As part of the joint World Health Organization (WHO)/Health Action International (HAI) Project on Medicine Prices and Availability, a series of in-depth reviews have been published on pharmaceutical policies and interventions that may improve medicine availability and affordability.

This policy brief summarises the key points from the review on external reference pricing (ERP), which included a systematic literature review and a survey of nine predominantly middle-income countries that use ERP.

Page references to the review paper are given in parentheses.

### EXTERNAL REFERENCE PRICING

### WHAT IS THE BASIS FOR THIS POLICY BRIEF?


### SUMMARY CONCLUSIONS

**What are the main advantages of external reference pricing (ERP)?**

Compared to some other pricing policies, ERP requires less complex technical analysis and judgement.

**What are the main disadvantages of ERP?**

Meaningful price information can be difficult to obtain. Available price data may require adjustments based on limited information. A country using ERP is unable to set pricing criteria suitable for its own circumstances; it relies on pricing policies of reference countries which may use other criteria. Widespread use of ERP has prompted manufacturers to adopt international pricing strategies that may have negative effects on lower income countries through international price convergence at higher prices. Low-price reference countries may experience launch delays for new products. Manufacturers may reduce transparency of pricing practices in reference countries. ERP would become impossible if all countries applied it.

**Is ERP appropriate for regulating all medicine prices?**

ERP is most suitable for on-patent products, particularly those with new active ingredients. For off-patent products, lower prices may be achieved through other methods, including internal reference pricing and policies that encourage competition and use of low-priced generics. Health insurers and institutional purchasers have additional options to achieve more effective price control including a reference price system, competition for formulary listing and competitive public procurement.

**Is ERP appropriate for all countries?**

ERP has been used by a wide range of middle- and high-income countries. Although the evidence of its effectiveness is limited, many countries have been satisfied with the use of ERP. Countries with high technical capacity or large pharmaceutical research bases may find health technology assessment more appropriate for pricing on-patent products. Evidence is lacking about the suitability of ERP for low-income countries.

**Are there any complementary policies that should accompany ERP?**

Price regulation is usually applied to patient prices. Policies are needed for adjusting the ERP derived from ex-factory prices to cover costs of importation, wholesaling/distribution and dispensing.

**Are there any key pre-requisites for implementing ERP?**

ERP requires capacity for enforcement and monitoring patient prices.
What is the policy?
ERP uses the prices of identical medicines in one or more reference countries to derive a benchmark or reference price for the purpose of setting or negotiating the national medicine price. Various methods and ‘baskets’ of reference countries are used. ERP is also called ‘external price benchmarking’ or ‘international reference pricing’. (pp.2-3)

What is the policy used for?
Some countries use ERP to regulate the retail prices of medicines sold to the public. In this case, ERP is applied at the point when the company seeks authorization for marketing the product in the country. Other countries use ERP only to set prices of medicines that are included in the reimbursable list for social health insurance or the list of medicines covered by a public health system. In this case, ERP is applied as a condition for including the medicine in the list. The reference price may also be used as an explicit or confidential benchmark in price negotiation with the supplier. Japan uses ERP for adjusting the regulated medicines prices up or down over time. (p.3)

How and where has it been implemented?
ERP is widely used among high-income countries: 24 out of 30 OECD countries and 20 out of 27 European Union countries use some form of ERP. The WHO/HAI review identified 14 countries that reportedly use ERP and was able to obtain information from nine of these, predominantly middle income countries (Brazil, Czech Republic, Hungary, Iran, Lebanon, South Africa, Oman, and the United Arab Emirates). Use of ERP has been expanding over the past 10-15 years as the pharmaceuticals market has become increasingly globalized, replacing older cost-plus methods of price regulation in a number of countries. (p.19)

Most of the OECD or EU countries that use ERP restrict it to on-patent products, and some apply it only to products with new active ingredients. A number of middle income countries apply it to all medicines. Iran applies ERP only to imported on-patent medicines, using cost-plus pricing for locally manufactured products.

Key aspects of designing an ERP system
Choosing reference countries: Reference countries should have an adequate medicine regulatory regime for assuring product quality. Most ERP countries choose reference countries with similar per capita income to their own and countries in their own geographic region. The nine ERP countries surveyed for the WHO/HAI review used four to eight reference countries. Transparent, up-to-date data on manufacturers’ ex-factory prices must be accessible. Choice of reference countries also depends on policy objectives. Most countries have an objective of reducing prices or expenditure and so choose reference countries with relatively low prices. But some also have an objective of supporting innovation and so choose reference countries with a large pharmaceutical research base. In some countries, the selection of reference countries is subject to consultation with stakeholders or negotiation with the pharmaceutical industry. (pp.28-29)

Calculation of the reference price: The majority of countries use either the minimum or the average of manufacturers’ ex-factory prices in the reference countries as the basis for calculating their ERP. Some countries adjust manufacturers’ ex-factory list prices for factors such as estimated discounts or incentives offered in reference countries, or the difference between their nation’s per capita income level and that of the reference countries. Some countries use additional criteria (such as the cost of existing treatment for the same condition) as a basis for setting the price or negotiating prices with suppliers. (p.30)

Complementarity with other policies: Countries that use ERP only for regulating prices of on-patent products often complement this with other policies for off-patent medicines such as pricing generics at a percentage below the originator brand price or cost-plus price regulation for locally manufactured generics. Some countries do not regulate the prices of off-patent medicines, but instead implement policies to promote price competition. Countries that use ERP only for regulating prices of medicines sold to the public, usually apply complementary methods for setting reimbursement prices paid by social health insurance agencies or public health systems such as internal reference pricing, competition for listing in the reimbursable list or formulary, and competitive procurement. (p.28)

What institutional and technical capacity and information is required?
Compared to other methods of price setting such as health technology assessment, ERP is a relatively less complex technical analysis and judgement. Like any form of price regulation, ERP relies on monitoring, inspection of pharmacies and enforcement capacity. Many low-income countries have limited capacity for pharmacy inspection and face constraints and delays in using law enforcement and judicial systems to ensure compliance with price regulation. (pp.24, 31)
What specific challenges were encountered and what lessons can be learned?

There is a wide range of practice in how countries apply and enforce ERP. At one end of the spectrum are countries that apply a prescribed methodology for ERP underpinned by detailed, transparent regulations. Some countries use external audit to ensure regulations are followed correctly and transparently. Some countries reportedly apply the methodology strictly, refusing to authorize or reimburse medicines if the supplier is unwilling to accept the ERP-based price. At the other end of the spectrum are countries that use ERP as one of a number of methods for setting a benchmark that is used flexibly in negotiating prices with manufacturers. There is some evidence that where a manufacturer is in a monopolistic position, they may refuse to supply a medicine until the country agrees to exempt them from strict application of the reference price and negotiate a higher price [1]. There are also cases where countries apply periodic unilateral or negotiated price adjustments or price cuts on top of ERP to deal with issues such as exchange rate movements or fiscal pressures. (p.19)

Effects of ERP, internal reference pricing and generic competition in Slovakia [3]

Slovakia uses ERP to set a ceiling on patient prices for imported on-patent medicines as a condition of including them in the reimbursable list for social health insurance. Until 2005, it set the ERP at 10% above the average of the 3 lowest ex-factory prices in 9 reference countries: the country of origin plus 8 specified EU countries, including some with relatively high prices. If a reference country had not yet established a price for the product, this country was simply omitted. These policies left room for companies to launch their products early in Slovakia at a relatively high price before launching in lower priced reference countries. As a result, Slovakia’s ERP prices were high compared to countries with similar income levels in the region. In response to these problems, Slovakia has since changed its ERP, currently referencing to all 26 other EU member states. For off-patent medicines and medicines which have a similar chemical structure and therapeutic effect, Slovakia uses internal reference pricing and competition among generic equivalent products. This results in effective price control.

How has the policy been monitored and evaluated?

There are few published studies of ERP. The WHO/HAI review identified 21 studies, of which 13 were opinion pieces; four used theoretical analysis and only four studies used databases or surveys. Most studies of ERP are from OECD or EU countries. Both the OECD and EU have undertaken studies of pharmaceutical pricing and other pharmaceutical policies among their member states. Very little information of any kind is available about ERP in middle- and low-income countries. South Africa has established a price monitoring committee with participation of its competition authority, health and pharmaceutical authorities.

It is often challenging to obtain reliable price data from reference countries. Many countries rely on the manufacturer to supply price information in reference countries, with regulations that allow them to impose penalties for provision of false information. However, in many countries, manufacturers give confidential discounts to wholesalers and retailers from the ex-factory posted price, and information on the effective price actually transacted is not available. In some countries (including Spain, UK, France, Italy, Hungary, etc.), manufacturers pay back to the government various rebates or refunds, such as discounts on sales, refunds of excess profits or risk-sharing payments if sales exceed agreed levels. These practices make it very difficult for countries to verify if manufacturers have provided accurate information. If the ERP methodology makes no adjustment for discounts and rebates, it can lead to prices that are substantially higher than actually paid in the reference countries. Some countries report problems of delay in issuing pricing decisions because of delays in obtaining price data from some reference countries. If the ERP is set by simply omitting these reference countries, there is scope for manufacturers to manipulate the ERP by deliberate delays in launching products in low-priced reference countries. (pp.11-13)

What effect does the policy have on prices and availability?

The effect of ERP on pricing depends on the selection of reference countries and the price calculation method (minimum versus average price). Including the country of origin of the product as one of the reference countries tends to lead to higher ERPs. Some countries only use a country as a reference if that country has included the medicine in its list of reimbursable medicines, which may lead to lower ERPs. If there is only one reference country, often this is a high-price, non-price-control country.

Some countries surveyed for the WHO/HAI review claim that ERP resulted in price reductions.
(as much as 30% in some cases), but no evidence from monitoring data or more rigorous analysis is available to support these claims. A wide range of price and per capita expenditure levels exist among OECD countries that use ERP, which is expected because of differences in policy objectives and implementation, and use of other price-setting mechanisms alongside ERP [1]. Italy introduced ERP using UK, France, Germany and Spain as reference countries, then abandoned it in 2001, reportedly because it was found to be ineffective in containing public pharmaceutical expenditure (2). (pp.11-13, 20)

Are there risks associated with the policy?
There is no clear theoretical rationale for choosing a particular set of reference countries or methodology for calculating the reference price. Because of this, there is a risk that when the ERP system is designed, non-transparent negotiation with industry may lead to choice of reference countries and methodology for ERP which results in higher prices than could have obtained without ERP. This risk can be reduced by transparent and open processes for designing the ERP regulations. This will mean clarifying policy objectives and agreeing in advance on fair and reasonable principles for choice of reference countries and methods for calculating the ERP. For example, some countries may agree on an aim of paying no more than countries with similar income and fiscal capacity. Alternatively, low and middle-income countries may agree on the principle of paying less than richer countries while ensuring that prices are sufficient to cover the costs of medicines with assured quality.

One alleged negative effect of ERP is that it may lead to delays in product launch. Another potential negative consequence of widespread use of ERP is convergence in international prices because companies may be unwilling to offer lower prices in any country that might be used as a reference. For example, one study found that prices for some medicines were kept high in Germany and New Zealand, even though this reduced market share, in order to ensure a higher ERP in countries that used Germany and New Zealand as references. This phenomenon could be expected to lead to convergence of prices at a higher level than companies would otherwise be willing to offer to low-income countries, which on average have lower medicine prices than high-income countries. Another potential negative effect of ERP is that it may lead companies to respond by reducing price transparency, for example, by offering confidential discounts or rebates to reference country governments. There is some evidence of delayed launch in low-price countries, some evidence of convergence in international prices for new medicines, and documentation of increased use of non-transparent rebates and discounts. However, this evidence is not specifically attributable to ERP and may also be due to other factors. Delayed entry may occur in countries where low prices are due to other forms of price control or to other factors that make some low-price countries unattractive (for example, small market size or high costs of doing business). Price convergence and use of confidential discount agreements may be a response to parallel trade as well as to ERP. (pp.22-23)

REFERENCES
1. OECD Health Policy Studies. OHP. Pharmaceutical pricing policies in a global market. OECD; 2008. [Access. 20 September 2011]. Available at: www.oecd.org/document/36/0,3343,en_2649_33929_41000996_1_1_1_37407,00.html

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