8 Efforts to combat counterfeit pharmaceuticals

Many initiatives are underway to tackle the growing problem of counterfeit pharmaceuticals. This chapter summarises the main global efforts, including crime-fighting programmes run by INTERPOL and the World Health Organization. It also outlines the various legislative measures in place to protect consumers and producers from fake medicines.

Governments and industry have been working hand-in-hand to combat counterfeit, substandard and falsified pharmaceuticals. Some of these efforts have been described earlier in this report. Here we describe more global initiatives taken by international organisations.

INTERPOL

A number of initiatives are in place at the international level to combat counterfeit and illicit drugs, co-ordinated by INTERPOL. Operation Pangea has been carried out since 2008, with the number of countries participating rising from 8 to a record 123 in 2017.[1] The operation targets the online sale of counterfeit and illicit medicines and medical devices. Participating agencies carry out co-ordinated operational activities against illegal websites during the same week in order to identify the criminal networks behind the trafficking (Table 8.1). During Pangea XI, which was carried out in 2018, police, customs and health regulatory authorities from 116 countries targeted the illicit online sale of medicines and medical products, resulting in 859 arrests worldwide and the seizure of USD 14 million worth of potentially dangerous pharmaceuticals.[2] Almost one million packages were inspected during the week of action, with 500 tonnes of illicit pharmaceuticals seized worldwide. Seizures included anti-inflammatory medication, painkillers, erectile dysfunction pills, hypnotic and sedative agents, anabolic steroids, slimming pills and medicines for treating HIV, Parkinson's and diabetes. More than 110 000 medical devices including syringes, contact lenses, hearing aids and surgical instruments were also seized.

Table 8.1. Operation Pangea 2008-2018

Year (Pangea number)	Number of countries	Seizures		Number of arrests	Number of websites closed
		Quantity	Value (millions of USD)		
2008 (I)	10	NA	NA	NA	NA
2009 (II)	24	167 000 items	NA	221	72
2010 (III)	45	1 million	2.6	NA	290
2011 (IV)	81	2.4 million items	6.3	551	13 500
2012 (V)	100	3.75 million items	10.5	80	18 000
2013 (VI)	100	9.8 million items	41	58	9 000
2014 (VII)	111	9.4 million items	31	237	10 600
2015 (VIII)	115	20.7 million items	81	156	2 414
2016 (IX)	103	12.2 million items	53	393	4 932
2017 (X)	123	25 million items	51	400	3 584
2018 (XI)	116	500 tonnes	14	859	3 671

Notes: [1]Arrested or under investigation. NA: Not available.
Source: INTERPOL news releases at www.interpol.int/News-and-Events

One of the main trends identified during the decade of Pangea operations is the continuous growth of unauthorised and unregulated online pharmacies, which are capitalising on increasing consumer demand worldwide.[3] It has also observed that criminals are shipping packages containing smaller numbers of pills and tablets to try to avoid the more stringent checks which have become routine in many countries.[4] In the 2018 Pangea operation, authorities in Poland discovered counterfeit contraceptive pills hidden inside DVD packages, while in Ireland illicit sleeping pills were found concealed inside a hollowed-out book. Criminals also attempted to evade detection by falsely labelling shipments. In Argentina for example, more than 4 million unmarked ibuprofen pills were seized after they were declared as sample items, and the United Kingdom recovered some 150 000 powerful sleeping pills in shipments labelled as clothing, bedding and food.

In addition to the global Pangea campaigns, INTERPOL has overseen a number of regional initiatives to intercept counterfeit pharmaceuticals.[5] These include Operation Rainfall, which focused on Asia; Operation Qanoon, which focused on the Middle East and North Africa; and Operation Heera, which focused on West Africa. The results of these campaigns for 2018 are shown in Table 8.2.

Table 8.2. Selected Interpol operations involving pharmaceutical products, 2018

Operation	Number of units seized	Estimated value (USD)	Suspects identified
Rainfall	295 000	122 400	15
Qanoon	1.4 million	1.5 million	39
Heera	95 800	3.8 million	41

Source: https://www.interpol.int/en/Crimes/Illicit-goods/Pharmaceutical-crime-operations

World Customs Organization

The WCO manages an IPR, Health and Safety Programme that focuses on capacity building, co-ordinating efforts of its members and related international organisations, working with the private sector and developing enforcement tools.[6] The capacity building includes accreditation of experts, organising regional and national seminars for customs officers and conducting diagnostic missions that include the review of national legislation, analysis of country-specific risks, engagement of rights holders and national competent authorities. Co-ordinating efforts by all stakeholders through simultaneous enhanced border controls focuses on improving information sharing in real time among different countries, providing customs officers with tools and instruments for more efficient risk analysis and targeting, enhancing co-operation with the rights holders and learning more about the phenomenon of counterfeiting flows and concealment methods. Partnership with the private sector focuses on developing real-time access to the commercial data and strategic information needed to detect counterfeit goods.

In its 2018 report on the situation in illicit trade, the WCO notes that the high volumes and increasingly sophisticated nature of trade in counterfeit goods were serious concerns, and that organised criminal groups were heavily involved in disseminating and selling such products (WCO, 2018). It notes further that the WCO prioritises combating IPR infringements by capturing the attention of customs officers and industries worldwide and ensuring sufficient vigilance in efforts to combat the counterfeiting. The report distinguishes medical products from “IPR products”, which are defined to include clothing and accessories, cosmetics and electronic appliances. Medical products are defined more broadly to include counterfeit, genuine products that lack either the appropriate authorization or licences, and products that are undeclared.

Trends

While seizures of IPR products have declined, seizures of medical products have surged by 167%, rising from 2 862 in 2016, to 7 629 in 2017. Seizures of metabolic agents (e.g., steroids, and antidiabetic products) and urogenital agents (e.g., erectile and kidney dysfunction medicine) top the list. Most of the seizures occurred by intercepting products sent via the post, which accounted for 72% of the total of all seizures (WCO, 2018). Seizures from vessels, however, accounted for the largest number of items seized, accounting for close to 75% of the 270.9 million items seized.

An examination of trafficking flows reveals that North America and Western Europe were the top destinations for fake medical products in 2017, receiving 50% and 26% respectively of the total cases with known trafficking information (WCO, 2018). According to the available data, 74% of all cases originated in the Asia-Pacific region, followed by Western Europe (13%). Unlike the Asia-Pacific region, however, the predominant recipient of Western European cases was Western Europe itself.

Operations

WCO’s operations primarily entail applying risk analysis techniques and targeting across regions. A significant number of suspect containers are targeted during the pre-operational phase and are subsequently inspected during the operational phase (WCO, 2018). In June 2017, the WCO carried out Operation ACIM 2 (Action against Counterfeit & Illicit Medicines), in co-operation with the International Institute of Research against Counterfeit Medicines (IRACM). The operation mobilised the resources of 18 customs administrations in Africa that conducted simultaneous inspections of consignments potentially containing certain types of counterfeit and/or illicit pharmaceutical products. The operation took place in 18 ports over an eight-day period and was intended to provide a deeper insight into the flow of pharmaceutical goods entering the African mainland. Accredited experts in IPR offered training in new and practical targeting techniques to enhance interdiction capabilities. During the operational phase, authorities intercepted some 258.9 million units of fake medicines across 840 cases.

WCO also co-ordinated two operations a number of years ago, targeting counterfeits shipped through the post and courier services (OECD/EUIPO, 2018b). Operation Global Hoax, which took place in 2010, resulted in the seizure of tens of thousands of counterfeit products, including pharmaceuticals, at international mail facilities and express courier depots. Operation Global Hoax II, which took place from November 2011 to January 2012, also focused on postal and courier channels. More than 30 000 parcels were detained and over 150 000 counterfeit items seized, including pharmaceuticals.

World Health Organization

In 2012 the World Health Assembly established a mechanism to provide oversight, strong commitment and political will from member states and the WHO to tackle issues concerning substandard, spurious, falsely-labelled, falsified or counterfeit medical products (WHO, 2017b). The mechanism brings together WHO member states in a voluntary, self-governing body. It was formed to increase member state collaboration on the prevention and control of the areas covered. Efforts were initially hampered by discussions over whether protection of public health should include consideration of intellectual property rights. This was resolved in 2017 when it was decided that the threat to lives and well-being posed by substandard and falsified medical products could be dealt with most effectively by focusing exclusively on issues of public health concern, and that consideration of IPR was outside the scope. The overall aim of the initiative is to establish an environment that is effective in preventing, detecting and responding to the threats posed by substandard and falsified products. In support of this, technical work carried out under the mechanism aims at:

- identifying factors that drive the emergence of substandard and falsified medical products
- developing recommendations for health authorities to detect and deal with substandard and falsified medical products
- developing a national action plan to prevent, detect and respond to substandard and falsified medical products
- creating a global regulatory focal point network
- implementing track and trace systems
- understanding authentication technologies
- reaching a global common understanding on the definitions of substandard, unregistered/unlicensed and falsified medical products.

This has translated into a programme that focuses on:

- training and supporting a network of nationally designated focal points within national and regional regulatory agencies who act as a channel of communication between national and global authorities around medicine quality
- developing tools and systems that countries can adapt to make reporting of suspected products easier and more efficient
- supporting countries in appropriate public-health focused investigation and response to incidents involving substandard and falsified medical products
- developing and maintaining a global database of reports relating to the discovery of substandard or falsified medicines, for use by regulatory agencies globally
- analysing global data to provide evidence-based recommendations for appropriate decision-making and effective action.

The system includes a Rapid Alerts mechanism, which provides details of confirmed cases that might pose a public-health risk to another country. The alerts are intended to help guide post-market surveillance, and sometimes lead to the detection of more falsified products.

A blueprint for responding effectively to the challenges posed by substandard and falsified medicines, while not aimed at IP issues, is nevertheless relevant to those issues as one can presume that a large share of counterfeit products are also falsified (Table 8.3). The Guidance was developed at the WHO, for use in developing national responses.

Table 8.3. Actions to implement the WHO's "prevent, detect and respond" approach in tackling substandard and falsified medicines

Prevent	
Education and awareness	There are focused education, media and awareness programmes, for non-health professionals, the general public and civil society groups on substandard and falsified medical products.
	The issue of substandard and falsified medical products is integrated as part of the core medical, pharmacy and regulatory curriculum.
Comprehensive legal framework	There are legal provisions in place enabling the national medicines regulatory authority (NMRA) to seize, quarantine, sample, analyse, recall and destroy substandard and falsified medical products.
	There are legal provisions in place for the inspection, investigation, enforcement and proportionate sanctioning of those engaged in the manufacture, distribution, storage, supply and sale of substandard and falsified medical products.
	There is a documented strategy and guidelines in place and implemented relating to the prevention, detection and response to substandard and falsified medical products.
Multi-stakeholder engagement	There is clear and regular communication with civil society groups, health care professional organizations, the pharmaceutical industry and actors within the supply chain, specifically focusing on substandard and falsified medical products.
	There are documented and implemented procedures for regular engagement with the relevant government departments and agencies, including national pharmacovigilance centres, national poison centres and national quality control laboratories
Supply chain integrity	A track and trace system with an authentication process has been implemented for medical products.
	The supply chain has been mapped from point of manufacture or importation through to public outlets, pinch points identified and staff trained to identify, report and respond to suspected substandard and falsified medical products.
Detection	
Border control	There are designated ports for the importation and export of medical products, and a regulatory presence at those ports.
	There are documented and implemented procedures for allowing the exchange of information concerning suspected substandard and falsified medical products between customs, police and the regulatory agency.
Reporting systems	Effective public reporting systems exist, enabling the reporting of suspected substandard and falsified medical products and adverse drug reactions to the NMRA.
Risk-based inspection and surveillance	A risk-based strategy is documented and implemented for conducting regular targeted and random market surveillance for substandard and falsified medical products within the regulated and unregulated supply chains.
	There is a documented and implemented risk-based inspection programme for those entities engaged in the manufacture (including relabelling/repackaging), importation, distribution/wholesale and supply/sale of medical products.
Access to laboratories and screening technologies	There is access to an externally accredited national quality control laboratory and documented procedures are in place and implemented regarding the analysis and reporting of substandard and falsified medical products.
	There is access to field screening equipment (and relevant reference material), which staff have been trained to use, and procedures are documented and implemented for the use of such equipment.
Response	
Alerts and recalls	A documented and implemented procedure exists concerning the issuing, receipt and response to Rapid Alerts concerning substandard and falsified medical products.
	A designated and trained focal point(s) within the NMRA has been established to receive and respond to reports of suspected substandard and falsified medical products and has access to the WHO Global Surveillance and Monitoring System for substandard and falsified medical products.
Regulatory strengthening	Regulatory personnel are designated and trained in the response to substandard and falsified medical products and documented procedures have been established and implemented.
	The prevention, detection and response to substandard and falsified medical products has been embedded in core regulatory responsibilities across departments and government agencies and is

	included in regulatory assessment indicators.
Transparent legal process	The use of regulatory or criminal law sanctions is justified and applied in a consistent and proportionate way. The application and use of sanctions is published by the national or regional regulatory authority.
Evidence-based policy and procedures	Each incident involving substandard and falsified medical products has been reviewed with a view to identifying weaknesses in the system, vulnerabilities in the supply chain and making appropriate changes to improve the safety of patients.
	There is clear use of data from a wide range of sources in developing evidence-based policy and procedures to prevent, detect and respond to substandard and falsified medical products.

Source: WHO (2017b). *WHO Global Surveillance and Monitoring System for Substandard and Falsified Medical Products*, www.who.int/medicines/regulation/ssffc/publications/GSMSreport_EN.pdf?ua=1.

Legislative measures

A number of international instruments have been developed to support efforts to combat counterfeit and substandard pharmaceutical products, including the MEDICRIME Convention and the EU's Falsified Medicines Directive. Similar efforts have also been pursued at the national level, and by industry groups.

MEDICIRIME Convention

The Council of Europe has developed the MEDICRIME Convention, which provides countries with a model legal framework for dealing with falsified medicines and other types of pharmaceutical crime that threaten public health (WHO, 2017b). The aim is, in part, to provide a framework that will allow for more international co-ordination in the investigation of suspect falsified medicines, and in the prosecution of criminals. Under the convention, which entered into force in January 2016, intentionally manufacturing, supplying, offering to supply and trafficking of falsified medicines is considered a criminal act. This treaty calls for multilateral collaboration across nations, disciplines and sectors, and lays the ground for co-operation with and between international bodies such as INTERPOL, Europol, UNODC, the WCO and WHO, in order to put a stop to this international threat to public health.[7] The convention has been ratified by 15 countries.[8]

Supply Chain Security

In the European Union, the Falsified Medicines Directive (FMD) is legislation passed by the Council of European Union and European Parliament in 2011. It aims at increasing the security of the manufacturing and delivery of medicines across Europe and to protect patients and prevent falsified medicines from entering the supply chain.[9] The Directive 2011/62/EU came into force in January 2013; delegated regulation of the directive was implemented in February 2019. The directive requires:[10]

- a unique identifier and an anti-tampering device on the outer packaging of medicines
- a common, EU-wide logo to identify legal online pharmacies
- tougher rules on the import of active pharmaceutical ingredients
- stronger record-keeping requirements for wholesale distributors.

Pharmacies, and others who are authorised to supply medicines to the public, will be required to authenticate products, which means visually checking the anti-tamper device and performing a verification and decommissioning scan, "at the time of supplying it to the public".[11]

With respect to Internet sales, the FMD obliges Member States to make non-prescription products available "at a distance" via the Internet (EAASM, 2018). Prescription products are not subject to the same requirement but may be made available in accordance with Member State legislation. Internet retailers are obliged to display a logo (mentioned above), often referred to as the Common Logo, in order to market products online. Government agencies overseeing the market are responsible for the registration process of those entities wanting to sell medicines over the Internet, and also inspections to ensure that such pharmacists or retailers are operating legally and displaying the logo in accordance with the directive. The logo is encrypted to enable a visitor to the site to click on the logo which then routes through to a list of

registered sellers (normally pharmacies). The visitor is therefore able to check the validity of the website. Under the directive, Member States, in co-operation with the EU Commission, are further obliged to conduct or promote information campaigns aimed at the general public on the dangers of falsified medicinal products.

In the United States, the Drug Supply Chain Security Act, passed in 2013, outlines steps to build an electronic, interoperable system to identify and trace certain prescription drugs that are distributed in the United States.[12] The aim is to enhance the FDA's ability to help protect consumers from exposure to drugs that may be counterfeit, stolen, contaminated, or otherwise harmful. The system is also aimed at improving detection and removal of potentially dangerous drugs from the drug supply chain. The act outlines requirements for manufacturers, repackagers, wholesale distributors, dispensers, and third-party logistics providers (trading partners). The requirements, development of standards, and the system for product tracing are to be phased in by November 2023.[13] By that time, manufacturers will be required to encode their products with a unique identifier at the product unit level, and provide for electronic track and trace of units.[14] The aim is to have complete unit traceability throughout the supply chain by 2023.[15]

In Turkey the pharmaceutical track and trace system (ITS) has been used by the Ministry of Health since January 2010. Every transaction of pharmaceuticals is registered in the ITS, which ensures traceability of medicines from manufacturing to the final user.

Online pharmacy authentication

The Royal Pharmaceutical Society of Great Britain (RPSGB) has created an Internet pharmacy logo which is displayed on the front page of participating online pharmacy sites; individuals are linked to a page on the RPSGB website where they can make checks to assess authenticity of what claims to be a *bona fide* registered online pharmacy (EAASM, 2008). The Verified Internet Pharmacy Practice Sites (VIPPS) seal of approval is an international system, operating in parts of the United States, Canada, South Africa and Australia, which aims to protect online consumers in a similar way to the RPSGB initiative. The VIPPS logo links consumers to the National Association of Boards of Pharmacy (NAPB) VIPPS site, where information is stored which helps identify genuine online pharmacies from rogue traders. PharmacyChecker is a free-to-consumer online service which produces reports on the credentials, prices and customer feedback of online pharmacies, focusing mainly on the United States and Canada. It is designed to help users identify reputable and trustworthy businesses. The site publishes a list containing the web addresses and business names of what it considers to be disreputable, dishonest and/or illegal online medicine trade sites.

A similar initiative was developed in the EU, where the common logo was introduced for legally operating online pharmacies and retailers in EU countries as one of the measures to fight against falsified medicines. The common logo was first introduced by Falsified Medicines Directive.[16] It consists of a national flag in the middle left side of the logo which corresponds to the EU country where the pharmacy or retailer is registered or authorised, and it leads to the website of the national competent authority listing all legally operating online pharmacies and retailers in this country.

As a complementary measure, the National Association of Boards of Pharmacy (a non-profit organisation comprised of state pharmacy regulators in the US, Canada, and the Bahamas) has acquired the top level domain name .pharmacy from ICANN (Internet Corporation for Assigned Names and Numbers).[17] The .Pharmacy Verified Websites Program is an international system that verifies websites operating or doing business in the United States, Canada, South Africa, Spain, the United Kingdom, Australia, Ireland, and other countries, which aims to protect online consumers in a similar way to the RPSGB initiative. Pharmacies wanting to offer the protection and gain the credibility of using a verified top-level domain name .pharmacy have to pass stringent regulatory criteria. Thus if a visitor searches on the web and finds a .pharmacy website, they can be assured it is genuine and that it is selling medicines in accordance with the in-country laws.

Notes

[1] See www.interpol.int/en/Crimes/Illicit-goods/Pharmaceutical-crime-operations.

[2] See www.interpol.int/en/News-and-Events/News/2018/Illicit-online-pharmaceuticals-500-tonnes-seized-in-global-operation.

[3] See www.europol.europa.eu/newsroom/news/millions-of-medicines-seized-in-largest-operation-against-illicit-online-pharmacies.

[4] See www.interpol.int/en/News-and-Events/News/2018/Illicit-online-pharmaceuticals-500-tonnes-seized-in-global-operation.

[5] See www.interpol.int/en/Crimes/Illicit-goods/Pharmaceutical-crime-operations.

[6] See www.wcoomd.org/en/topics/enforcement-and-compliance/activities-and-programmes/ipr.aspx.

[7] See https://rm.coe.int/medicrime-convention-questionsanswers-en-2019/1680925cc2.

[8] See www.coe.int/en/web/conventions/full-list/-/conventions/treaty/211/signatures?p_auth=Ur9r4Oos.

[9] See www.abpi.org.uk/what-we-do/working-with-government-and-parliament/falsified-medicines-directive-fmd/.

[10] See https://ec.europa.eu/health/human-use/falsified_medicines_en.

[11] See www.abpi.org.uk/what-we-do/working-with-government-and-parliament/falsified-medicines-directive-fmd/.

[12] See www.fda.gov/drugs/drug-supply-chain-integrity/drug-supply-chain-security-act-dscsa.

[13] See www.fda.gov/drugs/drug-supply-chain-security-act-dscsa/are-you-ready-drug-supply-chain-security-act.

[14] See www.pharmacytimes.com/publications/issue/2017/november2017/what-are-the-drug-supply-chain-security-acts-key-provisions.

[15] See https://adents.com/usa-dscsa-serialization-requirements-deadlines.

[16] See Directive 2011/62/EU of the European Parliament and of the Council of 8 June 2011.

[17] See https://nabp.pharmacy/programs/dotpharmacy/.

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