

What is the real price of medicines?

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High cost medicines È the problems

Limited access to treatments for cancer

Epidemics of infectious disease cannot be eliminated:

- Hepatitis C
- HIV prevention (PrEP)

Less money for other parts of the health service

**How cheaply can
medicines be
produced?**

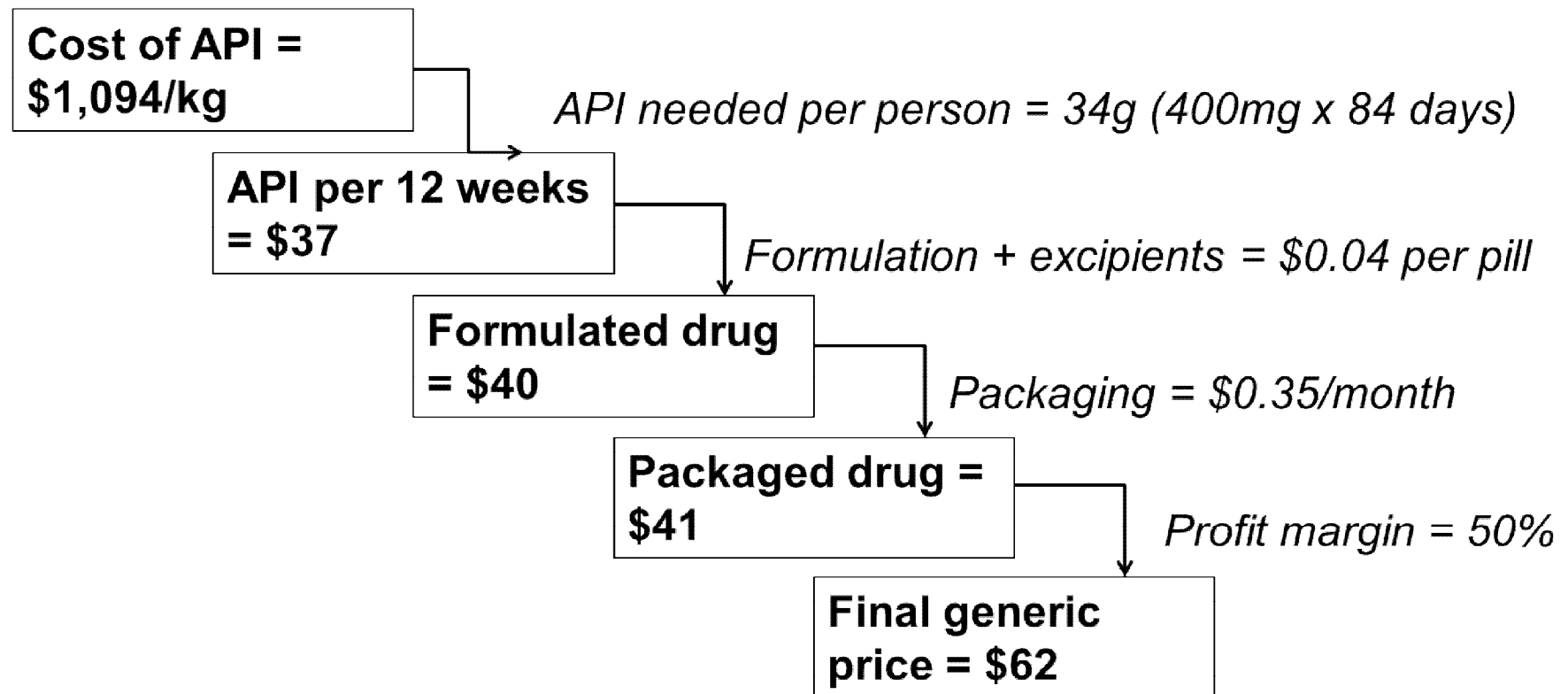
Active Pharmaceutical Ingredient



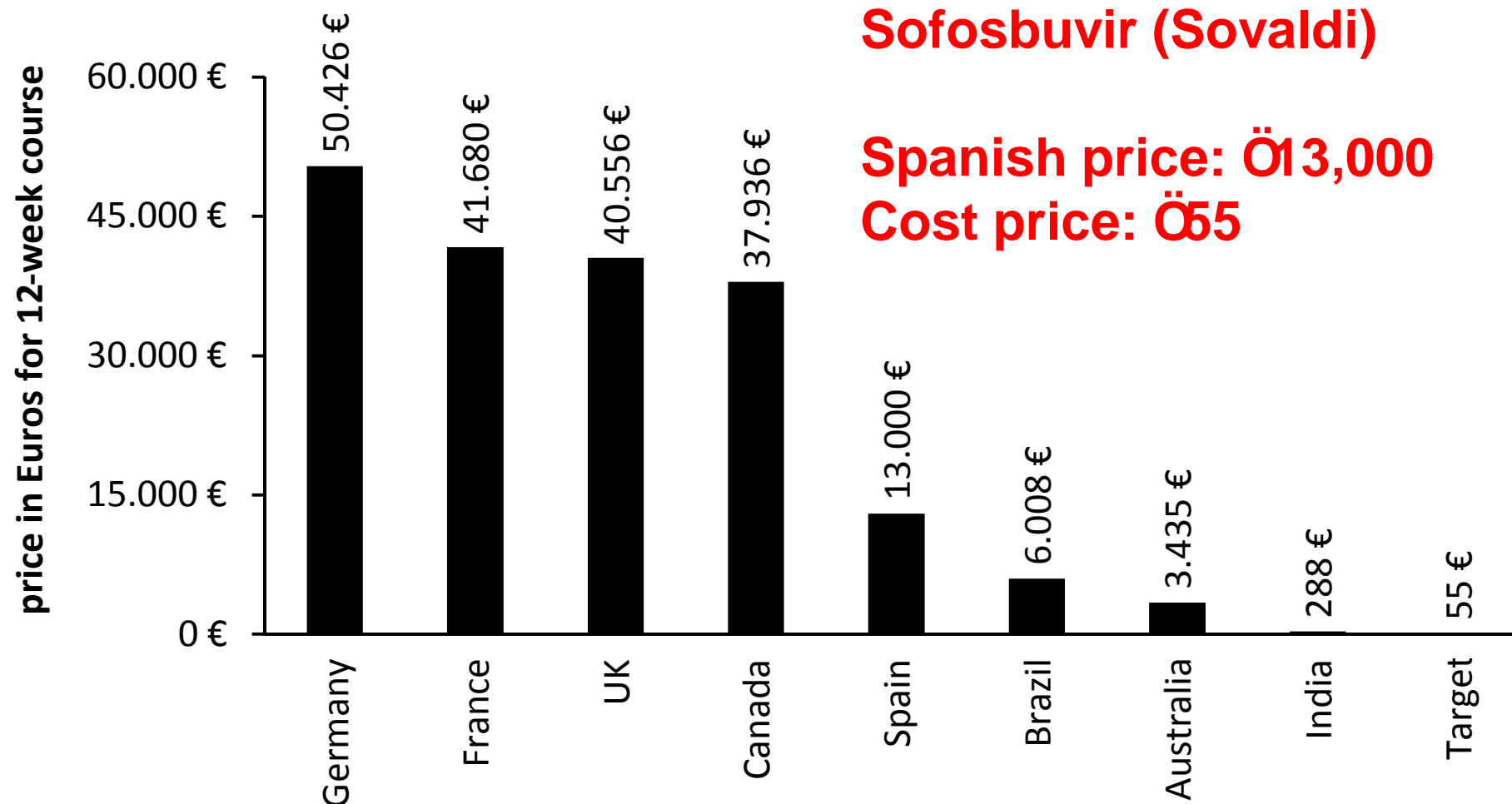
Raw drug substance

Database www.indiainfodrive.com shows exports of API from India to other countries, with costs per kilogram of API, for many drugs

Target generic price of sofosbuvir (12 weeks)



Price of sofosbuvir by country (12 weeks)



Sofosbuvir prices:

1. Canada (Quebec): http://www.ramq.gouv.qc.ca/SiteCollectionDocuments/liste_med/liste_med_2016_10_03_fr.pdf
2. France: <http://www.medecinsdumonde.org/actualites/presse/2016/09/29/mdm-soppose-au-brevet-sur-le-sovaldir-decision-le-5-octobre-2016>
3. Germany: [medizin-fuchs.de](http://www.medizin-fuchs.de)
4. Spain: http://politica.elpais.com/politica/2016/04/05/actualidad/1459873421_480033.html?id_externo_rsoc=TW_CC
6. UK: British National Formulary 2016
7. Brazil: <http://www.portaltransparencia.gov.br/despesasdiarias/empenho?documento=250005000012015NE801493>
8. Australia: Based on total annual government expenditure (AU\$200 million) and 40,000 treated in 2016
9. India: <http://hepcasia.com/wp-content/uploads/2016/03/31-Jan-2016-Indian-generic-sofosbuvir.pdf>

Gilead sales and profits: Hepatitis C

Cumulative sales of
Sovaldi & Harvoni to
2Q 2017:

\$50 billion

Profits in 2015:

\$18 billion

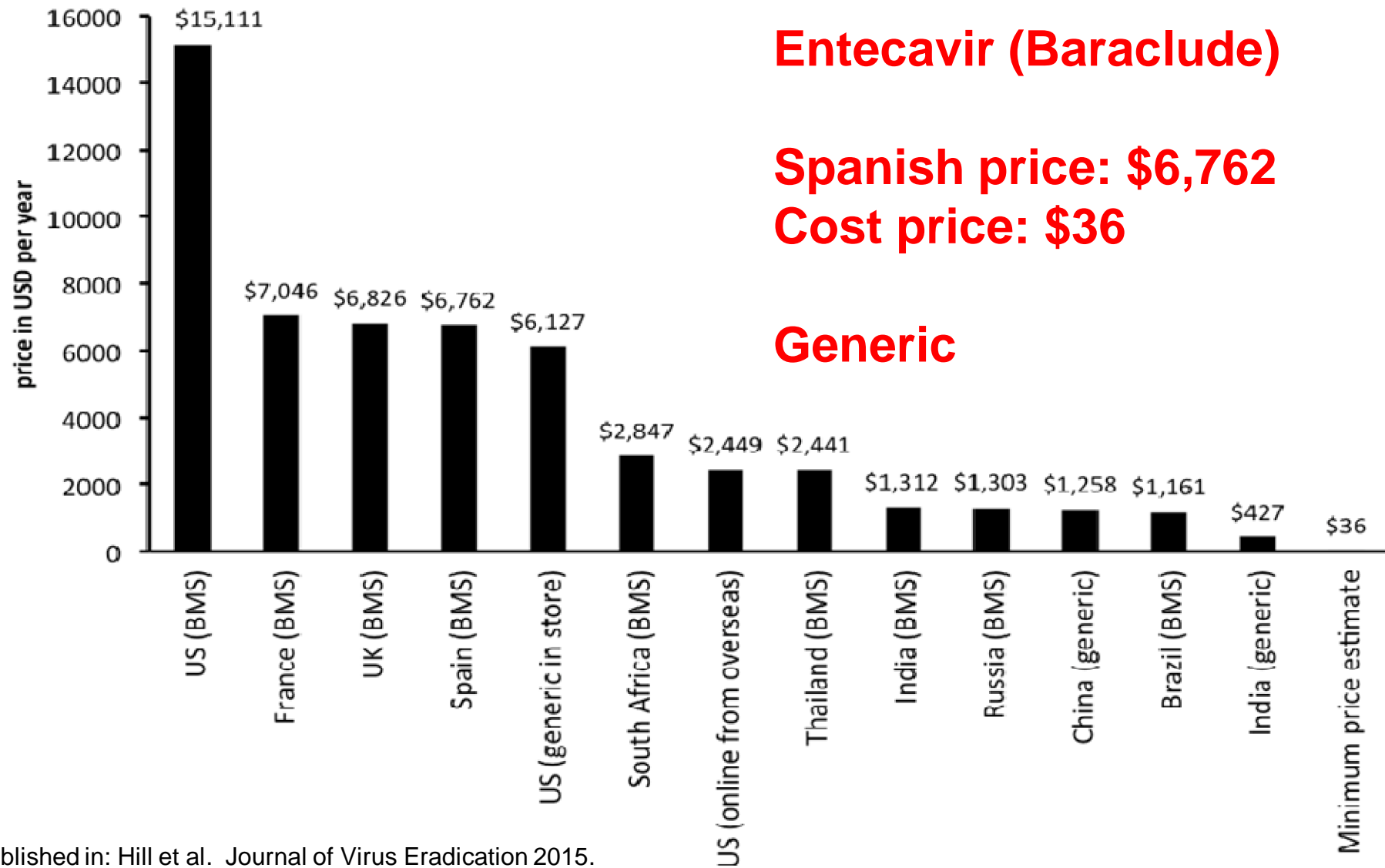


Reference: Gilead quarterly product sales summaries

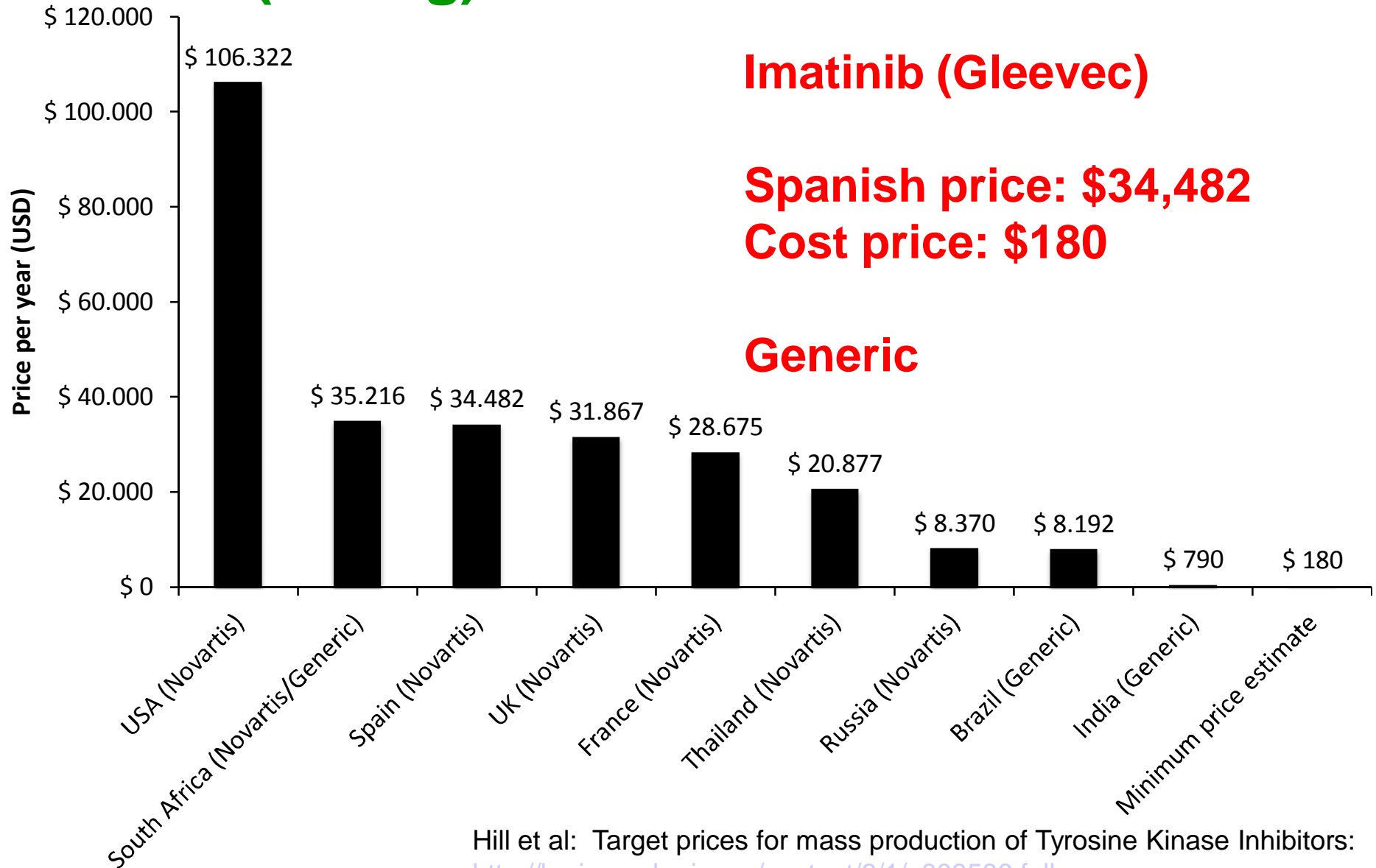
**Entecavir for Hepatitis B
one year's supply (0.2g)**



Entecavir for Hepatitis B cost per person/year by country



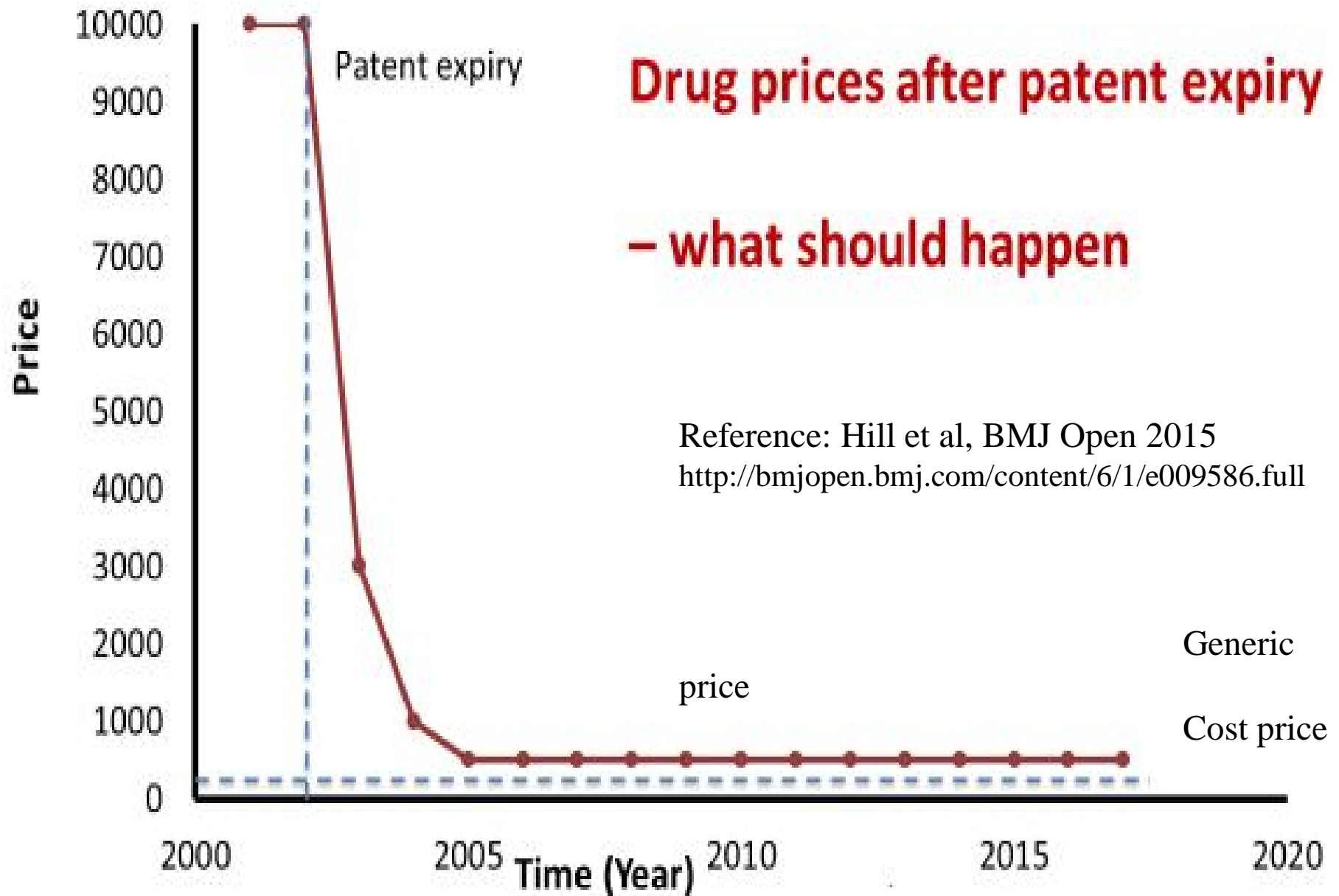
Lowest available price for Imatinib (400mg) in selected countries



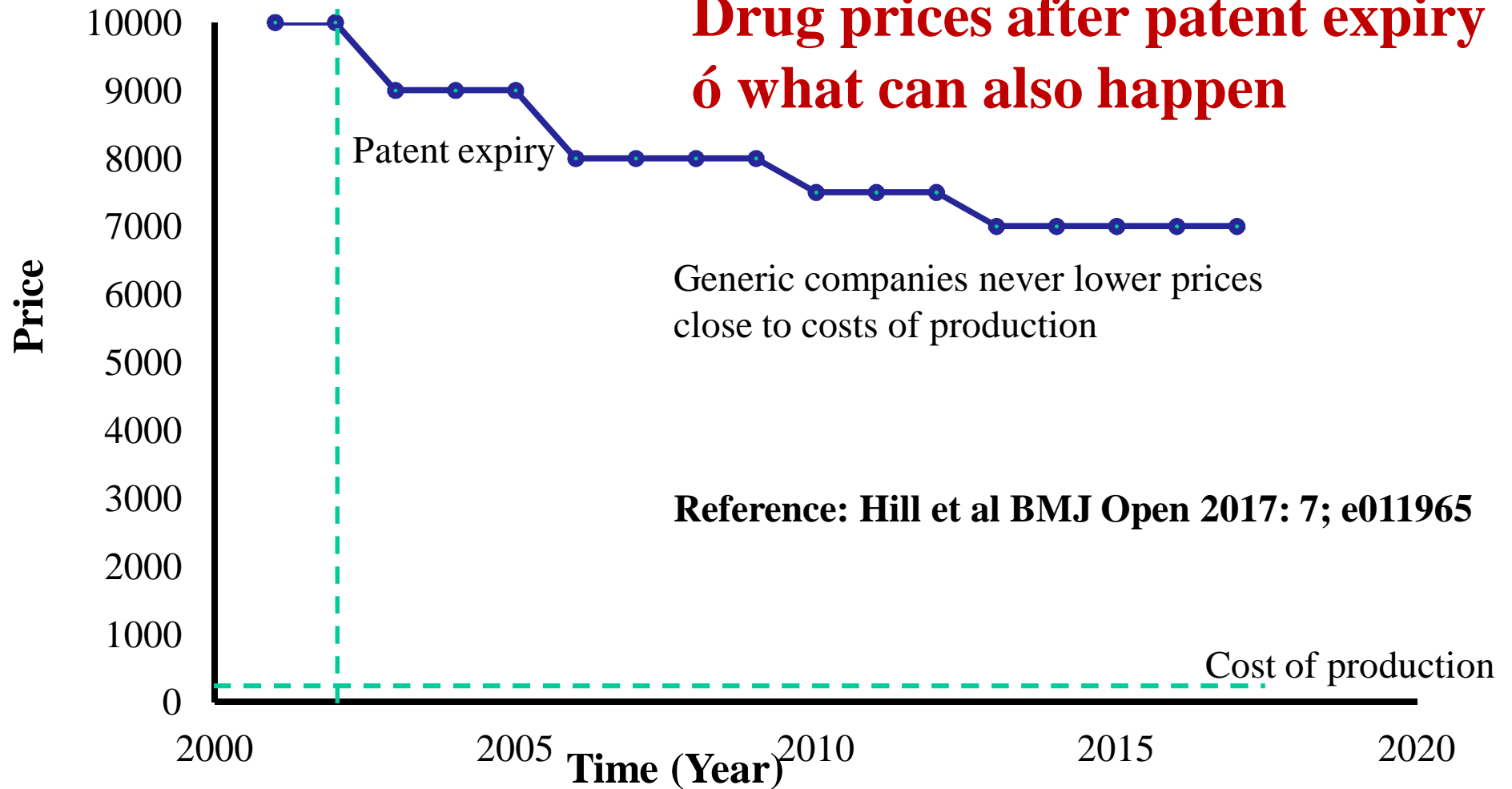
Hill et al: Target prices for mass production of Tyrosine Kinase Inhibitors:
<http://bmjopen.bmj.com/content/6/1/e009586.full>

Drug prices after patent expiry

– what should happen



Drug prices after patent expiry ó what can also happen



Insulin for diabetes

Discovered in 1923

Global market:
\$20 billion

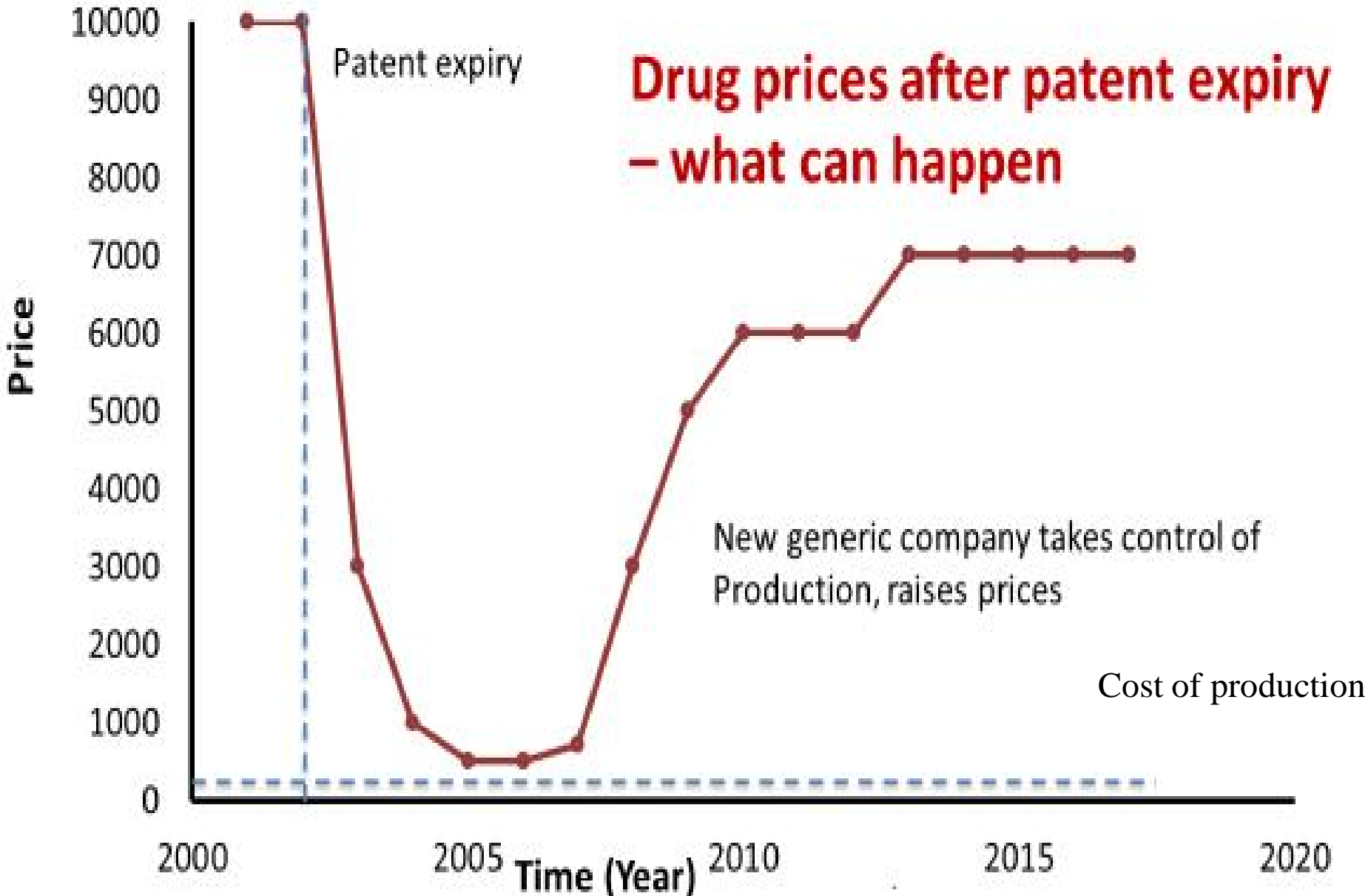
Cost price:
\$1 per vial

Sold for up to
\$110 per vial



Generic Biosimilars need to be approved in Europe

Drug prices after patent expiry – what can happen



**Martin Shkreli, Turing Pharmaceuticals: 5000% price rise
\$750 is a more appropriate price for \$13 AIDS medicine**

PHARMA INFOCUS

**DRUG PRICE SOARS:
\$13.50 TO \$750**

DOW	16,461.9
CHANGE	+77.3
%CHANGE	+0.47

E VIX (VIXV5) 21.2 Nikkei 225 Future (CME) (NKU5) 18205 ... Market Su 11:2

Overcharging the UK NHS for generics

Generic companies raising prices

Price increases >1000% add £260 million to NHS drug costs each year

Price increases >40% add £380 million to NHS drug costs each year

Parliament announced Health Service Medical Supplies (Costs) Bill in September 2016

Community prescriptions in England only . real costs likely to be far higher

Bricks & Mortar Max 18C min 7C Friday June 3 2016 | thetimes.co.uk | No 71927

What's really happening to house prices **Bricks & Mortar**

'Extortionate' prices add £260m to NHS drug bill

Four firms exploit loophole to make fortunes at taxpayers' expense

Times investigation
Billy Kenner

Millionaire businessmen have been increasing the price of drugs bought by the NHS by up to 1250 per cent. A small group of entrepreneurs has made vast sums after raising the cost of medicines by £262 million a year — the equivalent of funding an extra 7000 junior doctors a year, an investigation has found.

They are taking advantage of a loophole that leaves them free to impose 'extortionate' price rises on drugs if they drop an existing brand name and sell it under its generic name instead.

Health service price controls are designed to reduce the cost of drugs to the taxpayer. However, the founders of four companies have overseen a dramatic increase in the price of medicines for the treatment of common conditions ranging from high blood pressure to hyperthyroidism.

The NHS does not cap the price of these drugs or the profits that manufacturers can make because they are meant to be widely available, with prices driven down through competition. In reality the companies face little or no competition.

The Times investigation has found:
• The NHS is paying the extra £262 million a year for more than 50 drugs for which prices have increased greatly since 2010 — enough to pay for 7000 junior doctors earning £37,000 each.
• Over the past five years 32 medicines have risen in price by more than 1,000 per cent while the cost of a further 196 has at least doubled. In the most extreme case, the price of hydrocortisone 10mg tablets rose by 1250 per cent, from 70p a packet in 2008 to £85 this year.
• Six entrepreneurs, including two of Britain's most lauded rags-to-riches Asian businessmen, have profited at the expense of the taxpayer by systematically raising prices. A European private equity firm made a fortune by buying up several of these companies, bringing in further increases, and selling them on.
Last September a US pharmaceutical

company caused outrage after raising the price of an HIV drug from \$1350 to \$950, a 5500 per cent increase. In the past few years a succession of medicines in the UK have undergone similarly steep price rises with little effect on the rate of prescription.

These include antidepressant doxepin 50mg tablets, which have risen from £5.71 to £154 a packet over the past five years, and dipipanone 10mg/cyclizine 30mg tablets, which rose from 1957 to £35106 a packet in the same period.

The four companies identified by The Times have focused on drugs that have been out of patent for many years and which are no longer profitable enough to interest large pharmaceutical companies.

They typically buy the exclusive marketing rights to these medicines from big pharmaceutical companies. By then dropping the brand names and selling the medicines under their generic names instead, the companies are able to take advantage of a loophole in NHS pricing controls.

The drugs move from Category C, where manufacturers face a profit

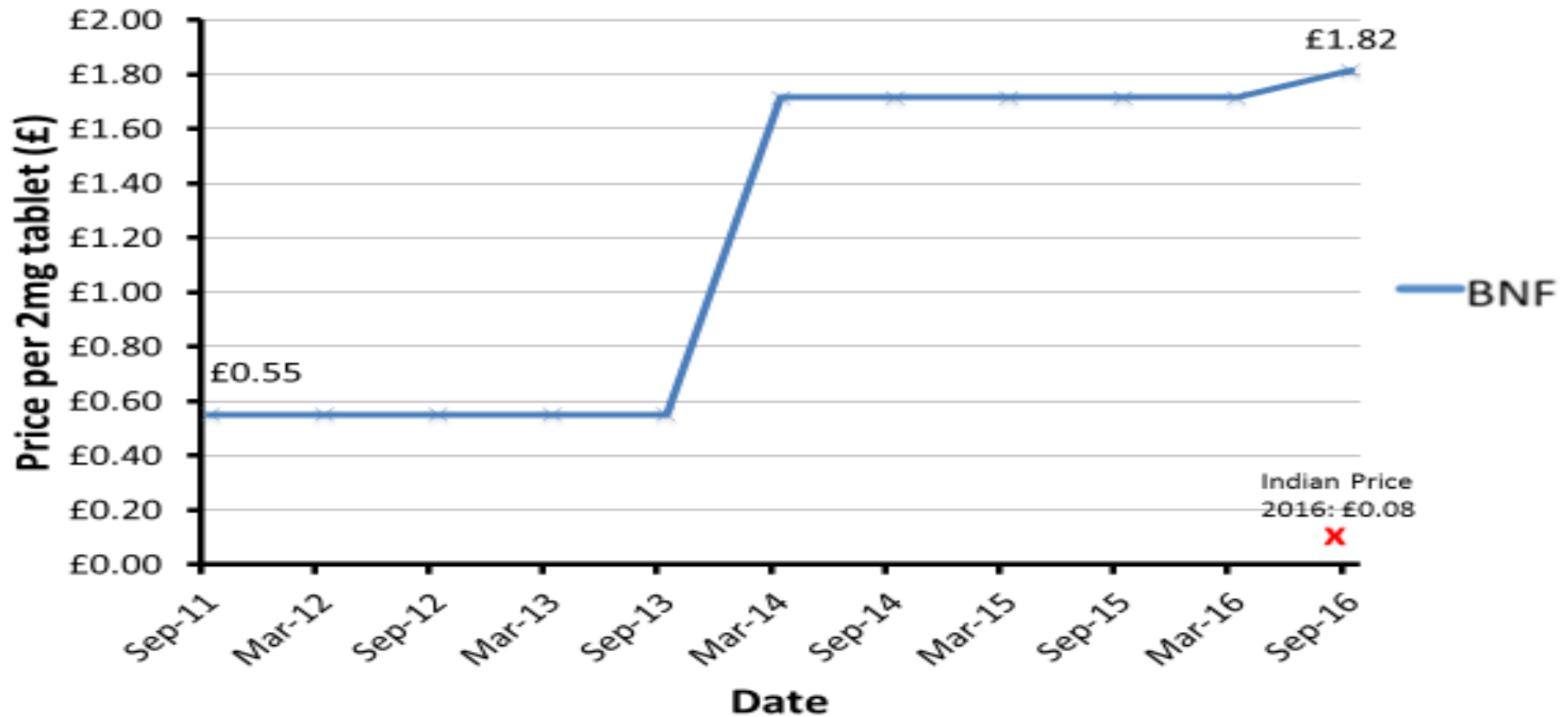
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Brickhu and Vijay Patel with their wives, Shashi and Smita. The Essex-based brothers have built up a fortune of £675 million

Sources: The Times, 3rd June 2016. Houghton-Price V, Smith R, Hill A & Heath K, Rises in NHS drug prices, Oct 2016. Parliament UK, Public Bills before Parliament, Health Service Medical Supplies (Costs) Bill (HC Bill 72), 14th Sep 2016.

Melphalan 2mg tablets for ovarian cancer (Alliance / Aspen)



UK versus Indian prices for generic cancer drugs, 2016

Drug / dose	India	Company	UK	Company	% Increase
Melphalan 2mg	8p	GSK India	£1.82	Aspen**	+ 2,175%
Ifosfamide 2g vial	£6.95	Celon	£180	Alliance, Baxter	+ 2,490%
Chlorambucil 2mg	5p	GSK India	£1.71	Aspen**	+ 3,320%
Imatinib 400mg*	£1.71	Glenmark	£65	Novartis	+ 3,701%
Lomustine	£1.00	Samarth	£37	Medac UK	+ 3,600%
Cyclophosphamide 50mg	2p	Khandelwal	£1.39	Alliance	+ 6,850%
Mesna 1g vial	16p	Cipla	£13.41	Alliance	+ 8,281%
Busulfan 2mg	3p	GSK India	£2.76	Aspen**	+ 9,100%
Ethinylestradiol 1mg	3p	Bushnell	£7.14	AAH, Alliance	+ 23,700%

*Imatinib generic in USA, patent expires in Europe in 2017

** GSK had a large share-holding in Aspen from 2009 until late-2016

Legal Action

Italy fined the generic company Aspen €5 million after 1500% rises in cancer drug prices, including melphalan and chlorambucil. Aspen threatened Italy with drug shortages unless higher prices were agreed.

Spain: Aspen demanded a 4000% rise in Melphalan prices

New Zealand: Melphalan price rose from \$68 to \$3068 per 50mg vial

UK: Pfizer / Flynn Pharma: 2600% increase in phenytoin sodium – £84 million fine

UK: Activis – 12,000% rise in price for hydrocortisone sodium

<http://www.thepharmaletter.com/article/italy-s-ica-imposes-a-5-million-euro-fine-on-aspen-after-1-500-hike-in-cancer-drug-prices>

<http://www.thelocal.es/20140212/cancer-drug-maker-demands-4000-spanish-price-hike>

<https://www.bloomberg.com/news/articles/2016-12-07/pfizer-flynn-pharma-fined-record-106-million-by-u-k-regulator>

<http://www.chemistanddruggist.co.uk/news/actavis-uk-accused-12000-price-hike-hydrocortisone>



European Commission - Press release

Antitrust: Commission opens formal investigation into Aspen Pharma's pricing practices for cancer medicines,

Brussels, 15 May 2017

Commissioner Margrethe Vestager, in charge of competition policy, said: "When we get sick, we may depend on specific drugs to save or prolong our lives....We will be assessing whether Aspen is breaking EU competition rules by charging excessive prices for a number of medicines."

Widespread access to generics

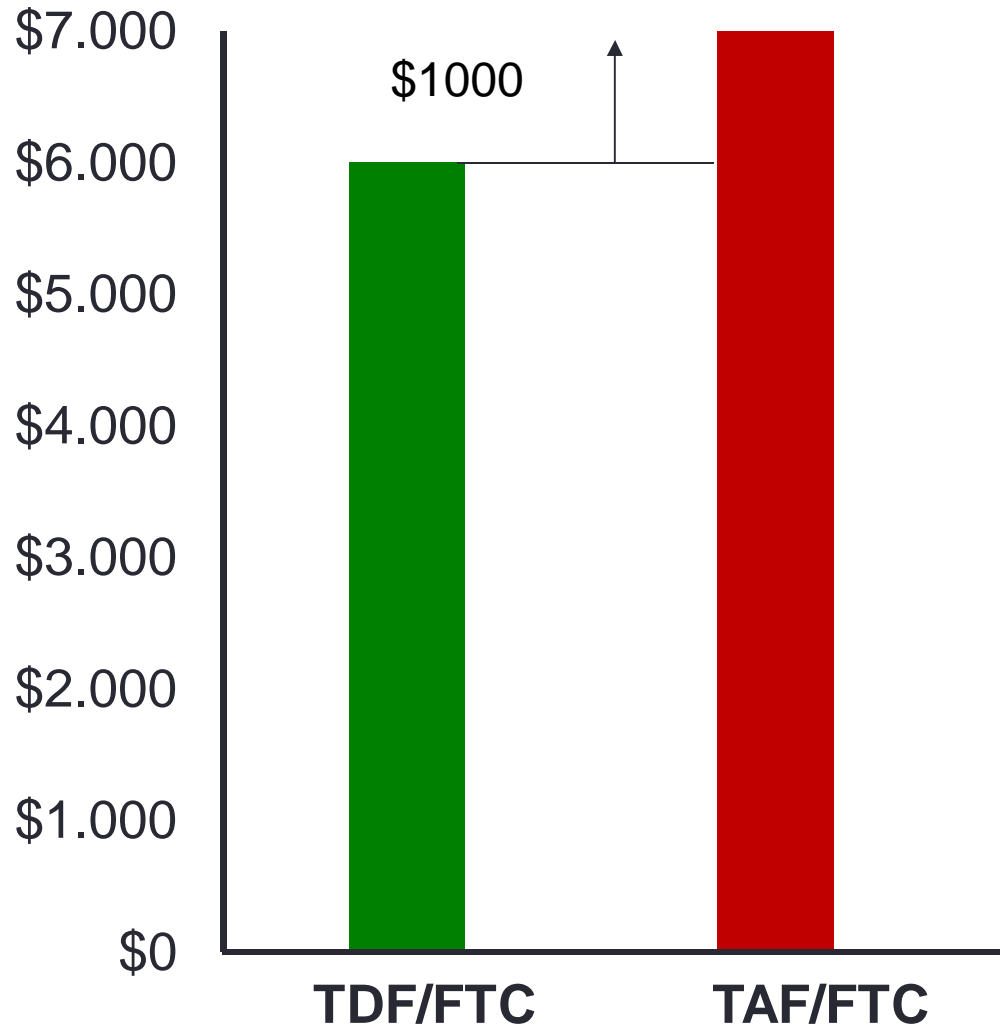
When patents have expired, drugs should be available worldwide, at close to the cost of production

However, few national health services know these costs

There is widespread over-charging. Pricing transparency is needed (WHO panel)

Lower costs for generics could drive down patented drug prices in the same therapeutic area

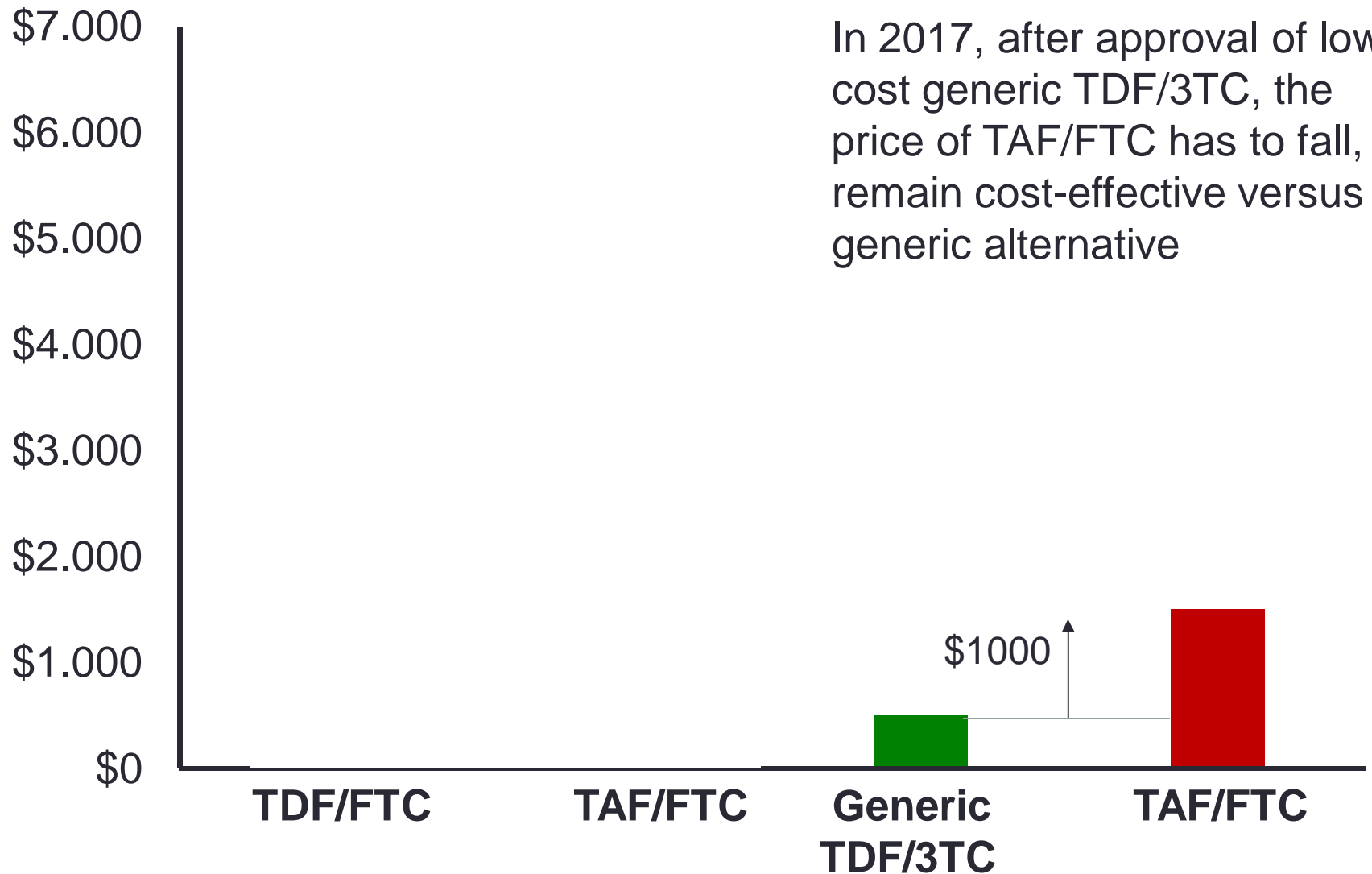
Value of patented drugs before generics have been approved



Pharmaceutical company negotiates additional value of new drug versus price of current branded version

For example:
Tenofovir alafenamide (TAF)
versus
Tenofovir disoproxil fumarate (TDF)

Value of patented drugs after generics have been approved



**If drug prices were lower,
could pharmaceutical
companies
still afford
to do R&D?**

Gilead: \$10 billion in tax avoidance

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

Í The drug company that shocked the world with its prices dodged \$10 billion in taxesÎ

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



Pharma profits and tax avoidance

Main tax havens: Bermuda, Cayman Islands, BVI, Bahamas, Luxembourg, Ireland

Company	Profits held offshore	US Taxes Avoided
Pfizer	\$69 billion	\$20 billion
Merck	\$57 billion	\$16 billion
Johnson & Johnson	\$51 billion	\$14 billion
Amgen	\$26 billion	\$9 billion
Abbott	\$24 billion	\$7 billion
BMS	\$24 billion	\$7 billion

Source: Citizens for Tax Justice, 2016. <http://gormanandjoneslaw.com/offshore-tax-havens/>
<http://america.aljazeera.com/articles/2015/3/12/obama-gambit-for-corporate-cayman-cash.htm>⁷⁶

The legal basis of personal importation

Article 60 of TRIPS - *De Minimis Imports* . states:

Members may exclude from the application of the above provisions small quantities of goods of a non-commercial nature contained in travellers' personal luggage or sent in small consignments

In line with Article 60, most countries allow some form of personal medication importation

Medicines are being sent from India, China, Egypt and Bangladesh to countries all over the world

Central London: Generic TDF/FTC for HIV prevention

Cipla TENVIR-EM
n=181



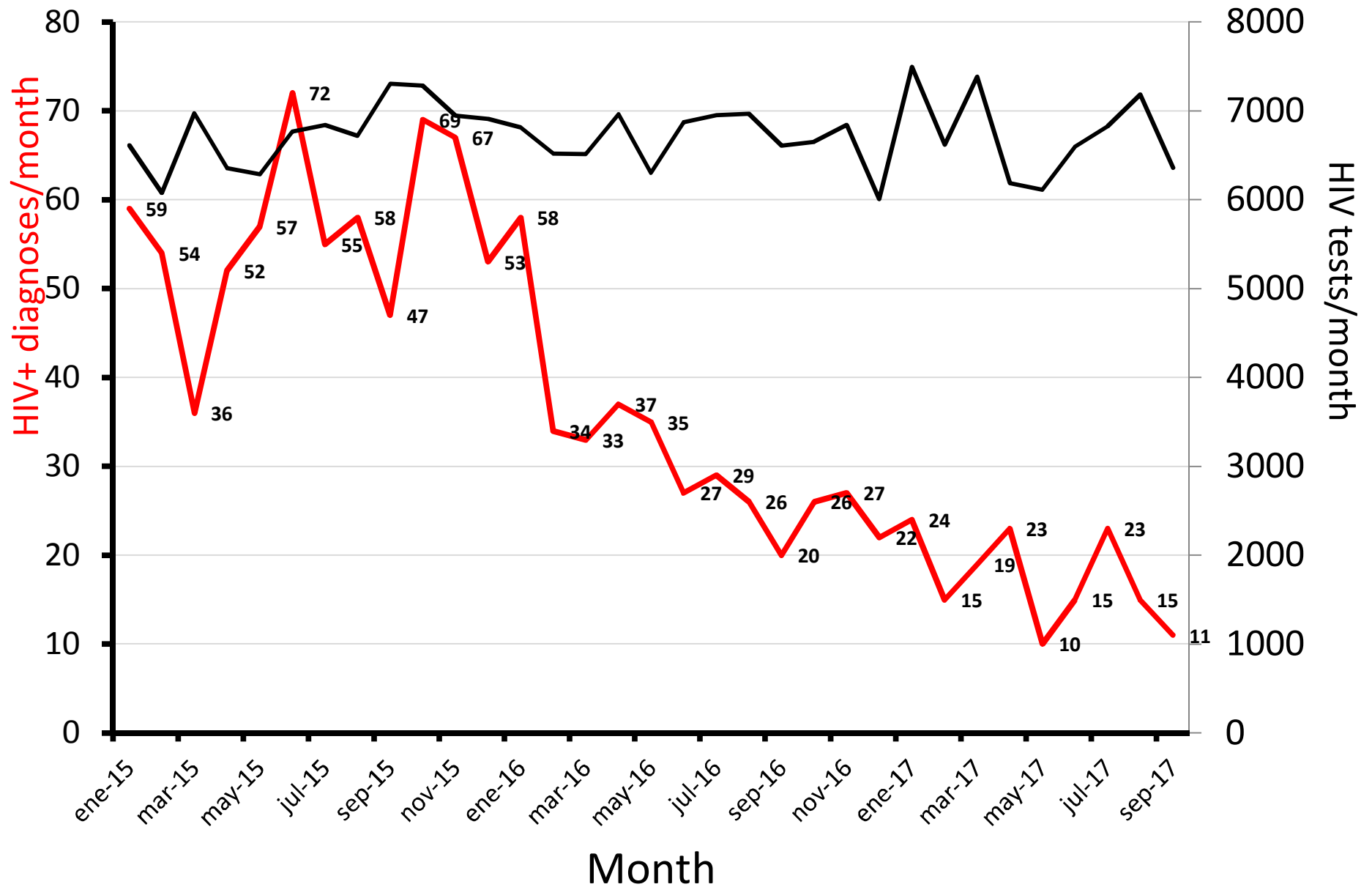
Emcure TAVIN-EM, n=2



Mylan RICOVIR-EM, n=1



HIV infections in Central London, 2015 to 2017



Conclusions - 1

Spain could save at least 1 billion Euros per year by negotiating lower drug prices. Probably more than this.

Most drugs are very cheap to make . find out the costs of production. We have the prices for all drugs in the WHO Essential Medicines List

Make sure that all generic drugs are available at close to the costs of production. If not, why not?

Negotiate prices of new drugs compared to the low prices of generics . what additional benefits do the new drugs give? Are they worth the money?

Conclusions - 2

If pharmaceutical companies refuse to lower prices, we need back-up mechanisms to ensure access:

- “ Compulsory licenses
- “ Buyers Clubs
- “ Windfall taxes on tax avoidance

Importation of generics for personal use should be legal across Europe

Generic drug production should be better coordinated across Europe