Comparing factors influencing price elasticity of pharmaceuticals and value-based pricing across Europe and the USA

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Background and objectives

Price elasticity of demand (PED) is used to measure the percentage change in demand for quantity of a product based on a change in the product's price. Products with a price elasticity of 1 are said to be "elastic", whilst those with elasticities closer to 0 are said to be "inelastic" (1, 2). Consequently, there is typically reduced sensitivity of pharmaceutical products to price alterations, as there is necessary demand to maintain a patient's health, as well as fewer product alternatives (3). The objective is to explore the factors that influence pharmaceutical product uptake, including value-based pricing elements (VBPEs) in major European markets (France, Germany, Italy, Spain, and UK [England]) and the USA. Specifically, the research seeks to identify how these factors vary across different market archetypes, influencing the way stakeholders prioritise healthcare products.

Methods

The unique inelastic nature of pharmaceutical markets has led to the introduction of regulation to ensure supply at reasonable prices (4). For example, in some markets, treatment sequencing and guidelines may impact upon prescribing habits and uptake, whilst the availability of biosimilars may result in the introduction of policies. Payer stakeholders may also use measures to control rising drug costs viewed as excessive through VBPEs.

A targeted literature review was used to retrieve: 1) PED scores of pharmaceutical products to provide a baseline evaluation of price elasticity in the healthcare market; 2) possible factors or elements that influence PED; and 3) payer archetypes and market access variability between geographical regions in scope.

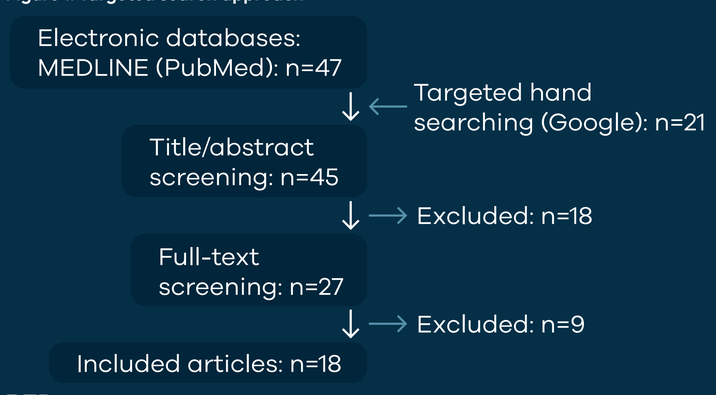
Search strategies for MEDLINE®, accessed via PubMed®, were created based on an analysis of subject heading terms and key words of relevant articles to determine VBPEs and factors influencing PED (Figure 1).

A targeted evaluation via hand searching of PED scores was conducted at a global level; value elements and factors influencing product uptake were identified across markets using thematic analysis ('Other' includes single study mentions around launch timings, use of contracting/tenders, patient demographics, and brand loyalty, disease perception/priority, drug class/MoA, and health insurance coverage) of the literature identified from the search strategy.

Comparative analysis was conducted across all markets for the top identified factors and value-based elements (VBEs) likely to influence PED market dynamics or product uptake.

Approach and Results Section 1

Figure 1: Targeted search approach



PED

The review confirmed the relative inelasticity of price volume for prescription drugs and treatments, given their necessity to patient health and wellbeing. From the literature identified, elasticity values ranged from -0.015 to -0.37 in quantity demanded as a result of price increase; elasticity may also vary according to drug type (3-9). As such, these results indicate that pharmaceutical product demand is largely independent of an increase in drug prices (Table 1).

Table 1: Price elasticity value for pharmaceuticals and healthcare services, as identified from literature

Source (Author, year)	PED value (3-9)
Young et al (2016)	-0.16
Gatwood et al (2014)	-0.015 to -0.157
Gemmill (2008)	-0.25
Manning and Maru (1996)	-0.18
Hughes and McGuire (1995)	-0.37
Manning et al (1987)	-0.14 to -0.10
Manning et al (1981)	-0.20

Table 2: Thematic analysis of included articles

Analysis	Number of articles
Comparative value versus other competitors	6
Availability of generic/ biosimilar substitutions	5
Value-based and/or pricing agreements	5
Prescribing habits/ guidelines	4
Level of reimbursement/ patient co-payment	2
Other	1

Results Section 2

Payer archetypes and market access variability

The review identified different criteria used by payers to make healthcare funding and reimbursement decisions. In Europe (EU), differences are categorised into several archetypes (10, 11). The archetype of a particular country dictates payer priorities, influencing which VBEs affect the uptake of pharmaceuticals. Specifically, market access in EU is heterogeneous due to the distinct value-based processes (12). In Germany and France, pricing and reimbursement decisions are primarily driven by clinical effectiveness and benefit, whereas England is driven by cost effectiveness, with the health technology assessment (HTA) process relying on quality-adjusted life years (QALYs) (10-13). In Italy and Spain, there is a regionalised approach, and stakeholders typically evaluate new therapies based on their overall budget impact.

Our review indicates that there is further distinction in EU between centralised and decentralised systems: In France and Germany, national-level (central) decisions promote formulary inclusion and hospital funding, whereas Italy and Spain use decentralised systems, whereby a national ceiling price is negotiated, but decisions on pricing, funding, and adoption are made regionally. In England, products are commissioned through the National Health Service (NHS), with local commissioning groups playing a more limited role in pricing and reimbursement decisions (13).

Until recently, the USA has been described as a "free-market" archetype due to the lack of value-based practices, as well as a mix of public and private health insurers. Recent introductions of the regulatory policies, such as the Inflation Reduction Act (IRA) (2022), have led to a paradigm shift in US pricing and market access (14, 15). Yet, these measures are limited. For example, the IRA only allows drug pricing negotiations 9 years following initial launch (16), and the policy is only applicable to public (Centers for Medicare & Medicaid Services [CMS]) plans, therefore private payers rely on internal processes to inform coverage decisions and price negotiations, which lack transparency and result in duplicated efforts (14). This is further complicated by the organisation of healthcare insurance providers across the market: CMS plans are federally administered, but reimbursement can vary at state level depending on coverage determination, whereas private insurance provider offerings vary between states. This results in heterogeneity in access and reimbursement costs across the US.

Factors and value elements influencing PED

The inelastic nature of drug products' PED has led to the introduction of regulation in several markets, with the common goal of efficient dispensing to meet demand, while ensuring reasonable pricing levels (4). Findings from our research indicated that countries in EU are more regulated and have lower drug prices than the US (4, 17, 18). Our research also highlighted the potential effectiveness of these policies in controlling market dynamics: France has the highest expenditure on pharmaceuticals within EU, yet the lowest number of regulatory policies or mechanisms (4, 18). A total of n=12 factors/value elements likely to influence PED market dynamics (7, 19-35) were identified (Table 2). Further analysis explored the impact of the top three factors/value elements on PED market dynamics via detailed review.

Consequently, proof of comparative added benefit versus existing products in major EU markets was deemed a priority. In Germany and France, comparative value was emphasised through added clinical benefit relative to current standard of care: a criterion critical to both Gemeinsamer Bundesausschuss (G-BA) and Haute Autorité de Santé (HAS) evaluation processes (36). Studies showed that efficacy and product safety were key drivers of price and demand by relative stakeholders (37). Whilst cost effectiveness and budgetary impact were considered key decision-making factors for reimbursement in Italy and Spain, comparative efficacy was recognised as a primary driver of demand/ uptake via prescribing decisions (38). By contrast, the evaluation of comparative effectiveness was not mandatory to support access and prescribing decision-making in the US; although, healthcare reforms contain several provisions to increase use of comparative effectiveness research at the payer level to control drug pricing and coverage determinations (39, 40). The wider impact on demand, however, could not be determined.

With regard to the availability of generic/biosimilar substitutions, the US had a lower presence of generic entrants compared with EU; increased competition from biosimilars may impact PED as a result of price decreases, as well as influence formulary placement practices (4, 9). One study suggested that, for Spanish pharmacists and prescribers within the clinical setting, generic switching practices in place of an originator drug are often favoured to improve patient access and ease economic restraints (41). In contrast, a US-based study showed that generic entry may not lead to originator price decreases, but a "muting" of further price growth (42).

Another study, which gathered perspectives from EU payers, found that cost-effectiveness or containment measures are a priority driver of access and reimbursement, which in turn could influence PED (37). For example, volume and expenditure control is a strategy favoured in markets such as France and Italy, due to high drug prices/high overall expenditure and large patient populations, in lieu of often ineffective product pricing controls (4, 30, 43). Overall, the appetite for such financial-based agreements, as well as outcome-based approaches, were favourable; although, the extent and impact in the US relative to EU could not be determined.

Conclusion

PED for pharmaceutical products is inelastic, yet payers across different markets adopt policies/mechanisms to mitigate increases in drug prices and utilisation, while improving reimbursement and access to pharmaceutical goods. The archetype of a country dictates payer priorities, influencing factors affecting demand. Due to value-based approaches used to influence market dynamics, including evaluation of comparative value, availability of generic/biosimilar substitutes, and adoption of value-based pricing agreements, the US is considered a "free market". The wider impact of these factors could not be determined; however, the review indicated that such practices are likely to support stakeholders in mitigating excessive drug pricing, as indicated in price differentials between EU and the US.

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Abbreviations

CMS, Centers for Medicare & Medicaid Services
EU, Europe
G-BA, Gemeinsamer Bundesausschuss
HAS, Haute Autorité de Santé
HTA, health technology assessment
IRA, Inflation Reduction Act
MoA, mechanism of action
NHS, National Health Service
PED, price elasticity of demand
QALY, quality-adjusted life year
VBE, value-based element
VBPE, value-based pricing element