Can a hypothetical Coca-Cola vending machine enlighten us about fair pharmaceutical pricing?
Cost-plus for setting pharmaceutical prices

This webinar will start shortly

Use Q&A window to post questions (not “Chat”)
- “Q&A” to send your questions to the panellists
- “Chat” ONLY when sharing comments or documents with all participants

Please keep all comments respectful and constructive

The session is recorded for viewing on demand
- Slides and recording will be shared after the session
Today’s Panellists

Utpal Dholakia
George R. Brown Professor of Marketing
Rice University, The United States of America

Andrew Hill
Senior Visiting Research Fellow
University of Liverpool, The United Kingdom

Tegegne Aklilu
Quality Director
Trust Pharmaceuticals Manufacturing PLC, Ethiopia
Topics covered in this webinar

1. Advantages and drawbacks of cost-plus pricing for pharmaceutical companies and public payers
2. Comparing the costs of production and market prices of pharmaceuticals
3. Cost structure of pharmaceutical manufacturing in Ethiopia
In a final summer championship, when people meet in a stadium to enjoy themselves, the utility of a chilled Coca-Cola is very high. So it is fair that it should be more expensive. The machine will simply make this process automatic.

Douglas Ivester
Coca-Cola’s Chairman 1997-2000

Source: In hot water: Coca-Cola disowns temperature control of prices
https://www.theguardian.com/business/1999/oct/29/5
Some disclaimers about this webinar

The sugary pop is no medicine

Production cost and innovation have changed very little for a can of coke, unlike for medicines

Not about prices of Coke or all pricing strategies of Coca-Cola (and its competitor)

Building brand value
Price acceptance
Price Skimming
Can shrinking
Pepsi challenge
Market segmentation etc.. etc

https://www.numbeo.com/cost-of-living/country_price_rankings?itemId=6
WHO suggests against countries using cost-plus pricing as a primary policy for setting the price of pharmaceutical products, given the current lack of transparency and the lack of an agreed framework among stakeholders regarding the inputs for price determination.

Source: https://apps.who.int/iris/handle/10665/335692
A Brief Primer on Cost-Based Pricing

Utpal Dholakia • Rice University

WHO webinar series on country pharmaceutical policies • August 2022
Agenda for this talk

- Describe a practical framework for making pricing decisions: The Value Pricing Framework
  - The role of pricing inputs, and particularly costs, in pricing decisions
- Explain the logic behind cost-based pricing
- Dispels common myths about cost-based pricing
  - Cost-based pricing is not one method, it covers a range of methods
  - It has significant strengths and weaknesses that are often misunderstood

Source: Dholakia, How to price effectively, 2017; Dholakia, Priced to influence, sell and satisfy, 2019
Costs set the floor on prices long-term, but it’s important to identify which costs are relevant to the pricing decision, and which ones are irrelevant and to be ignored. Identifying incremental costs correctly provides opportunities to design effective & profitable price structures.
This is usually the most neglected input into pricing decisions. In theory, customer value establishes the ceiling on prices and allows the company to match prices to customer perceptions and knowledge. This is the area of greatest opportunity for most companies.

Source: Dholakia, How to price effectively, 2017
The prices of competitors & the seller’s own previous prices establish the boundaries within which the company can manage prices. Prices usually should be within a reasonable distance of reference prices.

Source: Dholakia, How to price effectively, 2017
The value proposition provides the strategic thinking behind the pricing strategy & price structure. It dictates how much weight is given to each of the three decision inputs.

Source: Dholakia, How to price effectively, 2017
Cost-Based Pricing - Definition

• Cost-based pricing is a pricing method that relies only or primarily on costs as the input for making pricing decisions.
  — It gives little weight (or zero weight) to customer value and reference prices.
Cost-Based Pricing Is Common

- Although widely criticized, cost-based pricing is still, by far, the most commonly used pricing method.
  - Most manufacturers use this method; widely applied in specialty chemicals, Oil & Gas, construction, and other B2B industries.
  - Retailers use “double markup,” multiplying the wholesale cost by 2.
  - 75% of American restaurants use cost-based pricing; many restaurants apply established benchmarks, 2X for food, 5X for liquor, and so on.
  - In healthcare, this is a common pricing method for medical devices, veterinary services, and dental services, and it is also used for many pharmaceuticals.

Source: Dholakia, How to price effectively, 2017
Cost-Based Pricing – Example

• ABC Medical Devices has a contract to supply the US Department of Defense with hospital bed monitoring systems. Under contract terms, the price of each unit to be paid by the DoD is calculated as follows:
  • Variable cost (labor, components, electricity, etc.) = $5,000
  • Allocated fixed costs (salaries, insurance, R&D, building heat, debt service, maintenance, etc.) = $4,000
  • Contract guarantees 15 percent profit
  • Unit price = ($5,000 + $4,000) * (1 + 0.15) = $10,350

Source: Dholakia, How to price effectively, 2017
The Logic Behind Cost-Based Pricing

• Simple & Compelling Logic (at first glance):
  “Price every product to deliver a fair return over costs, fully and fairly allocated.”
    — In reality, it is not so simple or so compelling!
Cost-based pricing is not one method, it is a concept that covers a range of methods.
Cost-based Pricing is a Generic Name for Different Applications

Price = Costs * Markup Factor

- Which costs are marked up can vary (All variable, Some variable, Variable + allocated fixed costs).
- How the markup factor is chosen and what it is.

- As a general principle, the fewer the costs included, the higher will be the markup factor.
- The quality of the method’s application depends on how strategically the pricing decision maker thinks about and chooses the costs and the markup factor(s).
The Advantages of Cost-Based Pricing

1. It is simple. Line employees can implement it with moderate training. Also great for mom-&-pop stores.

2. It is easy to explain and justify. This pricing method can be described and defended easily to employees and customers.

3. It is inherently fair. Instead of discriminating between customers like value-based pricing, cost-based pricing homogenizes prices.

4. It stabilizes market prices. When all competitors have similar cost structures, and use a cost-based pricing method, prices remain stable and price wars become less likely.

5. It encourages customers to use non-price factors. When companies use cost-based pricing in an industry, customers’ attention shifts to quality factors.

6. It’s the most effective way to execute a cost leadership strategy. It provides a compelling value proposition to a seller with a cost advantage.

Source: Dholakia, When cost-based pricing is a good idea, Harvard Business Review, 2018
The Weaknesses of Cost-Based Pricing

1. It discourages efficiency and rewards bloat. There is a disincentive to be efficient and to lower costs. Reducing costs will decrease revenues and total profits.

2. It is divorced from customer value or reference prices. This can be dangerous because it can either result in prices no one is willing to pay or leave a lot of money on the table.

3. It creates a false sense of complacency. Managers think they cannot lose money when they use cost-based pricing, which is not the case.

4. It is difficult to define costs accurately. Costs may be categorized incorrectly, production may overestimate or underestimate them, or they may fluctuate during the calculation period.

Source: Dholakia, When cost-based pricing is a good idea, Harvard Business Review, 2018
The Key Problem With Cost-Based Pricing

• In most industries, it is impossible to determine a product’s unit cost before determining its price.
  • Unit costs are dependent on volume.
  • Forecast costs can turn out to be inaccurate in either direction.
  • Leads to pricing too high in weak markets (e.g., fixed costs must be recovered from fewer units sold).
• Serves as a cap on price in strong markets, leaving money on the table.
  • The underlying logic for this method is flawed because companies can still lose money, and there is no guarantee that costs will be covered.

• Key Point: Price affects sales volume, and sales volume affects costs ("Chicken before the egg" problem).

Source: Dholakia, How to price effectively, 2017
How to use Costs in Pricing Decisions

- Costs provide the most significant input into a pricing strategy.
- Costs set the floor on prices and determine the lowest price level that can be charged.
  - Long-term price floor: All costs, including fixed and variable
  - Short-term price floor: Only incremental costs (all variable costs, only some fixed costs), most fixed costs to be ignored for pricing decision
- Cost-based pricing should be one method to be used, but not the only method, to set or change prices.

Source: Dholakia, How to price effectively, 2017
Universal access to medicine
Pharma: the reality

• High prices
• Limited access: people left untreated
• Huge profits + tax avoidance
• Evergreen patenting
• Drugs don’t work as well as the companies suggest
• Difficult for generic companies to gain market share
• Situation getting worse
Africa, 1999: mass treatment for HIV/AIDS is not feasible
Treating HIV, HBV and HCV

1.8 million preventable deaths per year

<table>
<thead>
<tr>
<th>Disease</th>
<th>HIV</th>
<th>HBV</th>
<th>HCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>TDF/3TC/DTG</td>
<td>TDF</td>
<td>SOF/VEL</td>
</tr>
<tr>
<td>Sales</td>
<td>$300 billion*</td>
<td></td>
<td>$100 billion#</td>
</tr>
<tr>
<td>Deaths/year</td>
<td>700,000</td>
<td>800,000</td>
<td>300,000</td>
</tr>
</tbody>
</table>

* HIV: sales since 2000, #HCV: sales since 2014 launch
### Prices Versus Costs of Drugs for HIV

<table>
<thead>
<tr>
<th>Disease</th>
<th>Treatments:</th>
<th>Price</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>TDF/FTC/DTG</td>
<td>$36,000</td>
<td>$54</td>
</tr>
<tr>
<td></td>
<td>TAF/FTC/DTG</td>
<td>$50,000</td>
<td>$60</td>
</tr>
<tr>
<td></td>
<td>TDF/FTC (PrEP)</td>
<td>$21,000</td>
<td>$54</td>
</tr>
<tr>
<td></td>
<td>Cabotegravir (PrEP)</td>
<td>$22,000</td>
<td>$20</td>
</tr>
</tbody>
</table>
Tenofovir Disoproxil Fumarate (TDF)/Emtricitabine (FTC)/Dolutegravir Course Cost
300mg/200mg/50mg once daily for 12 months

<table>
<thead>
<tr>
<th>Country</th>
<th>Price USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA (Pharm)</td>
<td>$36,374</td>
</tr>
<tr>
<td>USA (Vet)</td>
<td>$22,596</td>
</tr>
<tr>
<td>France</td>
<td>$9,388</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>$8,364</td>
</tr>
<tr>
<td>Turkey</td>
<td>$4,400</td>
</tr>
<tr>
<td>India</td>
<td>$605</td>
</tr>
<tr>
<td>Generic Estimate</td>
<td>$74</td>
</tr>
<tr>
<td>PANHO Estimate</td>
<td>$61</td>
</tr>
</tbody>
</table>
### Prices Versus Costs of Drugs for HBV/HCV

<table>
<thead>
<tr>
<th>Disease</th>
<th>Treatments:</th>
<th>Price</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>TDF</td>
<td>$13,000</td>
<td>$39</td>
</tr>
<tr>
<td></td>
<td>TAF</td>
<td>$17,000</td>
<td>$60</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>SOF/DAC</td>
<td>not sold</td>
<td>$37</td>
</tr>
<tr>
<td></td>
<td>SOF/VEL</td>
<td>$53,000</td>
<td>$84</td>
</tr>
</tbody>
</table>
### Prices of drugs to cure Hepatitis C by country

**Sofosbuvir plus daclatasvir**

<table>
<thead>
<tr>
<th>Country</th>
<th>Price of a 12-week course in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA (NADAC)</td>
<td>$142,710</td>
</tr>
<tr>
<td>Denmark</td>
<td>$104,723</td>
</tr>
<tr>
<td>USA (Veteran)</td>
<td>$96,404</td>
</tr>
<tr>
<td>Norway</td>
<td>$87,632</td>
</tr>
<tr>
<td>Germany</td>
<td>$84,281</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>$76,757</td>
</tr>
<tr>
<td>Canada (Quebec)</td>
<td>$68,280</td>
</tr>
<tr>
<td>Sweden</td>
<td>$65,616</td>
</tr>
<tr>
<td>France</td>
<td>$50,059</td>
</tr>
<tr>
<td>Argentina</td>
<td>$47,972</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>$37,729</td>
</tr>
<tr>
<td>Spain</td>
<td>$33,800</td>
</tr>
<tr>
<td>Brazil</td>
<td>$29,361</td>
</tr>
<tr>
<td>Australia</td>
<td>$15,757</td>
</tr>
<tr>
<td>Thailand</td>
<td>$9,906</td>
</tr>
<tr>
<td>Egypt</td>
<td>$84</td>
</tr>
<tr>
<td>India</td>
<td>$78</td>
</tr>
<tr>
<td>Estimated</td>
<td>$47</td>
</tr>
</tbody>
</table>
Total sales = $101 billion

Sales of HCV drugs: 2012-2022

Gilead: $67 billion
AbbVie: $15 billion
Vertex destroys 8000 bottles of Orkambi – enough to treat 600 children with cystic fibrosis
# Prices Versus Costs of Drugs for COVID-19

<table>
<thead>
<tr>
<th>Disease</th>
<th>Treatments:</th>
<th>Price</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>Nirmatrelvir/r</td>
<td>$530</td>
<td>$30</td>
</tr>
<tr>
<td></td>
<td>Molnupiravir</td>
<td>$750</td>
<td>$20</td>
</tr>
<tr>
<td></td>
<td>Baracitinib</td>
<td>$2422</td>
<td>$4</td>
</tr>
<tr>
<td></td>
<td>Pfizer vaccine</td>
<td>$28</td>
<td>$1</td>
</tr>
</tbody>
</table>
Pfizer

**Prices per Dose**

<table>
<thead>
<tr>
<th>Region</th>
<th>Price per Dose (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Israel</td>
<td>$28</td>
</tr>
<tr>
<td>UK</td>
<td>$20</td>
</tr>
<tr>
<td>USA</td>
<td>$20</td>
</tr>
<tr>
<td>EU</td>
<td>$15</td>
</tr>
<tr>
<td>Colombia</td>
<td>$12</td>
</tr>
<tr>
<td>African Union</td>
<td>$7</td>
</tr>
<tr>
<td>Cost</td>
<td>$3</td>
</tr>
</tbody>
</table>

*Cost price estimates vary between $1-3 USD*
## COVID-19 VACCINE SALES: 2021-2022

**Total: $97 Billion, by June 2022**

<table>
<thead>
<tr>
<th>Company</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer</td>
<td>$59.0 billion</td>
</tr>
<tr>
<td>Moderna</td>
<td>$28.3 billion</td>
</tr>
<tr>
<td>Johnson and Johnson</td>
<td>$3.4 billion</td>
</tr>
<tr>
<td>Astra-Zeneca</td>
<td>$5.5 billion</td>
</tr>
<tr>
<td>Novovax</td>
<td>$0.6 billion</td>
</tr>
</tbody>
</table>
WORLDWIDE ACCESS TO $1 COVID VACCINES?
SEVERE DISEASE

Vaccine efficacy against severe disease

Approved vaccines: 95%
Unapproved vaccines: 88%

p = 0.29
Pharma profits and tax avoidance
Main tax havens: Bermuda, Cayman Islands, BVI, Bahamas, Luxembourg, Ireland

<table>
<thead>
<tr>
<th>Company</th>
<th>Profits held offshore</th>
<th>US Taxes Avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer</td>
<td>$69 billion</td>
<td>$20 billion</td>
</tr>
<tr>
<td>Merck</td>
<td>$57 billion</td>
<td>$16 billion</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>$51 billion</td>
<td>$14 billion</td>
</tr>
<tr>
<td>Amgen</td>
<td>$26 billion</td>
<td>$9 billion</td>
</tr>
<tr>
<td>Abbott</td>
<td>$24 billion</td>
<td>$7 billion</td>
</tr>
<tr>
<td>BMS</td>
<td>$24 billion</td>
<td>$7 billion</td>
</tr>
</tbody>
</table>

Gilead: $10 billion in tax avoidance

Washington Post, July 13 2016. Gilead is using Ireland as a tax haven for global profits.

“The drug company that shocked the world with its prices dodged $10 billion in taxes”

$10 billion is enough money to treat 100 million people with HCV, at the cost price of $100 each

Conclusions

Billions are wasted every year on over-priced drugs in high income countries, while millions die untreated.

The Tax avoidance money from Pfizer is enough to vaccinate the world against COVID-19 at cost prices.

The Tax avoidance money from Gilead is enough to cure every person with Hepatitis C.
WHO Webinar: Cost structure of Pharmaceutical Manufacturing in Ethiopia

TEGEGNE AKLILU (BSc., BPharm, MSc.)

Aug 17th 2022
Introduction

Ethiopia:

- About 115 million population
- 38 medical supplies/devices manufacturers
- 11 medicine manufacturing facilities
  - Small scale to medium class

- Strong investment policy focused on pharmaceuticals including:
  - Tax exemptions, one-stop-shop services and price preference in public procurement
  - Pharmaceutical Industrial Park (279ha of land) – full infrastructure.
Cost structure of Pharma Mfg in Ethiopia

• All Starting Materials (APIs + Excipients) and 99% of the PMs are imports.
• No Pricing policy in the country.
• Any company can use any of the four to set the drug pricing:
  – Cost based, Value based, Competition based, and Price skimming
• Most use key considerations in pricing:
  – Direct material cost (major determinant factor)
  – Conversion cost (labor + overhead cost)
  – Percent of profit margin
## Cost structure – *Direct Material cost*

<table>
<thead>
<tr>
<th>Processes</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> FOB price of Material</td>
<td>Invoice value</td>
</tr>
<tr>
<td><strong>2</strong> Bank charge</td>
<td>About 12.5%, (2.5% NBE and 10% CBE)</td>
</tr>
</tbody>
</table>
| **3** Freight charges      | ● Sea freight: ~3087 USD for 20ft  
                             ~ 5000 USD/ 8000 USD for 40ft (based on port)  
                             ● Air freight: depending of volume/ kg |
| 4  Container hire          | **20ft container** USD 1,887                                           |
| 5  Clearance cost          | **20ft container** USD 723 unimodal                                    |
| 6  Insurance               | 0.075% max. of the dollar value                                         |
| 7  Clearing agent:         | USD 97+10 USD for additional container in a PFI.                        |
| 8  Transport from Djibouti| **20ft container** USD 4.6/ q                                           |

**40ft container**

- USD 3,774
- USD 1433 unimodal
Cost structure – *Conversion cost*

- **Utility cost**: boiler, water treatment cost, electricity
- **Overhead cost**: 
  - Manpower cost and consumables/supplies cost
  - Operational costs/expenses
- **Royalty costs**: for technology transfers. (+ experts cost for tech transfer)
- **Conversion cost** may go as high as 35%
- **Hidden costs**: 
  - Costs due to unshared utility
  - Costs due to re-works
Cost structure – *Pricing practice of products in Ethiopia*

- **Cost-Plus Pricing** - mostly used by manufacturers. However,
  - Finance executives prefer broader view than details
  - Process details are not recorded
  - Some use Back-flush costing method

- **Price skimming Pricing**
  - Solo generic products manufacturers (JV companies)
Cost structure – *Pricing practice of products in Ethiopia*

- Everyone has a right to access quality assured pharmaceutical products.
- Cost-plus pricing has *Not* been widely used for setting medicine prices at *Medicine Importers*, or *ex-distributor* levels.
  - Inflated price of medicines
Cost structure – Impact of COVID-19 & current global inflationary pressure

- 75% of companies could not import RM/PMs
- High increase in RM/PM price
- Delay in supplier shipment & local clearance as well as for FG imports and distribution
- 30-40% demand increase on Drugs of chronic diseases.
- Additional cost due to increased room fumigation, supply of sanitizers for workers, etc...
Cost structure – Impact of COVID-19 & current global inflationary pressure

**global inflationary pressure: national issue**

- decreased investment in pharmaceutical establishment
- Unavailability/scarcity of foreign currency

➤ Scarcity & Price hikes of medicines.
Thank you
Panel discussion
Why haven’t consumers and companies reacted to medicine price increases the same way as in the Coca-Cola case?

‘Runaway train’: Drug launch prices have grown 20% annually for more than a decade, and it's time for Congress to act, researchers say.


In your view, to what extent have policy makers and consumers accept that medicines* ought to be expensive?
(i.e. have the industry’s justifications on pricing based on R&D costs and value assessment worked in desensitizing policymakers and consumers to high or extremely high prices?

NOTE:
• Any new medicines
• Branded generic medicines
• Biological medicines (originator and biosimilar)
• Vaccines
• Devices

Price acceptance
One of Coca-Cola’s pricing strategies is to promote its products as an “affordable premium item” and encourage acceptance
In times of economic uncertainties (e.g. logistic costs, currency volatilities), how do/should governments and consumers decide when a price change for medicine is economic in nature, and when it may be due to irresponsible price hikes?

In the absence of pricing transparency, what would be your interpretation/expectation when pricing is said to be “non-profit” or “at cost”?

Sanofi expands its social commitments, creates nonprofit unit to provide poorest countries with access to essential medicines

AstraZeneca shifts away from nonprofit model for its COVID-19 vaccine, except when selling to poor countries

Pfizer to sell all its patented drugs at nonprofit price in low-income countries

How the not-for-profit Civica Rx will disrupt the generic drug industry

Source
- https://www.statnews.com/2019/03/14/how-civica-rx-will-disrupt-generic-drug-industry/
Cost-plus pricing has been characterized as part of corporate social responsibility.

• In your view, should/could companies and policy makers broaden this socially responsible way of pricing, and in what way?
• What would be the potential trade-offs that need to be aware of?
Q&A with the audience
Announcements

Upcoming webinars [TBC]

- Pricing transparency – lessons from non-pharmaceutical sectors
- Value based pricing – “fad or fabulous?”

Comments and suggestions

fairpricing@who.int