Mumbai, India

KanchanSrivastava@gmail.com

Cite this as: *BMJ* 2021;375:n2754<http://dx.doi.org/10.1136/bmj.n2754>

Published: 17 November 2021

VACCINES

Fake covid vaccines boost the black market for counterfeit medicines

Counterfeit medicines and vaccines have always threatened public health, but the pandemic has brought a global surge in black market sales, writes **Kanchan Srivastava**

Kanchan Srivastava *freelance journalist*

When the World Health Organization flagged the danger of fake covid-19 vaccines in August,¹ Mumbai and Kolkata police were already prosecuting a dozen people for their alleged involvement in “fake vaccination drives” conducted in May and June. In Kolkata, a member of parliament, Mimi Chakraborty, was among 500 people administered fake versions of Covishield (India’s version of the AstraZeneca vaccine).

China has been clamping down on counterfeit versions of its domestically produced vaccines,² while Mexico and Poland have reported counterfeits of Pfizer vaccines being given to people for \$1000 each.³ Mexican customs officials have also seized vials of fake Sputnik V vaccine destined for Honduras.⁴ An Interpol operation across southern Africa in July and August led to the identification of 179 suspects and the seizure of \$3.5m worth of goods, including vaccines, face masks, and fake covid-19 test certificates.⁵

“I’ve never seen such a dynamic situation before,” Jürgen Stock, general secretary of Interpol, told *Time* magazine,⁶ “The liquid gold in 2021 is the vaccine, and already we are seeing that vaccine supply chains are targeted more and more [by counterfeiters].”

What is a fake medicine?

Interpol defines a counterfeit or substandard medicine as one that differs from the authentic version of the vaccine by:

- Containing too much or too little of one or more ingredients, or containing different ingredients
- Claiming to have different properties or side effects
- Having a different shape, size, taste, or colour
- Being not correctly labelled or not labelled at all
- Having an out-of-date or missing expiry date
- Not including information on how to store the medicine
- Having packaging that looks poorly constructed, is labelled with spelling or grammar errors, or appears to have been interfered with

WHO estimates that up to 1% of medicines available in high income countries are likely to be counterfeit, but this figure rises to 10% globally. In Africa, 18.7% of samples have been found to be fake or substandard.⁷ A 2017 report by PwC estimated the counterfeit medicine market to be worth \$200bn and growing by 20% annually.

In the past year, the black market in medicines grew by more than 400%, according to a report⁸ cited by the Fight the Fakes Alliance, a multi-stakeholder non-profit association trying to counter the proliferation of fake and substandard medicines. For comparison, the genuine covid vaccine market is estimated to be worth \$150bn.⁹

Confusing information, panic, and vaccine inequity during the pandemic have created a ripe market for criminals. Oksana Pyzik, who leads the UCL Lead Global Citizenship Programme Outbreak of Infectious Disease, says the “trickle down” of vaccine donations from richer countries has left populations—and particularly health workers—in low and middle income countries vulnerable to infection, with some turning to unlicensed vendors for vaccines.

WHO has warned that the vaccine equity gap continues to be exploited by organised criminal groups for profit as they pivot from personal protective equipment and diagnostics towards vaccines.

An age old problem

Counterfeiting has existed in the medicine trade for centuries—it was rampant during the Great Plague pandemic of the 17th century, for example.¹⁰

Alok Dhawan, director of the Centre of Biomedical Research in Lucknow, India, says, “Fake medicines and vaccines are part of a parallel and illegal industry that flourishes in developing countries where most products are available over the counter and medical shops often lack qualified pharmacists.”

The globalisation of the pharmaceutical industry has spread both fake and substandard products worldwide. Active ingredients may come from China, while the product may be manufactured in India and be packaged in a third country before being shipped through Dubai. It might then be repackaged and shipped to yet another country to take advantage of exchange rates. These many steps provide places for fraud to occur.

A common practice is to procure empty vials and refill them with saline solution or substandard products. Dhawan says knock-offs that contain lower concentrations of the active pharmaceutical ingredients than the official drug are also common. “Small pharma companies, especially those which do outsource work for big companies, often flout good manufacturing practices to cut the cost,” he adds.

Health economist Eric Feigl Ding says counterfeits and substandard products “may contain harmful ingredients, less active ingredients, the wrong drug, the wrong concentration, or drugs past their expiry dates, resulting in poor effectiveness and unexpected side effects which may cause serious health implications.”

“More importantly, such products give patients the illusion of protection or a cure—which could further endanger themselves and endanger others if the disease is an infectious one,” he told *The BMJ*.

Counterfeits are marketed through spam email and social media. Yashasvi Yadav, special inspector general of police (cybercrime), Maharashtra, says consumers should be “cautious of emails advertising medical products with spelling mistakes and poor grammar, lacking a physical address, or offering prescription-only medicines without a prescription at a low price.”

Yadav says sales also take place over the darknet (hidden networks within the internet), and are almost impossible to track. It is unknown what proportion is genuine or counterfeit. According to Israel cybersecurity firm CheckPoint, darknet advertisements for covid-19 vaccines—including AstraZeneca, Johnson & Johnson, Sinopharm, and Sputnik V at \$500-1000 per dose—have increased by more than 300% in the past three months.¹¹

Pyzik says better authentication is needed. “At a macro level, a critical anti-falsification strategy is needed to reduce the number of imported pharmaceutical products by further developing local manufacturing capacity and investing in new technologies to protect the supply chain.”

But technology alone is not enough, says Pyzik. “Without a joined up global strategy and political will to increase medicine access, improve education and training around fake and substandard medicines, enhance regulatory capacity in low and middle income countries, and deter criminal activity via legislative reform, the black market will continue to thrive and poor-quality production sites proliferate.”

The trade indirectly funds other criminal activities, from human trafficking to funding terrorism, she says.

“With high profits, difficult detection, and low penalties or fines, the falsification of medicines may be described as the perfect crime.”

How to spot a counterfeit medicine

According to Interpol, looking for the “six Ps” is a starting point to identify a falsified medical product:

- **Place**—Never buy medicines from unknown websites or in a marketplace. If you are unsure about a supplier’s credentials, check the list of registered dispensaries at your local health regulatory body
- **Prescriptions**—Only buy medicine that has been prescribed by your doctor or healthcare professional. When buying online, make sure the website requires you to present a prescription. Do not buy from websites that offer prescriptions on the basis of questionnaires or do not have a contactable pharmacist
- **Promises**—Be wary of pharmacies that offer “too good to be true” promises. False promises to watch out for are “cures all types” of a major illness, “money-back guarantee”, “no risk”, or “limited supply—buy in advance”
- **Price**—Check the price against products you usually buy or with reputable providers. If it is substantially cheaper, it is likely to be a fake
- **Privacy**—The trade in fake medical products has been linked to credit card fraud and identity theft. Do not reveal any personal information beyond appropriate medical details

• Product—Compare the medicines with your usual prescription

Competing interests: I have read and understood the *BMJ* policy on declaration of interests and have no relevant interests to declare.

Provenance and peer review: Commissioned; not externally peer-reviewed.

- 1 Mateen Z. Covishield: WHO flags fake jabs in India, Africa. *BBC* 2021 Aug 18. <https://www.bbc.com/news/world-asia-india-58253488>
- 2 Goh B. China cracks fake COVID-19 vaccine ring, confiscates 3,000 doses: Xinhua. *Reuters* 2021 Feb 2. <https://www.reuters.com/article/us-health-coronavirus-china-vaccine-idUSKBN2A2031>
- 3 Coronavirus: Pfizer confirms fake versions of vaccine in Poland and Mexico. *BBC* 2021 Apr 22. <https://www.bbc.com/news/world-56844149>
- 4 Mexican customs seize counterfeit COVID-19 vaccines. *Associated Press* 2021. <https://english.alarabiya.net/coronavirus/2021/03/18/Coronavirus-Mexican-customs-seize-counterfeit-COVID-19-vaccines>
- 5 Interpol. Crackdown on illicit health and counterfeit products identifies 179 suspects in southern Africa. 2021. <https://www.interpol.int/en/News-and-Events/News/2021/Crackdown-on-illicit-health-and-counterfeit-products-identifies-179-suspects-in-Southern-Africa>
- 6 Shuster S. Fake vaccines are “liquid gold” in pandemic crime wave worth billions, says Interpol. *Time* 2021 March 12. <https://time.com/5945459/fake-vaccines-pandemic-crime-wave-interpol/>
- 7 Ozawa S, Evans DR, Bessias S, et al. Prevalence and estimated economic burden of substandard and falsified medicines in low- and middle-income countries: a systematic review and meta-analysis. *JAMA Netw Open* 2018;1:e181662. doi: 10.1001/jamanetworkopen.2018.1662 pmid: 30646106
- 8 Medicine Quality Research Group. Centre of Tropical Medicine & Global Health, Nuffield Department of Medicine, University of Oxford. Medical Product Quality Report—COVID-19 Issues. 2021. https://www.iddo.org/sites/default/files/publication/2021-03/Medical%20Product%20Quality%20Report_Covid-19%20Issues_Issue%208_January%202021_Main%20text%20plus%20annexes_V1.pdf
- 9 Bernaert A. The COVID vaccine market is worth at least \$150 billion. Can we stop it being flooded with fakes? 2021. <https://www.weforum.org/agenda/2021/07/covid-vaccines-fake-counterfeit/>
- 10 Newton PN, Bond KC53 signatories from 20 countries. COVID-19 and risks to the supply and quality of tests, drugs, and vaccines. *Lancet Glob Health* 2020;8:e754-5. doi: 10.1016/S2214-109X(20)30136-4 pmid: 32278364
- 11 CheckPoint. A passport to freedom? Fake COVID-19 test results and vaccination certificates offered on Darknet and hacking forums. 2021. <https://blog.checkpoint.com/2021/03/22/a-passport-to-freedom-fake-covid-19-test-results-and-vaccination-certificates-offered-on-darknet-and-hacking-forums/>