epidemiological and demographic trends as well as (if not primarily) by the advent of innovative and high-cost treatments in the last decade, particularly in therapeutic areas such as oncology and immunology, place a significant pressure on pharmaceutical spending internationally.<sup>2-8</sup> In-hospital and outpatient spending trends show that countries try to channel this demand mainly through the hospital setting, probably for reasons of monitoring the administration process (especially for drugs for severe and life-threatening diseases) and monitoring access to innovative treatments. Regardless of the actual motives, there has been an increase of hospital pharmaceutical expenditure, which calls for a new approach regarding policy formulation in this market.

Among other areas, policy measures could focus on the following issues. Firstly, the development of methodological guidance for systematically measuring, documenting (or routinely collecting) and reporting hospital pharmaceutical expenditure on the system of health accounts that each country follows. Secondly, the distinction between the medications that are used within the hospital setting as an input to the production function of hospital services (which are usually reimbursed through a diagnosis-related group system) and medications administered in the hospital for reasons of monitoring, for example, outpatients—which could be set in a separate budget and reimbursement process. Thirdly, the introduction

of forecasting systems that will take into account evolution in disease burden and advances in pharmaceutical technology. And finally, the use of novel access and reimbursement schemes for innovative pharmaceuticals, such as managed entry agreements, in an effort to increase the efficiency of spending.

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