

EDITORIALS

Fair vaccine pricing please, not random acts of charity

Vaccines are essential goods produced collectively to safeguard children, wherever they live

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Last month, Médecins Sans Frontières (MSF) surprised Pfizer and the world by refusing a donation of one million doses of the company's vaccine against *Pneumococcus*, the leading cause of pneumonia worldwide, killing one million children every year.¹ Although the need for the vaccine is high—only 37% of children worldwide are being immunised²—MSF judged it more important to press the company to lower the price, which is the primary obstacle to access.³ And with success: Pfizer, following the example of GlaxoSmithKline, the other producer of pneumococcal conjugate vaccines, has since announced that humanitarian organisations will get the vaccine at a special price,⁴ similar to that it is already offering to Gavi, a public-private partnership that works to increase access to vaccines in some 50 of the poorest countries.⁵

But donations and benevolent price reductions for selected countries or populations remain random acts of charity that do not get to the heart of the problem: the unacceptable commodification of human lives by drug companies using monopoly pricing power to determine who lives and who dies.

Price discrimination—that is, charging customers differently depending on their ability or willingness to pay—is a sign of market power. This behaviour is controversial for any type of good, such as food, and treated seriously by competition authorities. In the case of vaccines or other essential health products—public goods that should be generated according to public value considerations—the matter is extremely serious.

Pneumonia vaccines are likely to cost less than a dollar to produce (based on estimates for similar vaccines⁶) but are typically being sold at \$120–\$160 (£96–£130; €110–€150) per dose in wealthy countries,⁷ and at least three doses are required to protect a child. High prices stand in the way of access, but they guarantee great profits: Pfizer's revenue from this vaccine was \$6.2bn in 2015.⁸

GSK and Pfizer have previously agreed to supply their vaccines at around \$3 per dose to Gavi,⁵ and now also to humanitarian organisations. Though this has been applauded as an act of corporate social responsibility, the price is still more than profitable, and there is no transparency around the cost structure of vaccine manufacture or company use of tax deductions to

assess the true generosity of such offers. Moreover, these widely publicised price reductions are only available to countries covered by Gavi and for humanitarian emergencies, leaving about 82 million children unprotected against *Pneumococcus*, 88% of whom live in middle income countries.⁹

Long considered among the most cost effective health interventions, vaccines now join other vital treatments—including the \$1000 per pill hepatitis C drug sofosbuvir, the EpiPen, and new cancer drugs—whose price is becoming a critical barrier to access, with justifiable public outcry. As with expensive medicines, high vaccine prices are the consequence of corporate decisions to focus on maximising shareholder returns at the expense of public health.

Traditionally, the vaccine market has been based on high volumes at low prices, with relatively modest profit margins per dose, but it is now clear that drug companies have identified vaccines as the next pot of gold. Old vaccines are being reformulated and sold at higher prices, while new vaccines have entered the market at once unthinkable prices. The average cost to fully vaccinate a child through adolescence in the US rose from \$100 in 1986 to \$2192 in 2014.¹⁰ Prices for the rest of the world follow suit.

So what is the reason behind this price hike? Cynically, drug companies have the pricing power to ask whatever they think the market can bear. Even in the few instances where there are multiple vaccines, companies tend to price their products at similarly high levels; more often, they enjoy monopoly power. Furthermore, there is no real market for vaccines in the sense of an open and transparent system in which forces of supply and demand determine the best value price. Instead, the main buyers are governments and international organisations using taxpayers' money to promote people's health, with prices being negotiated on a case-by-case basis behind closed doors.

Moreover, in contrast to the medicines market, there are no generics for vaccines to drive down prices. This gives even stronger pricing power to a small number of multinational vaccine producers. In 2014, five companies (Merck, Sanofi Pasteur, GSK, Pfizer, and Novartis) represented 70% of the \$33bn and growing annual vaccine market.¹¹

As with medicines, the often cited justification for high vaccine prices is that research and development is expensive and risky. And though it certainly isn't cheap, the actual cost of research and development of vaccines has remained a closely guarded secret—even though vaccines are primarily paid for with taxpayers' money. A detailed estimate of the development cost of rotavirus vaccines suggests that companies could recover all fixed costs quickly and offer these vaccines to all countries at affordable prices.¹² Instead, as the pneumococcal vaccines show, they seek to fragment the market, selling in middle and high income countries in ways that maximise short term returns.

To achieve the right outcomes markets must be actively shaped by public policy. One critical step could be to agree on a fair price that takes into account the research and manufacturing costs, the public research contributions, and the public health importance of vaccines. This, rather than charitable donations meant to mask the system failures of a profit maximising healthcare economy, would be a beneficial corrective for public health. The right price for vaccines must take into account the value of their collective creation but also the fact that they are essential goods produced collectively to safeguard the vulnerable—no matter where they live.

Competing interests: We have read and understood BMJ policy on declaration of interests and have no relevant interests to declare.
Provenance and peer review: Commissioned; not externally peer reviewed.

- 1 Médecins Sans Frontières. There is no such thing as "free" vaccines: Why we rejected Pfizer's donation offer of pneumonia. 9 Oct 2016. https://medium.com/@MSF_access/there-is-no-such-thing-as-free-vaccines-why-we-rejected-pfizers-donation-offer-of-pneumonia-6a79c9d9f32f#6mg20cix
- 2 World Health Organization. Global immunization coverage sustained in the past five years. 2016 http://www.who.int/immunization/newsroom/press/immunization_coverage_july_2016/en/
- 3 Médecins Sans Frontières. Pfizer drops the price for humanitarian organizations. 15 Nov 2016. <https://www.afaishot.org/articles/2016/11/15/pfizer-drops-the-price-for-humanitarian-organizations>
- 4 Pfizer. Pfizer announces major expansion of humanitarian assistance program. 2016. http://www.pfizer.com/news/press-release/press-release-detail/pfizer_announces_major_expansion_of_humanitarian_assistance_program?linkId=31045413
- 5 Hamblin J. Why doctors without borders refused a million free vaccines. *The Atlantic* 2016 Oct 14. <http://www.theatlantic.com/health/archive/2016/10/doctors-with-borders/503786/>
- 6 Clendinen C, Zhang Y, Warburton RN, Light DW. Manufacturing costs of HPV vaccines for developing countries. *Vaccine* 2016;34:5984-9. doi:10.1016/j.vaccine.2016.09.042 pmid: 27771183.
- 7 Centers for Disease Control and Prevention. Current CDC vaccine price list. 1 Nov 2016 <http://www.cdc.gov/vaccines/programs/vic/awardees/vaccine-management/price-list/>
- 8 Médecins Sans Frontières. Pricing and price transparency in pharmaceuticals: pneumococcal conjugate vaccines. Investor briefing April 2016 [cited 14 November 2016]. <https://shareaction.org/wp-content/uploads/2016/04/PCV-Vaccine-InvestorBriefing.pdf>
- 9 VIEW-hub. PCV Vaccine Introduction- Current Dosing Schedule [Internet]. 2016 [cited 14 November 2016]. Available from: <http://view-hub.org/viz/?YXBwaWQ9MSZpbmRpY2F0b3JpZD01NSZvdmVybGF5aWQ9NA==>
- 10 Rosenthal E. The price of prevention: vaccine costs are soaring. *New York Times* 2014 Jul 2. http://www.nytimes.com/2014/07/03/health/Vaccine-Costs-Soaring-Paying-Till-It-Hurts.html?_r=0
- 11 Cáceres M. Merck leads world's top vaccine makers, Novartis out. *Vaccine Reaction*. 28 Aug 2015 <http://www.thevaccinereaction.org/2015/08/merck-leads-worlds-top-vaccine-makers-novartis-out/>
- 12 Light DW, Andrus JK, Warburton RN. Estimated research and development costs of rotavirus vaccines. *Vaccine* 2009;27:6627-33. doi:10.1016/j.vaccine.2009.07.077 pmid: 19665605.

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