

# Medical Quality Product Report - COVID-19 issues

**Issue 13. Data from August & September 2021**

Part A: COVID-19 vaccines

Part B: Other COVID-19 related medical products:

- Diagnostics
- Personal Protective Equipment
- Sanitisers & disinfectants
- Medicines
- Ventilation & oxygenation equipment and consumables

**MORU**   
Tropical Health Network



**IDDO**   
INFECTIOUS DISEASES DATA OBSERVATORY

The document has been produced by the Medicine Quality Research Group,  
Centre of Tropical Medicine & Global Health, Nuffield Department of Medicine,  
University of Oxford

This report was prepared by Inthaphavanh Kitignavong, Kerlijn Van Assche, Céline Caillet and Paul Newton of the Medicine Quality Research Group, that is part of the Infectious Diseases Data Observatory (IDDO) and the MORU Tropical Health Network, Centre for Tropical Medicine & Global Health, Nuffield Department of Medicine, University of Oxford, UK.

The [Medicine Quality Monitoring Globe system](#) was developed by Clark Freifeld (HealthMap, Boston Children's Hospital, North Eastern University) and Andrew Payne (IDDO), Alberto Olliaro (IDDO) and Gareth Blower (ex-IDDO). Curation of the reports was done by Kitignavong Inthaphavanh and Konnie Bellingham, linked to the Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit (LOMWRU), Microbiology Laboratory, Mahosot Hospital, Vientiane, Lao PDR and by Thi Ngan Do, Jingying Xu and Ana Rosado Olmo (members of the Medicine Quality Research Group).

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Any remarks or additions to content are greatly appreciated (please write to [medicinequality@iddo.org](mailto:medicinequality@iddo.org)).

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## Summary of findings

Since the beginning of the pandemic we have identified 906 relevant articles on quality problems with COVID-19 medical products in the English lay press. In this issue we report on 64 incidents reported during the months of August and September 2021. All concern incidents with products that were reported as substandard, falsified, diverted, unregistered or of unclear quality that were included in the Medicine Quality Monitoring (MQM) Globe.

**Part A** of the report covers incidents with COVID-19 vaccines. Between 12<sup>th</sup> March 2020 and 30<sup>th</sup> September 2021 we found, excluding duplicates, 172 reports of incidents on quality issues with COVID-19 vaccines linked to 44 different countries and/or online. In August and September, 22 new incidents were reported. We report for the first time on incidents in Turkey, Spain and Zambia. Eight incidents involved falsified COVID-19 vaccines including those labelled as manufactured by Covishield (2), Pfizer/BioNTech (1), and Johnson & Johnson (1). Four incidents were related to diversion of COVID-19 vaccines out of the regular supply chain and 8 incidents involved substandard vaccines. Several articles in the lay press reported on apparently contaminated Moderna COVID-19 vaccines. Foreign substances have been observed for multiple batch numbers in several prefectures in Japan. The contamination could be due to a manufacturing issue in a Spanish production site.

**Part B** of the report covers incidents with other COVID-19 medical products including diagnostics, Personal Protective Equipment, sanitisers & disinfectants, medicines, and ventilation & oxygenation equipment and consumables. After a surge of articles in the spring of 2021, fewer articles reported on quality issues of COVID-19 medical products over the summer with a further decrease in August and September and no incidents related to diagnostics or ventilation & oxygenation equipment and consumables in September. For Personal Protective Equipment masks remain the main affected products. Some cases of poor quality remdesivir and tocilizumab occurred. In Thailand shortly after approval of green chiretta, a herbal medicine to treat asymptomatic COVID-19 patients, a falsified version was detected.

We remain very concerned about the global risk of substandard or falsified COVID-19 medical products, especially vaccines and medicines. We continue to share data from the MQM Globe, that serves as warning system for potential SF quality issues.

## Introduction

During the COVID-19 pandemic, the demand for COVID-19 related medical supplies has inevitably ballooned with an increased need for personal protective equipment (PPE), diagnostics and preventive & curative pharmaceuticals. The high demand and related shortages of genuine products contributes to an increased global risk of diverted, substandard and falsified (SF) medical products, for COVID-19 and for many other essential medicines. The media have been reporting diverse examples of SF products flooding the market.

This report aims to collate information and reports in the public domain on the quality of medical products that are currently in use, or that are being trialled for COVID-19's prevention or treatment. We also include reports on key subjects such as access, affordability or off label use for COVID-19 if they mention concern of the quality of the products. We do not aim to include discussion of the multiple fraudulent claims and quackery.

The current report consists of two parts. Part A contains the information related to COVID-19 vaccines. Part B contains information related to the other COVID-19 medical product categories including diagnostics, personal protective equipment (PPE), sanitisers & disinfectants, medicines, and ventilation & oxygenation equipment and consumables. The report aims to aid national medicine regulators, international organizations, manufacturers and distributors, and civil society by summarising the current public domain literature, to inform action and policy.

The reports presented here were mostly extracted from the Medicines Quality Monitoring Globe ([the MQM Globe is accessible on the IDDO website<sup>1</sup>](#)), a system that scrapes online newspapers (referenced in Google News) for early warnings of SF medical products. This report also includes scientific literature and policy documents related to COVID-19 medical product quality identified by manual searches in PubMed (Central) and Google Scholar. In addition, alerts and reports by national and international organisations are included when captured by the members of the team or shared by colleagues.

This thirteenth issue of the 'Medical Product Quality Report – COVID-19 Issues' covers information published during the months of August and September 2021. Previous issues covered publications from January 1<sup>st</sup> 2020 onwards and are available on the IDDO<sup>2</sup> and MORU<sup>3</sup> websites.

We have released a system to easily access regulatory authority and international organisation websites for alerts – see the 'Regulatory & alert webpages' section on

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<sup>1</sup>Infectious Diseases Data Observatory. Medicine Quality Monitoring Globe. Web Page. Published 2020. Accessed Jan 24, 2022. <https://www.iddo.org/medicine-quality-monitoring-globe>

<sup>2</sup>Infectious Diseases Data Observatory. Medical Product Quality Reports. Medical Product Quality Reports. Published 2020. Accessed Jan 24, 2022. <https://www.iddo.org/mq/research/medical-product-quality-reports>

<sup>3</sup>MORU Tropical Health Network. Medical Product Quality Report - Covid-19 issues. Medicine Quality. Published 2020. Accessed Jan 24, 2022. <https://www.tropmedres.ac/research-areas/medicine-quality/covid-19-pandemic>

our [MQM Globe](#). Any remarks or additions to content are greatly appreciated (please write to [medicinequality@iddo.org](mailto:medicinequality@iddo.org)).

## 1. Key terminology

In this report we refer to the terminology for different types of poor quality medical products as defined by the World Health Organisation (WHO, 2017)<sup>4</sup>. When coming across quality issues in the lay press we first try to categorise the products as 'falsified', 'substandard' and 'unregistered/unlicensed'. However, when dealing with lay press articles, it is sometimes hard to judge and difficult to classify the quality issues for products discussed in the different articles, very often because not enough detail is known or described in the report. Therefore when not clearly belonging to one of the above groups, we further use the concepts of 'substandard or falsified' (SorF), 'diverted', or 'unclear'. Please see Table 1 for our working definitions.

We emphasise the difference between the use of the terms 'falsified' and 'counterfeit' medical products. 'Falsified' is a broad term including all the various types of deliberate misrepresentation of a medical product from a public health perspective. The term 'counterfeit' is specifically linked to intellectual property rights, 'trademark counterfeit goods'<sup>5</sup> and 'pirated copyright goods'<sup>6</sup> as used in the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.

When the concept of 'black market' is used in lay press articles, we notice that the use depends on the personal interpretation of the author: it might refer to products that are illegal in themselves, it might be people trying to avoid taxes, or avoiding government price controls. The products involved can be good quality, substandard, falsified, or of unknown quality. We nevertheless report on them. We argue that products sold on the black market are a problem for the following reasons. Firstly, they are taken from people that are supposed to receive the product. Secondly, products on the black market, such as vaccines and medicines, risk degradation due to improper handling and storage. Currently, articles do not provide evidence on degradation of products on the black market since it is not something that is investigated at the moment. In this report, we will classify black market sales as products for which the quality is 'unclear' when it is not specified in the article or report as falsified, substandard, or a genuine products.

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<sup>4</sup>Source: World Health Organisation. Appendix 3 WHO MEMBER STATE MECHANISM ON SUBSTANDARD/SPURIOUS/FALSELY-LABELLED/FALSIFIED/COUNTERFEIT (SSFFC) MEDICAL PRODUCTS WORKING DEFINITIONS. In: Seventieth World Health Assembly. ; 2017. Accessed March 2, 2021. [https://www.who.int/medicines/regulation/ssffc/A70\\_23-en1.pdf?ua=1](https://www.who.int/medicines/regulation/ssffc/A70_23-en1.pdf?ua=1)

<sup>5</sup>*Trademark counterfeit goods*: any goods, including packaging, bearing without authorization a trademark which is identical to the trademark validly registered in respect of such goods, or which cannot be distinguished in its essential aspects from such a trademark, and which thereby infringes the rights of the owner of the trademark in question under the law of the country of importation.

Source: World Trade Organization. Part III — Enforcement of Intellectual Property Rights. Accessed March 2, 2021. [https://www.wto.org/english/docs\\_e/legal\\_e/27-trips\\_05\\_e.htm#fnt-14](https://www.wto.org/english/docs_e/legal_e/27-trips_05_e.htm#fnt-14)

<sup>6</sup>*Pirated copyright goods*: any goods that are copies made without the consent of the right holder or person duly authorized by the right holder in the country of production, and which are made directly or indirectly from an article where the making of that copy would have constituted an infringement of a copyright or a related right under the law of the country of importation.

Source: World Trade Organization. Part III — Enforcement of Intellectual Property Rights. Accessed July 22, 2021. [https://www.wto.org/english/docs\\_e/legal\\_e/27-trips\\_05\\_e.htm#fnt-14](https://www.wto.org/english/docs_e/legal_e/27-trips_05_e.htm#fnt-14)

**Table 1. Key terminology for quality issues used in this Medical Product Quality Report**

Falsified	<p><b>‘Falsified’</b> refers to products that ‘deliberately/fraudulently misrepresent their identity, composition or source’ (WHO, 2017). In this report, ‘fake’, ‘counterfeit’, ‘spurious’ and ‘falsely labelled’ medicines are regarded as synonyms or part of the group of falsified products.</p>
Substandard	<p><b>‘Substandard’</b> also called ‘out of specification’, are authorised medical products that ‘fail to meet either their quality standards or their specifications, or both’ (WHO, 2017). This may result from negligence or errors during the manufacturing process by authorised manufacturers, or degradation through deterioration because of inappropriate storage/transport in the supply chain. Information is usually insufficient to distinguish errors within factories from those in the supply chain, a key evidence gap as the solutions for the two differ.</p>
Unregistered or Unlicensed	<p><b>‘Unregistered/unlicensed’</b> medical products have not undergone evaluation and/or approval by the national or regional regulatory authority for the market in which they are marketed/distributed or used, subject to permitted conditions under national or regional regulation and legislation (WHO, 2017).</p>
When the above concepts are not applicable	
Substandard or Falsified	<p><b>‘Substandard or Falsified’</b> (SorF) was suggested by Saraswati et al. 2019<sup>7</sup> because it is not possible to reliably classify a medicine as substandard or falsified without packaging analysis. It is used for products that failed at least one quality test without information on packaging authenticity, and falling outside the acceptance range of the specifications chosen as reference by the authors (either specific pharmacopoeia monograph or in-house specifications). In lay press articles the concepts of substandard and falsified products might be wrongly used, as a cautionary approach SorF is used when the information is not sufficient to make the distinction.</p>
Diverted	<p><b>‘Diverted’</b> medical products in this report are viewed as legitimate products that have been diverted outside the controlled supply chain. Theft is only one example of diversion. Due to loss of custody, diverted products are generally considered as poor quality medical products as, aside from harming the intended recipients, the products risk degradation due to inappropriate storage and transport.</p>
Unclear	<p><b>‘Unclear’</b> quality of medical products is a concept used in this report when there is insufficient information available to judge in which of the previously described category the product falls. These medical products can be good quality, substandard or falsified or of unknown quality. For example some reports discuss about suspicious online offers on the surface or dark web. Often the quality of the products is not known and from the article it is not clear if the product is for example diverted or counterfeit, though the origin and criminal intent of these products slightly differ.</p>

<sup>7</sup> Saraswati K, Sichanh C, Newton PN, Caillet C. Quality of medical products for diabetes management: a systematic review. *BMJ Glob Heal.* 2019;4(5):1-14. doi:10.1136/BMJGH-2019-001636

## 2. Methodology for reporting on the lay literature

The reports presented in the sections on 'Articles of incidents in the lay literature' were extracted from the 'Medicine Quality Monitoring Globe'<sup>8</sup> ([MQM Globe](#)). The MQM Globe contains publicly available information on the quality of medical products from non-peer-reviewed lay literature and serves as early warning system. Any article describing recalls, seizures, degradation, adulteration or contamination of COVID-19 medical products, cases of patients suffering adverse effects/lack of efficacy after using a COVID-19 medical product suspected to be substandard and falsified (SF) will be included. For the category of COVID-19 vaccines we also include scams and diversions (including theft).

### 2.1. MQM Globe database

The MQM Globe database uses a search system to capture data from online news sources. Articles matching the search terms are loaded into a database and curated by trained analysts. Because the Globe system mainly extracts newspaper articles from journals referenced in Google News, articles that are not referenced in Google News will not be captured. [Please consult the IDDO website for full methodology](#)<sup>9</sup>. On the 20th of March 2020, the search terms were adapted to capture more reports on SF medical supplies for COVID-19 from Google News. In addition, the Globe system captures some of the United States Food and Drug Administration (US FDA) medical product alerts. In the future, we will extend this feature for the US FDA and to other regulatory authorities.

### 2.2. Six MQM Globe-reports

Since the COVID-19 pandemic, the MQM Globe enables quick access to automatically created MQM-Globe reports, grouping articles by product categories that are linked to COVID-19. The six summary MQM Globe-reports are generated with pre-defined search terms and cover the following product categories: (a) COVID vaccines, (b) COVID diagnostics, (c) Personal Protective Equipment (PPE), (d) Sanitisers & disinfectants, (e) COVID medicines, and (f) Ventilation & oxygenation equipment and consumables. At the beginning of each MQM Globe-report the pre-defined search terms are displayed. Only the relevant articles included in the summary MQM Globe-reports are selected for the current COVID-19 report. When discussing an article the report ID (six or seven digit code) is mentioned. The original source article can be found using the report ID in the summary MQM Globe-reports in this report's annexes, or on the online MQM Globe.

### 2.3. Inclusion of a report ID

In this report we share details of articles captured by the MQM Globe that are linked to medical products potentially used in the context of COVID-19 or that are being trialled for COVID-19 treatment and/or prevention. In theory there is a distinction

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<sup>8</sup>Infectious Diseases Data Observatory. Medicine Quality Monitoring Globe. Web Page. Published 2020. Accessed January 24, 2022. <https://www.iddo.org/medicine-quality-monitoring-globe>

<sup>9</sup>Infectious Diseases Data Observatory. Medicine Quality Monitoring Globe methodology. Web Page. Published 2020. Accessed January 24, 2022. <https://www.iddo.org/medicine-quality-monitoring-globe-methodology>

between (a) SF incidents that are due to or increased by the COVID-19 epidemic; and (b) incidents that would have happened in any case. It can be difficult to make the distinction between the two types of incidents and some articles cited in this report are not directly linked to the prevention or treatment of COVID-19. Nevertheless we have included them as they represent crossover risks and help to assess the evolution of the alerts on these medical products over time.

Although oxycodone is being trialled for COVID-19 treatment<sup>10</sup>, we do not include issues related to oxycodone as the system would become swamped by reports on its inappropriate use and cases of pills laced with fentanyl due to their wide occurrence on the black market.

With the information provided in the articles, it is not always possible to make the distinction between cases of financial scams, diverted, substandard or falsified products. We aim at including incidents in which it is likely that a physical product is involved. When the article clearly states that the offers are pure financial scams (without a physical purported product), we do not include the article: for example, criminals offering COVID-19 vaccines through a fake website<sup>11</sup> or COVID-19 vaccines sold over the phone<sup>12</sup> for which it is clearly established that it concerns a scam in which criminals are after personal details and money. In case of doubt and the possibility of a physical product behind the offer, we include the article: for example, vaccines are offered online or by phone but we cannot exclude that there is a physical product behind the offer because it is not mentioned in the article or no investigation has been done.

For this report, we only included report IDs that were published in English. For articles in French, Spanish, Mandarin, and Vietnamese; please consult the online MQM Globe. Only in Part A, dedicated to COVID-19 vaccines, do we include incidents reported in other languages if the incident was not reported in English.

## 2.4. Defining articles and incidents

In this report we define ‘articles’ as the number of unique report ID’s, corresponding to unique articles, that appear on our database. The same article (same report ID) can discuss incidents of different product categories. Therefore the same article might be discussed in different sections of the report.

An incident is a unique event with a specific location and timing with a specific product involved. Sometimes one article is describing several incidents. When summarizing the article, we will cite the different incidents in the text. However, for the overall number of incidents happened during a certain period, we are not

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<sup>10</sup>Hashemian SRM. Evaluation the effects of Oxycodone administration on pain control in patients with COVID-19. Iranian Registry of Clinical Trials. Published June 8, 2020. Accessed September 15, 2020. <https://en.irct.ir/trial/48534>

<sup>11</sup> For example: CBS Baltimore. 3 Maryland Men Charged With Creating Fraudulent Website To Sell COVID-19 Vaccines . CBS Baltimore. <https://baltimore.cbslocal.com/2021/02/11/3-maryland-men-face-federal-charges-for-fraud-scheme-to-sell-covid-19-vaccine/>. Published February 11, 2021. Accessed March 11, 2021.

<sup>12</sup> For example: Lenahan I. COVID-19 vaccine phone scam: Rye police alert residents of bogus calls. Seacoastonline. <https://eu.seacoastonline.com/story/news/local/2021/02/15/covid-19-vaccine-phone-scam-rye-police-alert-residents-bogus-calls/4488304001/>. Published February 15, 2021. Accessed March 11, 2021.

counting the number of separate incidents that are described in an article. For the purpose of this report we define 'incidents' as the number of unique report IDs per product category (i.e. vaccines, diagnostics, PPE, sanitisers & disinfectants, medicines, ventilation & oxygenation).

## **2.5. Reporting on incidents from the lay press.**

The current report consists of two parts. Part A contains the information related to COVID-19 vaccines. Part B contains information related to the other COVID-19 medical product categories including diagnostics, personal protective equipment (PPE), sanitisers & disinfectants, medicines, and ventilation & oxygenation equipment and consumables. In Part B the lay press literature is discussed by product category. However, some articles summarize or describe multiple product categories used during the COVID-19 pandemic. When an article discusses more than 2 product categories, we describe the content of those articles in the section on 'Overview of all categories' and do not report on them in the sections for the different product categories.

Within the section of each product category we try to group the information in subheadings by product (e.g. by active pharmaceutical ingredient) that is involved and by quality issue (see Table 1 with key terminology for quality issues). Some articles discuss several products or several types of quality issues and are therefore not straight forward to classify; thus the subdivision might be arbitrary. We only discuss the articles once, even if they could be classified under different subheadings.

The MQM Globe displays one article per incident, the primary article. There are many other articles that describe the same incident, those are considered duplicate articles, and are not displayed on the MQM Globe unless they provide additional relevant information on the extend of the incident (e.g. additional quantities, additional batch numbers etc.). The information available in the lay press articles is often not very detailed which makes it sometimes difficult to separate out incidents on which we have (duplicate articles) or have not (primary articles) previously reported. To the best of our knowledge we try to only discuss primary articles, i.e. articles discussing new incidents on which we have not reported previously.

## **2.6. Changes in methodology since the first report**

Please read more about the changes in methodology since the first report that was published in July 2020 in Annex A.

### 3. Disclaimer and caveats

We include abstracts and extracts from reports and articles that are subject to a takedown policy. If we are contacted by a potential rights-holder who objects to the presence of material, we will remove the material in question from the report and Globe until we have been able to assess the case. Where material is removed for valid reasons of copyright, its removal will be considered as lasting until copyright in the material expires, or until the rights-holder agrees that the material can be reinstated.

For the scientific publications we include preprints of articles. Please note that preprints should be viewed with additional caution as they have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behaviour and should not be reported in news media as established information.

For the lay press articles we report the information as it is stated in the articles and can thus be biased towards the authors perspective. It does not necessarily reflect our vision or judgment on the issue. Also, this information usually will not have scientific confirmation. Therefore, the information needs to be interpreted with the greatest caution. We regard the reports as early warnings of potential problems. No or few articles from a region does not imply that the medical product quality there is good, but probably reflects a lack of accessible information. Full disclaimer and caveats can be found at [MQM Globe disclaimer and caveats](#)<sup>13</sup>.

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<sup>13</sup> Infectious Diseases Data Observatory. Medicine Quality Monitoring Globe disclaimer and caveats. Web Page. Published 2020. Accessed January 24, 2022. <https://www.iddo.org/medicine-quality-monitoring-globe-disclaimer-and-caveats>

## Part A.

# COVID-19 vaccines

### A.1. Introduction

It is hoped that the deployment of COVID-19 vaccines, combined with other public health interventions, will further reduce the incidence of COVID-19 infections and help end the pandemic. The storage and distribution of these vaccines is a major logistical challenge. Additional but continued neglected issues are substandard, falsified, and diverted COVID-19 vaccines, a high risk globally.

There have been numerous reports over the last two decades of vaccine falsification, for example, rabies, cholera, meningitis, yellow fever and hepatitis B vaccines and degradation due to storage and transport at inappropriate temperatures. These risk impairing the effectiveness of vaccination programs, increasing mortality, morbidity and economic harm, engendering further viral mutants, confuse and alarm communities, and damage public confidence in immunization programs, reducing vaccine uptake. Major current risks for the implementation of COVID-19 vaccines include falsification and diversion fuelled by impaired access and the vital need for them globally, especially in the face of inequitable distribution. Vaccine degradation (included in the term substandard by WHO<sup>14</sup>) is also a major risk without robust regulated supply chains.

The data in this and previous reports suggest that we need a global joined up discussion with the many stakeholders as to how we can reduce the risk of these neglected problems negating, especially in vulnerable communities, the amazing promise that vaccine development, manufacture and implementation has yielded for us all.

### A.2. Articles of incidents in the lay literature

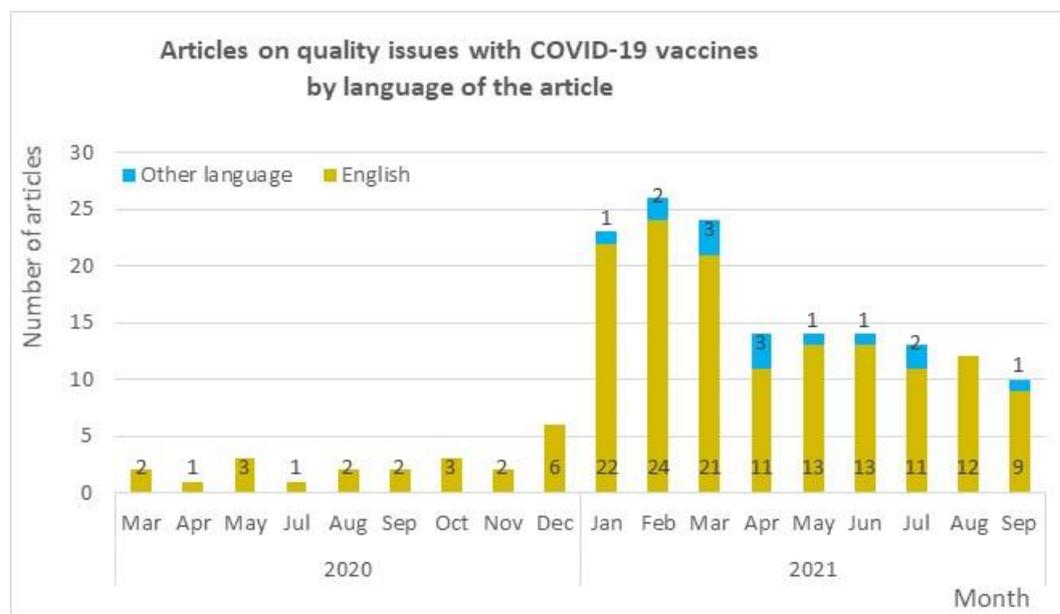
Here, we summarise articles in the public domain, on substandard, falsified or unregistered COVID-19 vaccines, since the start of the pandemic. We also include reports of diversion (including theft) of COVID-19 vaccines from legitimate supply chains. It is highly likely that diverted vaccines will not be stored appropriately and their use is likely to result in people being unprotected when they think they are. The incidents highlighted in this report are not exhaustive but it serves as early warning system of quality issues with COVID-19 vaccines.

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<sup>14</sup> World Health Organisation. Appendix 3 WHO member state mechanism on substandard/spurious/falsely-labelled/falsified/counterfeit (SSFFC) medical products working definitions. In: Seventieth World Health Assembly. 2017. Accessed April 8, 2021. [https://www.who.int/medicines/regulation/ssffc/A70\\_23-en1.pdf?ua=1](https://www.who.int/medicines/regulation/ssffc/A70_23-en1.pdf?ua=1)

### A.2.1. Incidents since the beginning of the pandemic

Between 12<sup>th</sup> March 2020 and 30<sup>th</sup> September 2021 we found, excluding duplicates, 172 reports of incidents on quality issues with COVID-19 vaccines linked to 44 different countries and/or online (see Figure 2). Out of these reports, 22 were published in 2020; 150 reports were published in 2021 (see Figure 1).

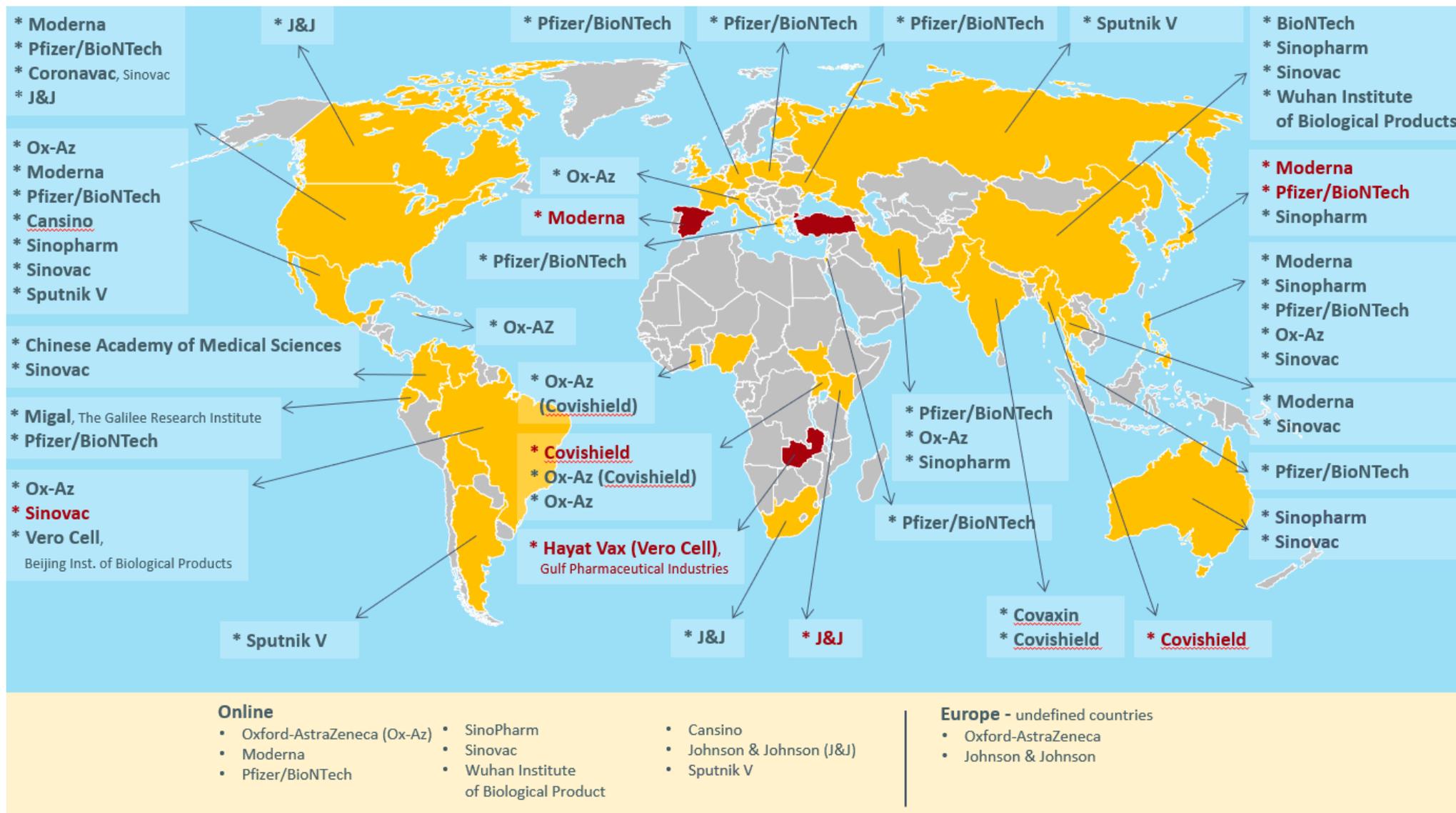


**Figure 1. Number of articles on the Medicine Quality Monitoring Globe reporting quality issues with COVID-19 vaccines.**

Reports date from 12 March 2020 until 30 September 2021. We count here only one article per incident– there are many other articles describing the same incidents. From 2021 onwards, we report not only on incidents covered in the English lay press but also in Chinese, French, Spanish and Vietnamese language.

Table 2 gives more detail on the 101 reports that were published from January up to May 2021 and were discussed in previous Medical Product Quality Reports on COVID-19 vaccines issued by the Medicine Quality Research Group. For further details on the incidents reported during 2020 please consult Annex B.

In this issue we discuss in more detail the 22 incidents that were reported during the months of August (12) and September (10) 2021 (see Table 3). We report for the first time on incidents in Spain, Turkey and Zambia. Eight incidents involved falsified COVID-19 vaccines including those labelled as manufactured by Serum Institute of India (2), Pfizer/BioNTech (1), and Johnson & Johnson (1). Four incidents were related to diversion of COVID-19 vaccines out of the regular supply chain and 8 incidents involved substandard vaccines. Finally, one report discussed an unregistered COVID-19 vaccine and for another report the quality issue was unclear. After a peak in reported incidents during the months of January, February and March, a lower number of incidents have been reported in recent months. Further analysis is needed to determine if there were fewer actual incidents or if there are other reasons behind the drop in reported incidents such as the phenomena of media fatigue.



**Figure 2 Countries with public reports on COVID-19 vaccine quality issues on the Medicine Quality Monitoring Globe.** Countries linked to incidents are indicated in orange. If a public report mentions a product name or a company, these details are indicated on the map, with in red the information that was added since the last issue. Ox-Az: Oxford-AstraZeneca, and J&J: Johnson & Johnson.

**Table 2. COVID-19 vaccine quality issues reported in articles published from January to May 2021.**

Each article is available in the Medicine Quality Monitoring (MQM) Globe linked to a report ID. Reports date from 1 January 2021 until 31 May 2021. In the next reports we plan to retrospectively categorise prior reports in the same way as in Table 3 with reports from June up to September 2021. We included articles from the Spanish, French, Chinese and/or Vietnamese press if the incident was not reported in the English lay press. We list here only one report per incident – there are many other reports describing these issues but we have not included them unless they provide additional relevant information. In the table we only refer to primary incidents described in the report, if a report repeats information on incidents that we already reported on, we do not name it again.

2021						
Publication date	Location	Product/ Organization	Additional information	Title	MQM Globe report ID	URL <sup>15</sup>
<b>JANUARY</b>						
<b>05 January 2021</b>	Online	* <b>Wuhan Institute of Science</b> * <b>Moderna</b> * <b>Pfizer/BioNTech</b> * <b>Oxford-AstraZeneca</b>	-	A COVID-19 shot for \$150? Online scams surge as slow vaccine rollout frustrates	877299	<a href="https://in.reuters.com/article/us-health-coronavirus-vaccine-scams/a-covid-19-shot-for-150-online-scams-surge-as-slow-vaccine-rollout-frustrates-idINKBN29A19Z">https://in.reuters.com/article/us-health-coronavirus-vaccine-scams/a-covid-19-shot-for-150-online-scams-surge-as-slow-vaccine-rollout-frustrates-idINKBN29A19Z</a>
<b>05 January 2021</b>	Argentina	<b>Sputnik V</b>	degraded	Coronavirus: en Olavarria tuvieron que tirar 400 vacunas que perdieron la cadena de frio ('Due to a cold-chain breakdown 400 doses had to be thrown away')	877565	<a href="https://www.rosario3.com/informaciongeneral/Coronavirus-en-Olavarria-tuvieron-que-tirar-400-vacunas-que-perdieron-la-cadena-de-frio-20210105-0001.html">https://www.rosario3.com/informaciongeneral/Coronavirus-en-Olavarria-tuvieron-que-tirar-400-vacunas-que-perdieron-la-cadena-de-frio-20210105-0001.html</a>
<b>07 January 2021</b>	UK	-	-	Elderly woman, 92, tricked into paying £160 to get fake Covid jab in her own home	881071	<a href="https://www.dailystar.co.uk/news/elderly-woman-92-tricked-paying-23282075">https://www.dailystar.co.uk/news/elderly-woman-92-tricked-paying-23282075</a>
<b>13 January 2021</b>	Online, Australia	* <b>Moderna</b> * <b>Pfizer/BioNTech</b>	-	The dark net is being flooded with fraudulent COVID-19 vaccines	890850	<a href="https://www.crikey.com.au/2021/01/14/dark-web-covid-19-vaccine-black-market/">https://www.crikey.com.au/2021/01/14/dark-web-covid-19-vaccine-black-market/</a>
<b>14 January 2021</b>	Mexico, online	<b>Pfizer/BioNTech</b>	-	Organized crime in Mexico selling fake Covid-19 vaccines	892039	<a href="https://www.laprensalatina.com/organized-crime-in-mexico-selling-fake-covid-19-vaccines/">https://www.laprensalatina.com/organized-crime-in-mexico-selling-fake-covid-19-vaccines/</a> <u>Original message:</u> <a href="https://www.gob.mx/cms/uploads/attachment/file/604366/Comunicado_Vacuna_Covid_050121.pdf">https://www.gob.mx/cms/uploads/attachment/file/604366/Comunicado_Vacuna_Covid_050121.pdf</a>
<b>14 January 2021</b>	USA	<b>Moderna</b>	diverted	Two vials of Moderna COVID-19 vaccine stolen from Florida State Hospital in Chattahoochee	936933	<a href="https://eu.tallahassee.com/story/news/local/state/2021/01/14/two-vials-moderna-covid-19-vaccine-stolen-florida-state-hospital-chattahoochee/4156644001/">https://eu.tallahassee.com/story/news/local/state/2021/01/14/two-vials-moderna-covid-19-vaccine-stolen-florida-state-hospital-chattahoochee/4156644001/</a>

<sup>15</sup> Over time some URLs might not work anymore, and in that case one can find a summary/extract of the article on the online MQM Globe using 'reportID:XXXXXX' in the search box.

15 January 2021	UK	-	-	Shameless fraudster tries to sell 61-year-old woman fake Covid-19 vaccine for £170 in Worksop area	893684	<a href="https://www.worksopguardian.co.uk/news/crime/shameless-fraudster-tries-sell-61-year-old-woman-fake-covid-19-vaccine-ps170-worksop-area-3102846">https://www.worksopguardian.co.uk/news/crime/shameless-fraudster-tries-sell-61-year-old-woman-fake-covid-19-vaccine-ps170-worksop-area-3102846</a>
15 January 2021	Nigeria	-	-	Fake COVID-19 vaccines in circulation, NAFDAC warns	892876	<a href="https://www.vanguardngr.com/2021/01/updated-fake-covid-19-vaccines-in-circulation-nafdac-warns/">https://www.vanguardngr.com/2021/01/updated-fake-covid-19-vaccines-in-circulation-nafdac-warns/</a>
18 January 2021	Costa Rica	-	-	Fake Black market COVID-19 Vaccines in Costa Rica	922769	<a href="https://news.co.cr/fake-blackmarket-covid-19-vaccines-in-costa-rica/82725/">https://news.co.cr/fake-blackmarket-covid-19-vaccines-in-costa-rica/82725/</a>
18 January 2021	USA	Moderna	uncertain aetiology	Coronavirus: California calls for pause, investigation after allergic reactions to Moderna vaccine batch	897789	<a href="https://www.mercurynews.com/2021/01/18/coronavirus-california-calls-for-pause-investigation-after-allergic-reactions-to-moderna-vaccine-batch">https://www.mercurynews.com/2021/01/18/coronavirus-california-calls-for-pause-investigation-after-allergic-reactions-to-moderna-vaccine-batch</a>
18 January 2021	Mexico	-	-	Liquid Gold - False COVID-19 Vaccines Emerge in Latin America	897295	<a href="https://www.insightcrime.org/news/analysis/false-covid-vaccines-emerge/">https://www.insightcrime.org/news/analysis/false-covid-vaccines-emerge/</a>
19 January 2021	Mexico	Pfizer/BioNTech	diverted	4 vaccine doses stolen in Mexico, oxygen tanks spark appeal	943497	<a href="https://kstp.com/news/4-vaccine-doses-stolen-in-mexico-oxygen-tanks-spark-appeal/5983681/">https://kstp.com/news/4-vaccine-doses-stolen-in-mexico-oxygen-tanks-spark-appeal/5983681/</a>
20 January 2021	USA	Moderna	degraded	Thousands of Moderna Covid vaccine doses spoil in Maine & Michigan due to temperature control issues	900582	<a href="https://www.rt.com/usa/513082-michigan-maine-moderna-vaccine-ruined/">https://www.rt.com/usa/513082-michigan-maine-moderna-vaccine-ruined/</a>
21 January 2021	Online, USA	CoronaVac, (Sinovac)	-	Leading Indicators Foreshadow COVID-19 Vaccine Scams	902346	<a href="https://securityboulevard.com/2021/01/leading-indicators-foreshadow-covid-19-vaccine-scams/">https://securityboulevard.com/2021/01/leading-indicators-foreshadow-covid-19-vaccine-scams/</a>
21 January 2021	Online	-	-	Sale of Fake COVID-19 Vaccines Grew 400% on the Dark Web	902237	<a href="https://www.entrepreneur.com/article/363880">https://www.entrepreneur.com/article/363880</a>
22 January 2021	USA	-	-	Seller of fake vaccine arrested in Seattle	904241	<a href="https://www.myclallamcounty.com/2021/01/22/seller-of-fake-vaccine-arrested-in-seattle/">https://www.myclallamcounty.com/2021/01/22/seller-of-fake-vaccine-arrested-in-seattle/</a>
22 January 2021	USA	Moderna	diverted	Texas doctor fired, charged with stealing COVID-19 vaccine to give to his friends, family	903988	<a href="https://www.foxnews.com/us/texas-doctor-charged-coronavirus-vaccine-theft-case">https://www.foxnews.com/us/texas-doctor-charged-coronavirus-vaccine-theft-case</a> Articles bringing other elements to the event were published in February: *) Doctors says he was wrongly fired for giving expiring Covid vaccine to his wife : <a href="https://www.independent.co.uk/news/world/americas/covid-vaccine-expiring-houston-texas-b1801122.html">https://www.independent.co.uk/news/world/americas/covid-vaccine-expiring-houston-texas-b1801122.html</a> *) Texas doctor fired for giving away expiring vaccines: <a href="https://www.webmd.com/vaccines/covid-19-vaccine/news/20210214/texas-doctor-fired-for-giving-expiring-vaccines">https://www.webmd.com/vaccines/covid-19-vaccine/news/20210214/texas-doctor-fired-for-giving-expiring-vaccines</a>
25 January 2021	Mexico, online	Moderna	-	Mexico Warns Citizens of Fake COVID-19 Vaccines	907667	<a href="https://www.occrp.org/en/27-ccwatch/cc-watch-briefs/13715-mexico-warns-citizens-of-fake-covid-19-vaccines">https://www.occrp.org/en/27-ccwatch/cc-watch-briefs/13715-mexico-warns-citizens-of-fake-covid-19-vaccines</a> Original message: <a href="https://www.gob.mx/cms/uploads/attachment/file/608294/Comunicado_Vacuna_Covid_Moderna_220121.pdf">https://www.gob.mx/cms/uploads/attachment/file/608294/Comunicado_Vacuna_Covid_Moderna_220121.pdf</a>
26 January 2021	UK	-	-	Sick fraudsters inject Scots with fake Covid vaccine for cash in cruel scam	909286	<a href="https://www.dailyrecord.co.uk/news/scottish-news/sick-fraudsters-inject-scots-fake-23389274">https://www.dailyrecord.co.uk/news/scottish-news/sick-fraudsters-inject-scots-fake-23389274</a>
26 January 2021	USA	Moderna	diverted	Polk County 'Paramedic of the Year' arrested in theft of COVID vaccines	936949	<a href="https://www.wfla.com/news/polk-county/judd-polk-county-paramedic-arrested-for-stealing-coronavirus-vaccines/">https://www.wfla.com/news/polk-county/judd-polk-county-paramedic-arrested-for-stealing-coronavirus-vaccines/</a>
27 January 2021	Ecuador	-	-	Ecuador Health Centre 'Gives Fake Covid Jab to 70,000 People'	910241	<a href="https://www.euroweeklynews.com/2021/01/27/ecuador-health-centre-gave-fake-covid-jab-to-70000-people/">https://www.euroweeklynews.com/2021/01/27/ecuador-health-centre-gave-fake-covid-jab-to-70000-people/</a>
29 January 2021	Online	-	-	Covid-19 medicines, PPE, tests and vaccines are being sold on the dark web	913513	<a href="https://www.dailymail.co.uk/sciencetech/article-9198535/Covid-19-medicines-PPE-tests-vaccines-sold-dark-web.html">https://www.dailymail.co.uk/sciencetech/article-9198535/Covid-19-medicines-PPE-tests-vaccines-sold-dark-web.html</a>

<b>31 January 2021</b>	Finland	-	-	Woman suspected of peddling fake vaccine in southeast Finland	917132	<a href="https://yle.fi/uutiset/osasto/news/woman_suspected_of_peddling_fake_vaccine_in_southeast_finland/11765320">https://yle.fi/uutiset/osasto/news/woman_suspected_of_peddling_fake_vaccine_in_southeast_finland/11765320</a>
<b>FEBRUARY</b>						
<b>01 February 2021</b>	China	-	-	80 held in China over fake Covid-19 vaccines	918486	<a href="https://www.scmp.com/news/china/politics/article/3120083/chinese-police-detain-80-selling-fake-covid-19-vaccines">https://www.scmp.com/news/china/politics/article/3120083/chinese-police-detain-80-selling-fake-covid-19-vaccines</a>
<b>04 February 2021</b>	Mexico, online	<b>Oxford-AstraZeneca</b>	-	Cofepris alerts about the illicit sale of the AstraZeneca vaccine	924171	<a href="https://www.explica.co/cofepris-alerts-about-the-illicit-sale-of-the-astrazeneca-vaccine/">https://www.explica.co/cofepris-alerts-about-the-illicit-sale-of-the-astrazeneca-vaccine/</a> <u>Original message:</u> <a href="https://www.gob.mx/cms/uploads/attachment/file/613986/COFEPRIS03022021.pdf">https://www.gob.mx/cms/uploads/attachment/file/613986/COFEPRIS03022021.pdf</a>
<b>04 February 2021</b>	USA	-	diverted	COVID-19 vaccine doses stolen in Florida after car keys left in ignition	936924	<a href="https://www.clickorlando.com/news/local/2021/02/04/video-shows-person-of-interest-in-stolen-covid-19-vaccine-investigation-police-say/">https://www.clickorlando.com/news/local/2021/02/04/video-shows-person-of-interest-in-stolen-covid-19-vaccine-investigation-police-say/</a>
<b>04 February 2021</b>	USA	-	diverted	St. Pete City Council left in the dark on theft of COVID-19 vaccine vials, investigation into fire department employee	936941	<a href="https://www.abcactionnews.com/news/region-pinellas/st-pete-city-council-left-in-the-dark-on-theft-of-covid-19-vaccine-vials-investigation-into-fire-department-employee">https://www.abcactionnews.com/news/region-pinellas/st-pete-city-council-left-in-the-dark-on-theft-of-covid-19-vaccine-vials-investigation-into-fire-department-employee</a>
<b>08 February 2021</b>	Philippines	-	-	Avoid COVID-19 vaccines from black market, doctors warn	930157	<a href="https://newsinfo.inquirer.net/1393684/avoid-vaccines-from-black-market-doctors-warn">https://newsinfo.inquirer.net/1393684/avoid-vaccines-from-black-market-doctors-warn</a>
<b>08 February 2021</b>	Online	-	-	Bogus COVID-19 Vaccine Offers Flooding The 'Dark Web'	929197	<a href="https://chicago.cbslocal.com/2021/02/07/dark-web-covid-vaccine-scams/">https://chicago.cbslocal.com/2021/02/07/dark-web-covid-vaccine-scams/</a>
<b>10 February 2021</b>	China	-	-	Over 58,000 Fake COVID-19 Vaccine Doses Busted in China, 600 Doses Sent Overseas	932609	<a href="https://www.urdupoint.com/en/world/over-58000-fake-covid-19-vaccine-doses-buste-1164592.html">https://www.urdupoint.com/en/world/over-58000-fake-covid-19-vaccine-doses-buste-1164592.html</a>
<b>10 February 2021</b>	UK, Italy, Japan	<b>Sinopharm</b> (in Japan)	diverted & other issues	黑市疫苗，为何屡禁不止？ ('Black market vaccines, why do they persist?') --> reports on several incidents')	932480	<a href="https://www.yicai.com/news/100947924.html">https://www.yicai.com/news/100947924.html</a>
<b>11 February 2021</b>	Greece	<b>Pfizer/BioNTech</b>	diverted	Greek Police Probe Theft of COVID-19 Vaccine Vial Holding Six Doses	948981	<a href="https://www.thenationalherald.com/archive_general_news_greece/arthro/greek_police_probe_theft_of_covid_19_vaccine_vial_holding_six_doses-1776428/">https://www.thenationalherald.com/archive_general_news_greece/arthro/greek_police_probe_theft_of_covid_19_vaccine_vial_holding_six_doses-1776428/</a>
<b>11 February 2021</b>	USA	<b>Pfizer/BioNTech</b>	degraded	About 6,000 COVID Vaccine Doses Potentially Spoiled In OC Due To Refrigerator Malfunction	933403	<a href="https://news.yahoo.com/6-000-covid-vaccine-doses-003325113.html">https://news.yahoo.com/6-000-covid-vaccine-doses-003325113.html</a>
<b>14 February 2021</b>	India	-	-	Woman injects fake COVID-19 vaccine to elderly couple, flees with 8 tola jewellery	940683	<a href="https://www.timesnownews.com/hyderabad/article/woman-injects-fake-covid-19-vaccine-to-elderly-couple-flees-with-8-tola-jewellery-hyderabad/720332">https://www.timesnownews.com/hyderabad/article/woman-injects-fake-covid-19-vaccine-to-elderly-couple-flees-with-8-tola-jewellery-hyderabad/720332</a>
<b>14 February 2021</b>	USA	<b>Pfizer/BioNTech</b>	diverted	1,000 COVID-19 Vaccine Doses Stolen From Under Nose of Mayor Kane	943453	<a href="https://bleedingcool.com/tv/1000-covid-19-vaccine-doses-stolen-from-under-nose-of-mayor-kane/">https://bleedingcool.com/tv/1000-covid-19-vaccine-doses-stolen-from-under-nose-of-mayor-kane/</a>
<b>14 February 2021</b>	Philippines	<b>Moderna</b>	-	Rumoured Moderna vaccine shipment likely fake, says FDA	939722	<a href="https://www.sunstar.com.ph/article/1885882/Manila/Local-News/Rumored-Moderna-vaccine-shipment-likely-fake-says-FDA">https://www.sunstar.com.ph/article/1885882/Manila/Local-News/Rumored-Moderna-vaccine-shipment-likely-fake-says-FDA</a>
<b>15 February 2021</b>	Europe	-	-	EU's anti-fraud agency warns against fake COVID vaccines	941124	<a href="https://www.swissinfo.ch/eng/eu-s-anti-fraud-agency-warns-against-fake-covid-vaccines/46371790">https://www.swissinfo.ch/eng/eu-s-anti-fraud-agency-warns-against-fake-covid-vaccines/46371790</a>
<b>16 February 2021</b>	Belgium	-	-	Belgium warns against fake Russian vaccines	942342	<a href="https://www.brusselstimes.com/news/belgium-all-news/155115/belgium-warns-against-fake-russian-vaccines-vaccination-taskforce-info-campaign-herd-immunity/">https://www.brusselstimes.com/news/belgium-all-news/155115/belgium-warns-against-fake-russian-vaccines-vaccination-taskforce-info-campaign-herd-immunity/</a>

<b>17 February 2021</b>	South Africa	-	-	Fake Covid-19 vaccines discovered in Gauteng	945211	<a href="https://www.jacarandafm.com/news/news/fake-covid-19-vaccines-discovered-gauteng/">https://www.jacarandafm.com/news/news/fake-covid-19-vaccines-discovered-gauteng/</a> (This incident might be related to the one described in report ID 865724 on 28 December 2020, but not clear if this article mentions an additional warehouse or if it is referring to the same event)
<b>17 February 2021</b>	Brazil	-	air vaccines	'Shots of air': Brazilian health workers accused of giving fake COVID vaccinations with empty syringes	944701	<a href="https://nationalpost.com/news/world/brazil-police-probe-reports-of-coronavirus-vaccine-shots-of-air">https://nationalpost.com/news/world/brazil-police-probe-reports-of-coronavirus-vaccine-shots-of-air</a>
<b>17 February 2021</b>	Mexico	<b>Pfizer/BioNTech</b>	-	Mexico Arrests 6 for Trafficking False Coronavirus Vaccines	944948	<a href="https://www.nbcdfw.com/news/local/mexico-arrests-6-for-trafficking-false-coronavirus-vaccines/2555781/">https://www.nbcdfw.com/news/local/mexico-arrests-6-for-trafficking-false-coronavirus-vaccines/2555781/</a>
<b>19 February 2021</b>	Colombia	<b>Chinese Academy of Medical Sciences (Vero Cell)</b>	-	COVID-19 vaccine counterfeits set off alarms across the globe	947830	<a href="https://www.bioworld.com/articles/503830-covid-19-vaccine-counterfeits-set-off-alarms-across-the-globe">https://www.bioworld.com/articles/503830-covid-19-vaccine-counterfeits-set-off-alarms-across-the-globe</a>
<b>19 February 2021</b>	Italy, online	<b>* Pfizer/BioNTech * Oxford-AstraZeneca</b>	-	Italy probes vaccine scams even as officials court offers	947669	<a href="https://www.theridgefieldpress.com/news/article/Italy-probes-vaccine-scams-even-as-officials-15963865.php">https://www.theridgefieldpress.com/news/article/Italy-probes-vaccine-scams-even-as-officials-15963865.php</a>
<b>21 February 2021</b>	Ukraine	<b>Pfizer/BioNTech</b>	-	Covid-19 vaccines hit the black market	950068	<a href="https://www.aspistrategist.org.au/covid-19-vaccines-hit-the-black-market/">https://www.aspistrategist.org.au/covid-19-vaccines-hit-the-black-market/</a>
<b>22 February 2021</b>	Trinidad and Tobago	-	-	Fake COVID vaccines being offered to Trinidad	951551	<a href="https://www.stabroeknews.com/2021/02/22/news/regional/trinidad/fake-covid-vaccines-being-offered-to-trinidad-pm/">https://www.stabroeknews.com/2021/02/22/news/regional/trinidad/fake-covid-vaccines-being-offered-to-trinidad-pm/</a>
<b>23 February 2021</b>	France	-	-	Il se fait passer pour un infirmier et administre un faux vaccin ('He pretends to be a nurse and administers a fake vaccine')	951944	<a href="https://www.alouette.fr/news/bretagne-il-se-fait-passer-pour-un-infirmier-et-administre-un-faux-vaccin-10676">https://www.alouette.fr/news/bretagne-il-se-fait-passer-pour-un-infirmier-et-administre-un-faux-vaccin-10676</a>
<b>25 February 2021</b>	USA	-	degraded	COVID-19 vaccine doses tossed around state, low amounts in Pima County	956586	<a href="https://www.kold.com/2021/02/26/covid-vaccine-doses-tossed-around-state-low-amounts-pima-county/">https://www.kold.com/2021/02/26/covid-vaccine-doses-tossed-around-state-low-amounts-pima-county/</a>
<b>25 February 2021</b>	Europe	<b>Oxford-AstraZeneca</b>	-	Fraudsters offer 400 million 'ghost' COVID vaccines in EU: officials	955619	<a href="https://www.reuters.com/article/us-health-coronavirus-eu-vaccines/fraudsters-offer-400-million-ghost-covid-vaccines-in-eu-officials-idUSKBN2AP1GN">https://www.reuters.com/article/us-health-coronavirus-eu-vaccines/fraudsters-offer-400-million-ghost-covid-vaccines-in-eu-officials-idUSKBN2AP1GN</a>
<b>26 February 2021</b>	USA	-	-	Vaccine doses may have been stolen at Pipkin Building in early February, Tennessee health department says	957718	<a href="https://www.commercialappeal.com/story/news/local/coronavirus/2021/02/26/covid-19-vaccines-stolen-in-memphis-shelby-county-health-department/6822867002/">https://www.commercialappeal.com/story/news/local/coronavirus/2021/02/26/covid-19-vaccines-stolen-in-memphis-shelby-county-health-department/6822867002/</a>
<b>MARCH</b>						
<b>01 March 2021</b>	Europe	<b>Oxford-AstraZeneca</b>	-	Europe Probes Attempted Vaccine Scams of More Than \$15 Billion	961495	<a href="https://www.bloomberg.com/news/articles/2021-03-01/europe-probes-attempted-vaccine-scams-of-more-than-15-billion">https://www.bloomberg.com/news/articles/2021-03-01/europe-probes-attempted-vaccine-scams-of-more-than-15-billion</a>
<b>02 March 2021</b>	South Sudan	-	-	Thai Army doctor sold fake Covid-19 vaccines to UN peacekeepers	962520	<a href="https://www.straitstimes.com/asia/se-asia/thai-army-doctor-sold-fake-covid-19-vaccines-to-un-peacekeepers">https://www.straitstimes.com/asia/se-asia/thai-army-doctor-sold-fake-covid-19-vaccines-to-un-peacekeepers</a>
<b>02 March 2021</b>	USA	-	-	National Consumer Protection Week: FDA Is Vigilant in Protecting Consumers Against COVID-19 Vaccine Scams - 2021-03-02	962956	<a href="http://www.fda.gov/news-events/fda-voices/national-consumer-protection-week-fda-vigilant-protecting-consumers-against-covid-19-vaccine-scams">http://www.fda.gov/news-events/fda-voices/national-consumer-protection-week-fda-vigilant-protecting-consumers-against-covid-19-vaccine-scams</a>
<b>03 March 2021</b>	Israel	<b>Pfizer/BioNTech</b>	empty vials: diverted	2 Israelis detained on suspicion of selling used COVID vaccine vials	975656	<a href="https://www.timesofisrael.com/2-israelis-detained-on-suspicion-of-selling-used-covid-vaccine-vials/">https://www.timesofisrael.com/2-israelis-detained-on-suspicion-of-selling-used-covid-vaccine-vials/</a>

<b>03 March 2021</b>	USA	<b>Pfizer/BioNTech</b>	diverted	Decatur pharmacist fired after taking COVID-19 vaccines home to family	992152	<a href="https://www.chicagotribune.com/coronavirus/vaccine/ct-coronavirus-vaccine-decatur-hospital-pharmacist-20210303-t6nnwtc2vvd5jr4dmtlxvf7mq-story.html">https://www.chicagotribune.com/coronavirus/vaccine/ct-coronavirus-vaccine-decatur-hospital-pharmacist-20210303-t6nnwtc2vvd5jr4dmtlxvf7mq-story.html</a>
<b>04 March 2021</b>	Malaysia, Online	<b>Pfizer/BioNTech</b>	-	Police Investigate Fake COVID-19 Vaccines Sold Online, Losses Amounting Up To RM285,499	966743	<a href="https://worldofbuzz.com/police-investigate-fake-covid-19-vaccines-sold-online-losses-amounting-up-to-rm285499/">https://worldofbuzz.com/police-investigate-fake-covid-19-vaccines-sold-online-losses-amounting-up-to-rm285499/</a> Additional information: <a href="https://www.sinchew.com.my/content/content_2437445.html">https://www.sinchew.com.my/content/content_2437445.html</a>
<b>04 March 2021</b>	Online, France, Germany, UK, USA	-	-	Scammers are Selling Fake COVID-19 Vaccines for up to \$1,200	965729	<a href="https://www.itnewsafrika.com/2021/03/scammers-are-selling-fake-covid-19-vaccines-for-up-to-1200/">https://www.itnewsafrika.com/2021/03/scammers-are-selling-fake-covid-19-vaccines-for-up-to-1200/</a>
<b>09 March 2021</b>	Online	-	-	Some people turning to black market to get COVID-19 vaccine	973480	<a href="https://www.azfamily.com/news/continuing_coverage/coronavirus_coverage/vaccine_headquarters/some-people-turning-to-black-market-to-get-covid-19-vaccine/article_af7de3d2-8144-11eb-bf11-a7a9c31ca1c6.html">https://www.azfamily.com/news/continuing_coverage/coronavirus_coverage/vaccine_headquarters/some-people-turning-to-black-market-to-get-covid-19-vaccine/article_af7de3d2-8144-11eb-bf11-a7a9c31ca1c6.html</a>
<b>10 March 2021</b>	Mexico, online	* <b>Cansino Biologics</b> * <b>Sinopharm Group Co. Ltd</b> * <b>Sinovac</b>	-	Alerta por falsificación de vacunas contra el covid-19 en México que estarían en venta ('Alert for falsified vaccines against covid-19 in Mexico that would be for sale')	976281	<a href="https://www.larepublica.co/globoeconomia/alerta-por-falsificacion-de-vacunas-contra-el-covid-19-en-mexico-que-estarian-en-venta-3137336">https://www.larepublica.co/globoeconomia/alerta-por-falsificacion-de-vacunas-contra-el-covid-19-en-mexico-que-estarian-en-venta-3137336</a> <u>Original message:</u> <a href="https://www.gob.mx/cms/uploads/attachment/file/619020/Alerta_Sanitaria_Cansino_Sinopharm_Sinovac.pdf">https://www.gob.mx/cms/uploads/attachment/file/619020/Alerta_Sanitaria_Cansino_Sinopharm_Sinovac.pdf</a>
<b>13 March 2021</b>	India	-	-	Woman administers fake COVID-19 vaccine to aunt, her family & escapes with gold	978169	<a href="https://www.timesnownews.com/chennai/article/woman-administers-fake-covid-19-vaccine-to-aunt-her-family-escapes-with-gold/732152">https://www.timesnownews.com/chennai/article/woman-administers-fake-covid-19-vaccine-to-aunt-her-family-escapes-with-gold/732152</a>
<b>15 March 2021</b>	Colombia	<b>Sinovac</b>	air vaccines	El video del engaño: enfermera vacuna contra el Covid-19 con una jeringa vacía ('The video of the deception: nurse vaccinates against COVID-19 with an empty syringe')	987387	<a href="https://www.clarin.com/internacional/video-engano-enfermera-vacuna-covid-19-jeringa-vacia_0_5bj7mXUTK.html">https://www.clarin.com/internacional/video-engano-enfermera-vacuna-covid-19-jeringa-vacia_0_5bj7mXUTK.html</a>
<b>16 March 2021</b>	USA	-	diverted	Nurse arrested for allegedly stealing COVID-19 vaccine at TCF Center in Detroit	981668	<a href="https://www.wxyz.com/news/coronavirus/covid-19-vaccine/nurse-arrested-for-allegedly-stealing-covid-19-vaccine-at-tcf-center-in-detroit">https://www.wxyz.com/news/coronavirus/covid-19-vaccine/nurse-arrested-for-allegedly-stealing-covid-19-vaccine-at-tcf-center-in-detroit</a>
<b>16 March 2021</b>	Jamaica	<b>Oxford-AstraZeneca</b>	diverted (under investigation)	Ten doses of COVID vaccine missing from Cornwall Regional Hospital	1003286	<a href="https://jamaica-gleaner.com/article/lead-stories/20210316/ten-doses-covid-vaccine-missing-cornwall-regional-hospital">https://jamaica-gleaner.com/article/lead-stories/20210316/ten-doses-covid-vaccine-missing-cornwall-regional-hospital</a>
<b>18 March 2021</b>	Mexico	<b>Sputnik V</b>	-	Mexico authorities seize fake batch of Russian Sputnik V vaccine: RDIF	984176	<a href="https://www.reuters.com/article/us-health-coronavirus-russia-vaccine-mex-idUSKBN2BA1RD">https://www.reuters.com/article/us-health-coronavirus-russia-vaccine-mex-idUSKBN2BA1RD</a> <u>Original message:</u> <a href="https://www.gob.mx/cofepris/es/articulos/nota-informativa-sobre-vacunacion-ilegal-en-campeche?idiom=es">https://www.gob.mx/cofepris/es/articulos/nota-informativa-sobre-vacunacion-ilegal-en-campeche?idiom=es</a>
<b>22 March 2021</b>	Ghana	<b>Oxford-AstraZeneca</b> 'Covidshield' [sic]	diverted	Ghana Health Service start dey investigate 3 health officials who 'dey sell Covid-19 vaccines'	988608	<a href="https://www.bbc.com/pidgin/tori-56481793">https://www.bbc.com/pidgin/tori-56481793</a> <u>Additional information:</u> '4 accused of stealing and selling Covid-19 vaccines granted bail': <a href="https://www.myjoyonline.com/4-accused-of-stealing-and-selling-covid-19-vaccines-granted-bail/">https://www.myjoyonline.com/4-accused-of-stealing-and-selling-covid-19-vaccines-granted-bail/</a>
<b>23 March 2021</b>	Online	* <b>Johnson &amp; Johnson</b> * <b>Oxford-AstraZeneca</b>	-	Covid-19 vaccines and counterfeit vaccine cards are for sale on the dark web	989053	<a href="https://www.cnn.com/2021/03/23/tech/covid-vaccines-dark-web/index.html">https://www.cnn.com/2021/03/23/tech/covid-vaccines-dark-web/index.html</a>

<b>23 March 2021</b>	UK	-	diverted	Man charged after Covid vial stolen from Edinburgh vaccination centre	990549	<a href="https://www.bbc.com/news/uk-scotland-edinburgh-east-fife-56505041">https://www.bbc.com/news/uk-scotland-edinburgh-east-fife-56505041</a>
<b>24 March 2021</b>	Mexico	<b>Sputnik V</b>	-	México investiga supuesta aplicación de vacuna anticovid "falsa" a un millar de personas ('Mexico investigates alleged application of falsified COVID-19 vaccine to thousand people')	990553	<a href="https://www.clarin.com/agencias/afp-mexico-investiga-supuesta-aplicacion-vacuna-anticovid-falsa-millar-personas_0_klvqCFjVO.html">https://www.clarin.com/agencias/afp-mexico-investiga-supuesta-aplicacion-vacuna-anticovid-falsa-millar-personas_0_klvqCFjVO.html</a> Original message: <a href="https://www.gob.mx/cofepris/es/articulos/cofepris-informa-sobre-la-vacuna-falsa-presuntamente-aplicada-en-campeche-y-las-acciones-en-curso?idiom=es">https://www.gob.mx/cofepris/es/articulos/cofepris-informa-sobre-la-vacuna-falsa-presuntamente-aplicada-en-campeche-y-las-acciones-en-curso?idiom=es</a>
<b>24 March 2021</b>	Kenya	<b>Sputnik V</b>	diverted	Kenya: Distributors 'Sneaked' Russian Vaccine Into Kenya for Sale at Sh11,000 Per Jab	990984	<a href="https://allafrica.com/stories/202103240210.html">https://allafrica.com/stories/202103240210.html</a>
<b>24 March 2021</b>	Macau - China	<b>BioNTech</b>	-	Hong Kong, Macau suspend Pfizer COVID-19 vaccine over packaging flaw	1021092	<a href="https://www.arabnews.com/node/1830936/world">https://www.arabnews.com/node/1830936/world</a>
<b>26 March 2021</b>	Mexico	<b>Pfizer/BioNTech</b>	-	Medical Product Alert N°2/2021: Falsified COVID-19 Vaccine BNT162b2	994973	<a href="https://www.who.int/news/item/26-03-2021-medical-product-alert-n-2-2021-falsified-covid-19-vaccine-bnt162b2">https://www.who.int/news/item/26-03-2021-medical-product-alert-n-2-2021-falsified-covid-19-vaccine-bnt162b2</a>
<b>30 March 2021</b>	Philippines	-	-	Galvez says gov't probing 3 firms offering fake COVID-19 vaccines	998393	<a href="https://newsinfo.inquirer.net/1413018/galvez-says-govt-probing-3-companies-offering-fake-covid-19-vaccines">https://newsinfo.inquirer.net/1413018/galvez-says-govt-probing-3-companies-offering-fake-covid-19-vaccines</a>
<b>31 March 2021</b>	USA	<b>Johnson &amp; Johnson</b>	-	Johnson & Johnson COVID-19 vaccine batch fails quality check	1000915	<a href="https://www.thetelegraph.com/news/article/Johnson-Johnson-COVID-19-vaccine-batch-fails-16068073.php">https://www.thetelegraph.com/news/article/Johnson-Johnson-COVID-19-vaccine-batch-fails-16068073.php</a>
<b>31 March 2021</b>	Pakistan	-	degraded & diverted	Corona vaccine stolen in Services, wasted in Mozang hospital	1001109	<a href="https://www.thenews.com.pk/print/813092-corona-vaccine-stolen-in-services-wasted-in-mozang-hospital">https://www.thenews.com.pk/print/813092-corona-vaccine-stolen-in-services-wasted-in-mozang-hospital</a>
<b>APRIL</b>						
<b>04 April 2021</b>	Europe	-	-	Descubren contenedores de vacunas falsificadas que iban a distribuir en Europa ('They discover containers of falsified vaccines that were going to be distributed in Europe')	1005914	<a href="https://espanadiario.net/salud/descubren-contenedores-vacunas-falsas-distribucion-europa">https://espanadiario.net/salud/descubren-contenedores-vacunas-falsas-distribucion-europa</a>
<b>07 April 2021</b>	USA	<b>Johnson &amp; Johnson</b>	-	Another 62million Covid vaccines 'contaminated' at scandal-hit factory	1011051	<a href="https://metro.co.uk/2021/04/07/another-62million-covid-vaccines-contaminated-at-scandal-hit-factory-14373004/">https://metro.co.uk/2021/04/07/another-62million-covid-vaccines-contaminated-at-scandal-hit-factory-14373004/</a>
<b>07 April 2021</b>	Brazil	-	-	Au Brésil, une fausse infirmière s'est fait plus de 5000 euros en administrant de faux vaccins à plus de 50 hommes d'affaires ('In Brazil, a fake nurse made more than 5,000 euros injecting falsified vaccines to over 50 businessmen')	1010975	<a href="https://www.sudinfo.be/id385891/article/2021-04-07/au-bresil-une-fausse-infirmiere-sest-fait-plus-de-5000-euros-en-administrant-de">https://www.sudinfo.be/id385891/article/2021-04-07/au-bresil-une-fausse-infirmiere-sest-fait-plus-de-5000-euros-en-administrant-de</a>
<b>08 April 2021</b>	USA	<b>Johnson &amp; Johnson</b>	diverted	Capel Coral Police investigating stolen vials of Johnson & Johnson Covid-19 vaccine	1013423	<a href="https://www.fox4now.com/news/local-news/capel-coral-police-investigating-stolen-vials-of-johnson-johnson-covid-19-vaccine">https://www.fox4now.com/news/local-news/capel-coral-police-investigating-stolen-vials-of-johnson-johnson-covid-19-vaccine</a>
<b>13 April 2021</b>	USA	<b>Pfizer/BioNTech</b>	degraded	Thousands need to be revaccinated after state finds substandard vaccine storage, handling at El Paso County clinic	1021500	<a href="https://www.msn.com/en-us/health/medical/thousands-need-to-be-revaccinated-after-state-finds-substandard-vaccine-storage-handling-at-el-paso-county-clinic/ar-BB1fCWLL">https://www.msn.com/en-us/health/medical/thousands-need-to-be-revaccinated-after-state-finds-substandard-vaccine-storage-handling-at-el-paso-county-clinic/ar-BB1fCWLL</a> <u>Additional information:</u> 3,000 vaccine doses seized from Colorado Springs medical spa due to storage problems: <a href="https://coloradosun.com/2021/04/12/moma-health-and-wellness-coronavirus-vaccine-seized/">https://coloradosun.com/2021/04/12/moma-health-and-wellness-coronavirus-vaccine-seized/</a>

<b>14 April 2021</b>	India	<b>Covaxin</b>	diverted	Rajasthan: 320 doses of COVID-19 vaccine stolen from Jaipur hospital, FIR filed	1020922	<a href="https://www.timesnownews.com/india/article/rajasthan-320-doses-of-covid-19-vaccine-stolen-from-jaipur-hospital-fir-filed/745043">https://www.timesnownews.com/india/article/rajasthan-320-doses-of-covid-19-vaccine-stolen-from-jaipur-hospital-fir-filed/745043</a> <b>Additional information:</b> Over 300 Covaxin Covid-19 doses go missing from Rajasthan govt hospital <a href="https://www.livemint.com/news/india/over-300-mn-covaxin-covid-19-doses-go-missing-from-rajasthan-govt-hospital-11618395901531.html">https://www.livemint.com/news/india/over-300-mn-covaxin-covid-19-doses-go-missing-from-rajasthan-govt-hospital-11618395901531.html</a>
<b>15 April 2021</b>	Online, Venezuela	-	-	Venezuela: arrestation de vendeurs de vaccins au noir ('Venezuela: illegal vaccine sellers arrested')	1023308	<a href="https://www.tvanouvelles.ca/2021/04/15/venezuela-arrestation-de-vendeurs-de-vaccins-au-noir">https://www.tvanouvelles.ca/2021/04/15/venezuela-arrestation-de-vendeurs-de-vaccins-au-noir</a>
<b>16 April 2021</b>	Republic of Korea	-	syringes: substandard	Korea gives 500,000 AstraZeneca shots with potentially faulty syringes	1025296	<a href="http://www.koreaherald.com/view.php?ud=20210416000870">http://www.koreaherald.com/view.php?ud=20210416000870</a>
<b>21 April 2021</b>	Poland	<b>Pfizer/BioNTech</b>	-	Pfizer Identifies Fake Covid-19 Shots Abroad as Criminals Exploit Vaccine Demand	1030129	<a href="https://www.wsj.com/articles/pfizer-identifies-fake-covid-19-shots-abroad-as-criminals-exploit-vaccine-demand-11619006403">https://www.wsj.com/articles/pfizer-identifies-fake-covid-19-shots-abroad-as-criminals-exploit-vaccine-demand-11619006403</a>
<b>21 April 2021</b>	Online, Argentina (Brazil, Mexico)	-	-	PAHO warns of fake Covid-19 vaccines in Argentina, Brazil and Mexico	1030705	<a href="https://batimes.com.ar/news/latin-america/paho-warns-of-fake-covid-19-vaccines-in-argentina-brazil-and-mexico.phtml">https://batimes.com.ar/news/latin-america/paho-warns-of-fake-covid-19-vaccines-in-argentina-brazil-and-mexico.phtml</a>
<b>22 April 2021</b>	India	* <b>Covishield</b> * <b>Covaxin</b>	diverted	1,710 doses of Covid-19 vaccine stolen from civil hospital in Haryana	1031435	<a href="https://www.livemint.com/news/india/1710-doses-of-covid-19-vaccine-stolen-from-civil-hospital-in-haryana-11619069095866.html">https://www.livemint.com/news/india/1710-doses-of-covid-19-vaccine-stolen-from-civil-hospital-in-haryana-11619069095866.html</a>
<b>23 April 2021</b>	Bolivia (Mexico, Colombia)	-	-	PAHO warns against acquiring vaccines from unofficial sources	1034582	<a href="https://www.nycaribnews.com/articles/paho-warns-latin-america-about-counterfeit-unauthorized-vaccines/">https://www.nycaribnews.com/articles/paho-warns-latin-america-about-counterfeit-unauthorized-vaccines/</a>
<b>27 April 2021</b>	Germany	<b>Pfizer/BioNTech</b>	-	Nurse 'gave people fake Covid vaccines to cover up for dropping vial'	1038395	<a href="https://metro.co.uk/2021/04/27/nurse-gave-people-fake-covid-vaccines-to-cover-up-for-dropping-vial-14478894/">https://metro.co.uk/2021/04/27/nurse-gave-people-fake-covid-vaccines-to-cover-up-for-dropping-vial-14478894/</a>
<b>30 April 2021</b>	USA, online	* <b>Moderna</b> * <b>Pfizer/BioNTech</b>	empty vials	CBS 2 Investigators Go Undercover And Find Pharmacist Selling 'Empty' COVID Vaccine Vials Online: 'I Did Not Think It Was A Big Deal'	1043609	<a href="https://chicago.cbslocal.com/2021/04/30/pharmacist-selling-empty-covid-vaccine-vials-online-cbs-2-investigators-dorothy-tucker/">https://chicago.cbslocal.com/2021/04/30/pharmacist-selling-empty-covid-vaccine-vials-online-cbs-2-investigators-dorothy-tucker/</a>
<b>MAY</b>						
<b>01 May 2021</b>	USA	<b>Johnson &amp; Johnson</b>	diverted	COVID-19 vaccines, medical equipment stolen from Purdy dentist's office	1043734	<a href="https://www.kiro7.com/news/local/covid-19-vaccines-medical-equipment-stolen-purdy-dentists-office/VHTYI6WRHFETBDPQEAMYCE46HA/">https://www.kiro7.com/news/local/covid-19-vaccines-medical-equipment-stolen-purdy-dentists-office/VHTYI6WRHFETBDPQEAMYCE46HA/</a>
<b>05 May 2021</b>	Online	* <b>Sputnik V</b> * <b>Pfizer/BioNTech</b>	-	Dubious Covid-19 Shots, Fake Vaccination Certificates Proliferate on Dark Web	1048306	<a href="https://www.wsj.com/articles/dubious-covid-19-shots-fake-vaccination-certificates-proliferate-on-dark-web-11620207001">https://www.wsj.com/articles/dubious-covid-19-shots-fake-vaccination-certificates-proliferate-on-dark-web-11620207001</a>
<b>10 May 2021</b>	Online	<b>Pfizer/BioNTech</b>	-	Surgical masks, vaccines among counterfeit goods on the rise online	1095520	<a href="https://www.tnp.sg/news/singapore/surgical-masks-vaccines-among-counterfeit-goods-rise-online">https://www.tnp.sg/news/singapore/surgical-masks-vaccines-among-counterfeit-goods-rise-online</a>
<b>11 May 2021</b>	India	* <b>Covishield</b> * <b>Covaxin</b>	diverted	Exclusive: Black marketing of vaccine in Silchar Civil, unauthorised centre running inside a chamber	1086365	<a href="https://www.barakbulletin.com/en_US/exclusive-black-marketing-of-vaccine-in-silchar-civil-unauthorised-centre-running-inside-a-chamber/">https://www.barakbulletin.com/en_US/exclusive-black-marketing-of-vaccine-in-silchar-civil-unauthorised-centre-running-inside-a-chamber/</a>
<b>12 May 2021</b>	USA	<b>Pfizer/BioNTech</b>	diverted	Police Investigating Man Suspected Of Stealing COVID-19 Vaccines	1057163	<a href="http://ktoe.com/2021/05/12/police-investigating-man-suspected-of-stealing-covid-19-vaccines/">http://ktoe.com/2021/05/12/police-investigating-man-suspected-of-stealing-covid-19-vaccines/</a>
<b>17 May 2021</b>	India	<b>Covishield</b>	diverted	40 doses of Covid-19 vaccine missing; Andhra police files case	1063860	<a href="https://www.newindianexpress.com/states/andhra-pradesh/2021/may/18/40-doses-of-covid-19vaccine-missing-andhra-police-filescase-2303946.html">https://www.newindianexpress.com/states/andhra-pradesh/2021/may/18/40-doses-of-covid-19vaccine-missing-andhra-police-filescase-2303946.html</a>

<b>18 May 2021</b>	USA	<b>Pfizer/BioNTech</b>	substandard preparation	Exclusive: Whistleblower Alleges Queens Company Ordered Health Clinic Workers To Over Dilute Doses Of COVID Vaccine	1067060	<a href="https://newyork.cbslocal.com/2021/05/18/whistleblower-lawsuit-over-diluted-covid-vaccine-new-york-city/">https://newyork.cbslocal.com/2021/05/18/whistleblower-lawsuit-over-diluted-covid-vaccine-new-york-city/</a>
<b>19 May 2021</b>	USA	<b>Johnson &amp; Johnson</b>	-	100 million doses of Johnson & Johnson's vaccine need to be checked for contamination and may need to be thrown out	1071640	<a href="https://www.yahoo.com/news/100-million-doses-johnson-johnsons-200345343.html">https://www.yahoo.com/news/100-million-doses-johnson-johnsons-200345343.html</a>
<b>20 May 2021</b>	India	-	diverted	Three Bengaluru doctors held for blackmarketing of COVID-19 vaccines and drugs	1068658	<a href="https://www.thenewsminute.com/article/three-bengaluru-doctors-held-blackmarketing-covid-19-vaccines-and-drugs-149243">https://www.thenewsminute.com/article/three-bengaluru-doctors-held-blackmarketing-covid-19-vaccines-and-drugs-149243</a>
<b>21 May 2021</b>	Online	* <b>Moderna</b> * <b>Pfizer/BioNTech</b>	-	COVID-19 vaccine scam warning	1069276	<a href="https://mybroadband.co.za/news/trending/398181-covid-19-vaccine-scam-warning.html">https://mybroadband.co.za/news/trending/398181-covid-19-vaccine-scam-warning.html</a>
<b>25 May 2021</b>	India	-	non-injected doses	UP govt order probe after 29 syringes filled with Covid vaccine was found in dustbin in Aligarh	1074206	<a href="http://www.uniindia.com/~up-govt-order-probe-after-29-syringes-filled-with-covid-vaccine-was-found-in-dustbin-in-aligarh/States/news/2404840.html">http://www.uniindia.com/~up-govt-order-probe-after-29-syringes-filled-with-covid-vaccine-was-found-in-dustbin-in-aligarh/States/news/2404840.html</a>
<b>28 May 2021</b>	India	-	-	Thieves steal 300 vials of children's vaccines thinking they were Covid doses in Maharashtra's Ulhasnagar	1078285	<a href="https://www.indiatoday.in/coronavirus-outbreak/story/thieves-steal-300-vials-children-vaccines-thinking-they-were-covid-doses-maharashtra-ulhasnagar-1808077-2021-05-28">https://www.indiatoday.in/coronavirus-outbreak/story/thieves-steal-300-vials-children-vaccines-thinking-they-were-covid-doses-maharashtra-ulhasnagar-1808077-2021-05-28</a>
<b>28 May 2021</b>	South Africa	<b>(Chinese COVID-19 vaccines)</b>	-	国外竟有人收高价， 骗人接种假的“国产疫苗”.....中国驻南非使馆发布重要通知！ ('Some people abroad charge high prices to trick people into inoculating fake "domestic vaccines"... The Chinese Embassy in South Africa issued an important notice!')	1077654	<a href="https://baijiahao.baidu.com/s?id=1700952799193001379&amp;wfr=spider&amp;for=pc">https://baijiahao.baidu.com/s?id=1700952799193001379&amp;wfr=spider&amp;for=pc</a>
<b>28 May 2021</b>	India	-	diverted/unregistered	Dr Reddy's takes action against bogus entities offering Sputnik V Covid vaccine	1078624	<a href="https://www.livemint.com/news/india/dr-reddy-s-takes-action-against-bogus-entities-offering-sputnik-v-covid-vaccine-11622211977442.html">https://www.livemint.com/news/india/dr-reddy-s-takes-action-against-bogus-entities-offering-sputnik-v-covid-vaccine-11622211977442.html</a>

**Table 3. Quality issues with COVID-19 vaccines in articles published between June and September 2021.**

Each article is available in the Medicine Quality Monitoring (MQM) Globe linked to a report ID. Reports date from 1 June 2021 until 30 September 2021. Each type of quality issue has an attributed colour in this table. For the definition of the different terms of quality issues, please consult Table 1. In the next reports we plan to retrospectively categorise prior reports. We included articles from the Spanish, French, Chinese and/or Vietnamese press if the incident was not reported in the English lay press. We list here only one report per incident– there are many other reports describing the same incidents. In the table we only refer to primary incidents described in the report, if a report repeats information on incidents that we already reported on, we do not name it again.

Publication date	Probable quality issue	Location	Product/Organisation	Title	MQM Globe report ID	Quantities involved	Constituent
<b>JUNE 2021</b>							
03 June 2021	Unclear	Kenya	-	DCI probes facilities illegally giving Covid jabs at a fee	<a href="#">1086161</a>	-	unknown
04 June 2021	Diverted	India	<b>Bharat Biotech (Covaxin), Serum Institute</b>	Will inquire matter myself: Punjab Health Minister on allegations of vaccine diversion to private hospitals	<a href="#">1086967</a>	40,000 doses	-
11 June 2021	Substandard	USA, Europe	<b>Johnson&amp;Johnson</b>	EU regulator flags contamination in some J&J COVID-19 vaccines	<a href="#">1095771</a>	unknown	-
11 June 2021	Substandard	USA, Canada	<b>Johnson&amp;Johnson</b>	First batch of J&J COVID vaccines won't be released in Canada	<a href="#">1096549</a>	300,000 doses	-
12 June 2021	Substandard	USA, South-Africa	<b>Johnson&amp;Johnson</b>	2 million doses of J&J vaccine in South Africa possibly contaminated   Citypress	<a href="#">1097627</a>	2 million doses	-
14 June 2021	Diverted	Uganda	<b>Oxford-AstraZeneca</b>	Police names suspects arrested over stolen Covid-19 vaccines	<a href="#">1129380</a>	unknown	-
15 June 2021	Falsified	Ecuador	<b>Pfizer/BioNTech</b>	Five fraudsters are arrested in Ecuador for selling fake Pfizer vaccines	<a href="#">1100787</a>	43 syringes seized	unknown, sea water?
16 June 2021	Falsified	India	<b>Covishield</b>	Mumbai Society Residents Allege Vaccination Scam, Suspect They Received Fake COVID-19 Vaccine; Probe	<a href="#">1101158</a>	around 390 people vaccinated	unknown
23 June 2021	Falsified	India	<b>Covishield</b>	TMC MP Mimi Chakraborty falls for fake Covid-19 vaccination drive, gets accused arrested	<a href="#">1110971</a>	200-250 people vaccinated	amikacin
24 June 2021	Substandard	Russia	<b>Sputnik V</b>	WHO uncovers problems at Sputnik V Covid-19 vaccine at Russia's Ufa plant	<a href="#">1131615</a>	unknown	-
25 June 2021	Falsified	India	-	Escroquerie aux faux vaccins en Inde: 2500 personnes vaccinées avec de l'eau saline	<a href="#">1114048</a>	2,000 people	Saline

				(India's fake vaccine scam: 2,500 people vaccinated with saline water)			
29 June 2021	<b>Substandard</b>	Thailand	<b>Sinovac</b>	Gel-like substance found in 110 bottles of Sinovac's COVID-19 vaccine	<a href="#">1173183</a>	110 vials	-
30 June 2021	<b>Falsified</b>	Uganda	<b>Oxford-AstraZeneca (Serum Institute of India)</b>	Uganda: State House Says Over 800 People Vaccinated With Fake COVID-19 Jabs ▷ Kenya News	<a href="#">1119681</a>	> 800 people vaccinated	(bottled) water
30 June 2021	<b>Falsified - incident 1</b> <b>Substandard</b> (after diversion) - incident 2	Venezuela, online	-	Venezuela's Thriving Black Market for COVID-19 Vaccines	<a href="#">1120499</a>	> 2,000 people affected (incident 1)	'boiling water', painkillers and antibiotics (incident 1)
<b>JULY 2021</b>							
01 July 2021	<b>Unclear</b>	Online	<b>Oxford-AstraZeneca, Pfizer/BioNTech, Johnson &amp; Johnson, Moderna, Sputnik V</b>	Fake Covid Certificates, Stolen Vaccines Sold on Darkweb for Bitcoin	<a href="#">1122035</a>	-	-
03 July 2021	<b>Unclear</b>	Online, Italy	-	Website accepting cryptocurrency for selling fake coronavirus vaccines and certificates in Italy	<a href="#">1123690</a>	-	-
07 July 2021	<b>Unclear</b>	Philippines	<b>Oxford-AstraZeneca, Pfizer/BioNTech, Sinovac</b>	Pasay City police arrest fake nurse, cohort for illegal sale of COVID vaccines	<a href="#">1129126</a>	unknown	-
07 July 2021	<b>Falsified, Unclear</b>	Iran	<b>Sinopharm, Oxford-AstraZeneca, Pfizer/BioNTech</b>	Iran Cracks Fake COVID Vaccine Ring, Seizing Large Shipment	<a href="#">1216975</a>	unknown	unknown
08 July 2021	<b>Diverted</b>	Philippines	<b>Sinovac Biotech</b>	Sinovac shots confiscated in QC 'unsafe,' had dirty packaging – FDA	<a href="#">1130843</a>	300 doses	unknown
13 July 2021	<b>Falsified</b>	Lebanon	-	Scandale à l'Hôpital de Batroun, un employé accusé d'avoir falsifié les vaccins Pfizer (Scandal at Batroun Hospital, employee accused of falsifying Pfizer vaccines)	<a href="#">1135850</a>	-	Unknown
13 July 2021	<b>Unclear</b>	Mexico	-	Alertan por hallazgo de vacunas falsas contra Covid-19 en Ciudad Juárez (Alert for the discovery of false vaccines against Covid-19 in Ciudad Juárez)	<a href="#">1157058</a>	unknown	Unknown

14 July 2021	<b>Falsified</b>	Thailand	<b>Moderna</b>	Thai clinic shut down for selling fake Moderna vaccine: cops	<a href="#">1136434</a>	unknown	unknown
15 July 2021	<b>Diverted</b>	South Africa	-	'Covid-19 vaccines and scheduled medicines now in the hands of looters'	<a href="#">1138581</a>	unknown	-
18 July 2021	<b>Diverted</b>	India	<b>Covishield</b>	COVID-19 in Chhattisgarh: 70 doses of Covishield vaccine stolen in Durg's Ahirwara	<a href="#">1143378</a>	70 doses	-
24 July 2021	<b>Diverted</b>	India	<b>Covishield</b>	Covid: Pharmacist held for vaccine fraud in Diamond Harbour	<a href="#">1151752</a>	at least 40 people vaccinated	-
26 July 2021	<b>Diverted</b>	Pakistan	-	Man held, former army officer booked on charges of 'illegal' Covid vaccination in Karachi	<a href="#">1153392</a>	unknown	-
26 July 2021	<b>Falsified</b>	Mexico	-	Police arrest man for administering fake Covid vaccine for 1,000 pesos	<a href="#">1153776</a>	unknown	unknown, sodium chloride?
<b>AUGUST 2021</b>							
04 August 2021	<b>Falsified</b>	Zambia	-	2 in court for administering fake Covid vaccine – Zambia	<a href="#">1170735</a>	one person vaccinated	-
10 August 2021	<b>Falsified</b>	India	-	Health supervisor held for giving 'fake' Covid jabs	<a href="#">1171346</a>	-	dexamethasone, ranitidine
10 August 2021	<b>Falsified</b>	Germany	<b>Pfizer/BioNTech</b>	8,900 May Have Received Fake COVID-19 Vaccines, Injected With Saline Instead	<a href="#">1172699</a>	up to 8,557 people vaccinated	saline solution
16 August 2021	<b>Falsified</b>	Uganda, India	<b>Covishield</b>	Coronavirus - Africa: Medical Product Alert N°5/2021: Falsified COVISHIELD vaccine	<a href="#">1179721</a>	-	-
19 August 2021	<b>Diverted</b>	India	<b>Covishield</b>	Navi Mumbai: 20-year-old held for black marketing of Covishield vaccine in Nerul	<a href="#">1183740</a>	-	-
21 August 2021	<b>Diverted</b>	Myanma, India	<b>Covishield</b>	Brokers sell Covishield vaccine on Myanmar's black market for millions of kyat	<a href="#">1211006</a>	-	-
25 August 2021	<b>Substandard</b>	Japan, Spain	<b>Moderna</b>	Moderna probes reports of COVID-19 vaccine contamination in Japan Additional information: <a href="#">report ID 1195784</a>	<a href="#">1191874</a>	1.63 million doses	'metallic particle'

28 August 2021	<b>Substandard</b>	Japan (Okinawa)	<b>Moderna</b>	Contaminants found in Moderna vaccine not belonging to suspended lots Additional information: <a href="#">report ID 1196215</a>	<a href="#">1195426</a>	4 vials	'rubber pieces'
29 August 2021	<b>Substandard</b>	Japan (Gunma)	<b>Moderna</b>	Contaminants found in more Moderna COVID vaccine in Japan	<a href="#">1196215</a>	4,500 people received shots	'blackish foreign matter'
30 August 2021	<b>Substandard</b>	Japan	<b>Moderna</b>	Japan's Moderna vaccine woes widen	<a href="#">1197034</a>	1 million	'foreign substances'
31 August 2021	<b>Falsified</b>	Myanmar	<b>Covishield</b>	Medical Product Alert N°5/2021: Falsified COVISHIELD vaccine (Update)	<a href="#">1198523</a>	-	-
31 August 2021	<b>Substandard</b>	Japan (Kanagawa)	<b>Moderna</b>	Japan finds black particles in Moderna vaccine	<a href="#">1199556</a>	3,790 people received shots	'black particles'
<b>SEPTEMBER 2021</b>							
01 September 2021	<b>Unregistered</b>	Zambia	<b>Hayat Vax (Vero Cell, Gulf Pharmaceutical Industries)</b>	10,000 doses of fake COVID-19 vaccines destroyed by ZAMRA	<a href="#">1199738</a>	-	-
06 September 2021	<b>Unclear</b>	Brazil	<b>Sinovac</b>	Brazil Bans China's Sinovac Covid Vaccine Over Fears Of Contamination	<a href="#">1206268</a>	12.1 million doses + 9 million doses	-
08 September 2021	<b>Falsified</b>	Kenya	<b>Johnson &amp; Johnson</b>	Two suspected of administering fake Covid-19 vaccine	<a href="#">1208719</a>	-	-
09 September 2021	<b>Falsified</b>	China	-	福州这2人制造假新冠<em>疫苗</em>共牟利54万余元,目前已有200人接种! - 2021-09-09 (These two people in Fuzhou made a total of more than 540,000 yuan in the production of fake new crown vaccines , and currently 200 people have been vaccinated!)	<a href="#">1209582</a>	454 falsified vaccines sold (allegedly administrated to 200 people)	'saline'
13 September 2021	<b>Diverted</b>	Turkey	<b>Unknown</b>	Nurses accused of selling siphoned COVID-19 vaccines in Turkey   Daily Sabah	<a href="#">1215059</a>	-	-
13 September 2021	<b>Falsified</b>	India	-	Three Moga women held for holding fake Covid vaccination camp	<a href="#">1215054</a>	-	multi-vitamins
14 September 2021	<b>Substandard</b>	Japan	<b>Pfizer/BioNTech</b>	Contaminated Pfizer Covid-19 vaccines found in Japan	<a href="#">1216365</a>	5 vials	floating white substance

15 September 2021	<b>Substandard</b>	Japan	<b>Pfizer/BioNTech</b>	Pfizer says substances found in COVID-19 vaccine vials in Japan harmless - Reports	<a href="#">1217459</a>	95 vials	floating substances
15 September 2021	<b>Diverted</b>	Canada	<b>Unknown</b>	Winnipeg police investigating possible theft of COVID-19 vaccine from convention centre supersite	<a href="#">1217927</a>	-	-
23 September 2021	<b>Substandard</b>	South Africa	<b>Johnson &amp; Johnson (Aspen's Gqeberha facility)</b>	30 million 'contaminated' J&J vaccines destroyed in South Africa	<a href="#">1227495</a>	30 million	-

## A.2.2. Incidents published in August and September 2021

### A.2.2.1. *Falsified COVID-19 vaccines*

#### Covishield

In mid-August, WHO issued an alert on falsified COVID-19 vaccines identified in the WHO African Region and the WHO South-East Asia Region (report ID 1179721). The falsified products were reported to WHO in July and August 2021. The Serum Institute of India Pvt. Ltd, the manufacturer of the genuine Covishield vaccine, has confirmed that the products listed in this alert are falsified. The falsified vaccines found in Uganda had a wrong batch number (4121Z040) and a wrong expiry date (10.08.2021). WHO updated the alert<sup>16</sup> in late August with another falsified Covishield vaccine which has been found in Myanmar (report ID 1198523). The batch number (4126Z079) on this product was falsified and the product name: 'COVISHIELD' was not spelled correctly. In India, falsified Covidshield was found in 2ml vials (4 doses), however, the manufacturer does not produce Covishield in 2ml vials.

#### Johnson & Johnson

In Kenya, two people were detained as suspected in a case of administering falsified COVID-19 vaccines to Kenyans (report ID 1208719). According to the court documents, between July and August, the two had allegedly impersonated a medical doctor and administered what was believed to be a falsified Johnson and Johnson COVID-19 vaccine to unsuspecting clients. During their arrest, police recovered assorted consent sheets with details of their victims, who were charged up to Sh 3,500 (Kenyan shilling, 31.40 USD) for a shot.

#### Pfizer/BioNTech

In our report issued with data for April 2021, we reported on a case in Germany of a nurse who allegedly replaced six COVID-19 vaccine doses with saline water. The article in April reported that the nurse allegedly accidentally dropped the Pfizer/BioNTech vial and to cover up the loss, she replaced the lost doses with saline injections<sup>17</sup>. In August, an article reported that 8,557 people may have been vaccinated with saline solution instead of a genuine vaccine after the German nurse admitted that she swapped the Pfizer-BioNTech vaccine with saline (report ID 1172699). Victims may include people at the German Red Cross vaccination centre and the Friesland vaccination centre. Local authorities are currently investigating the exact number of victims along with the accused's motive. Furthermore, people who were vaccinated from March to April may need to be revaccinated.

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<sup>16</sup> WHO. Medical Product Alert N°5/2021: Falsified COVISHIELD vaccine (Update). Medical product alert. Published August 31, 2021. Accessed November 10, 2021. <https://www.who.int/news/item/31-08-2021-medical-product-alert-n-5-2021-falsified-covishield-vaccine>

<sup>17</sup> Report ID 1038395 discussed in Medical Product Quality Report – COVID-19 issues. Issue 11. Source article: Middleton L. Nurse "gave people fake Covid vaccines to cover up for dropping vial". Metro News. Published April 27, 2021. Accessed August 30, 2021. <https://metro.co.uk/2021/04/27/nurse-gave-people-fake-covid-vaccines-to-cover-up-for-dropping-vial-14478894/>

### Unknown 'COVID-19 vaccines'

In Zambia, two men were charged for pretending to be medical personnel in the Ministry of Health and allegedly obtaining K 2,650 (Zambian Kwacha, approximately 167 USD) by administering a falsified COVID-19 vaccine to a citizen (report ID 1170735).

In Uttar Pradesh state of India, a health supervisor from a primary community health centre was arrested for allegedly injecting Dexona (dexamethasone) and Aciloc (ranitidine) in villagers and falsely claiming that they were vaccinated against COVID-19 (report ID 1171346). About ten victims were charged Indian Rs 20 to 50 for each injection (approximately 0.27 to 0.68 USD). Three women have been arrested for allegedly organising a falsified COVID-19 vaccination camp in the state of Himachal Pradesh, India (report ID 1215054). The residents were administered with multi-vitamins but without any charge. Investigation is ongoing.

In China, the court opened a case in which falsified COVID-19 vaccines were allegedly sold between October and December 2020 (Chinese report ID 1209582). The defendant and other accomplices allegedly sold 454 falsified COVID-19 vaccines 'made in saline cans' and made profits of more than 540,000 Yuan (approximately 84,403 USD). It was reported that a total of 200 victims have been injected with these falsified vaccines.

### A.2.2.2. Substandard COVID-19 vaccines

#### Johnson & Johnson

In previous issues<sup>18</sup> of the Medical Product Quality Report on COVID-19 issues, we reported on issues discovered at the manufacturing plant Emergent BioSolutions in the USA, a subcontractor producing the Johnson & Johnson COVID-19 vaccine. It has led to the destruction of millions of doses in the USA. In the previous issue of this report we reported that in South Africa, two million doses of the J&J vaccine, that were awaiting distribution from the Aspen Pharma plant in Gqeberha, will not be used due to suspicions that a core component of the vaccine was contaminated in the US factory<sup>19</sup>. In September an article reported that 30 million Johnson & Johnson (J&J) COVID-19 vaccines were destroyed at the Aspen Pharmacare facility in South Africa in June due to a contaminated drug substance supplied by J&J's US partner Emergent BioSolutions (report ID 1227495). These vaccines were completed, filled and finished in Aspen's Gqeberha production and designated for the South African market. However, they needed to be destroyed due to substance supplied to Aspen by Johnson & Johnson from their contract manufacturing partner Emergent BioSolutions in the USA.

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<sup>18</sup> Infectious Diseases Data Observatory. Medical Product Quality Reports. Medical Product Quality Reports. Published 2020. Accessed January 24, 2022. <https://www.iddo.org/mq/research/medical-product-quality-reports>

<sup>19</sup> Report ID 1097627 discussed in Medical Product Quality Report – COVID-19 issues. Issue 12. Source article: Dawie Boonzaaier and Liezel De Lange. 2 million doses of J&J vaccine in South Africa possibly contaminated | Citypress. News24. Published June 13, 2021. Accessed November 11, 2021. <https://www.news24.com/citypress/news/2-million-doses-of-jj-vaccine-in-south-africa-possibly-contaminated-20210613>

## Moderna

Several articles in the lay press reported on apparently contaminated Moderna COVID-19 vaccines, affecting several prefectures in Japan. We report on 5 articles covering various incidents. In late August, Takeda, Moderna's vaccine partner in Japan, suspended the use of 1.63 million doses of Moderna vaccine (report ID 1191874). According to Moderna, it had received “*several complains of particulate matter*” in vials from one product lot which was distributed in Japan. Moderna and the Spanish pharma company Rovi (ROVI.MC), which is a contract manufacturing facility for Moderna COVID-19 vaccines, believed that the contamination could be due to a manufacturing issue in one of Rovi's production lines. According to health ministry sources, the contaminant is believed to be a metallic particle<sup>20</sup>. The 1.63 million doses were allegedly manufactured on the same production line at the same time and fall under three lot numbers: 3004667, 3004734 and 3004956. The foreign substances have been observed at eight vaccination sites in five prefectures (Ibaraki, Saitama, Tokyo, Gifu and Aichi). They were found in a total of 39 vials<sup>21</sup>. Several vaccines from the suspected lots, have been administered but it is not clear how many people were affected.

The Okinawa prefectural government later announced that it has found foreign matter in an unused vial of the Moderna COVID-19 vaccine from a different lot from the three other lot numbers affected (report ID 1195426).

Another article mentioned that foreign matter was found in three syringes filled with COVID-19 vaccine in the Okinawa prefecture (report ID 1196215). The Health Ministry said that rubber pieces have likely fallen into the vials when a syringe needle was inserted into the rubber top of the vials. However, it has found no major problem in vaccine quality. These four vials fall under the same lot number: 3005293. Furthermore the same article reports about the Gunma prefectural government communicating on foreign substances found in a Moderna COVID-19 vaccine (report ID 1196215). Blackish foreign matter, less than 0.5 millimetres in size, was spotted during pre-inoculation inspections in a vial from lot 3005236. About 4,500 people received shots in Gunma but no cases of ill health have been reported.

In Kanagawa prefecture, another contaminated vaccine case was found (report ID 1199556). A pharmacist found ‘black particles’ while he was checking for foreign substances before administration. Around 3,790 people had already received shots from the batch. The rest of the batch has now been put on hold.

An article on the 30<sup>th</sup> of August reported that another million doses of Moderna COVID-19 vaccine were temporarily suspended in Japan bringing the total number of suspended doses to more than 2.6 million doses (report ID 1197034). The temporary suspension followed foreign substances being found in more batches and

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<sup>20</sup> Additional information in report ID 1195784: Kevin Dunleavy. Contaminant in Moderna COVID-19 vaccine vials found in Japan was metallic particles: report | FiercePharma. Fierce Pharma. Published August 27, 2021. Accessed November 19, 2021. <https://www.fiercepharma.com/pharma/contaminant-moderna-covid-19-vaccine-vials-found-japan-was-metallic-particles-report>

<sup>21</sup> Additional information in report ID 1192078: Kyodo News. Japan halts use of 1.63 mil. Moderna vaccine doses over contamination. Kyodo News. Published August 26, 2021. Accessed November 19, 2021. <https://english.kyodonews.net/news/2021/08/7fb949bf9198-urgent-unused-moderna-vaccine-doses-may-contain-foreign-materials-japan.html>

after two people died following vaccination from affected lots. The government said that no safety or efficacy issues had been identified and that the suspension was a precaution. The causes of death are being investigated.

#### Pfizer/BioNTech

The Japanese local governments reported the detection of strange substances in five vials of the COVID-19 vaccine produced by US pharmaceutical company Pfizer (report ID 1216365). According to the source, the vials with 'the floating white substance' belong to the same batch (FF5357) and were found in cities in Kanagawa and Osaka prefectures. The following day, the Japanese press reported that Pfizer's Japanese branch announced that 95 vials of its coronavirus vaccine contained floating substances, which are undissolved residue and are thus harmless (report ID 1217459). At the same time, the company promised to investigate the matter and report its findings.

#### A.2.2.3. *Unregistered COVID-19 vaccines*

The Zambia Medicines Regulatory Authority (ZAMRA) intercepted and destroyed 10,000 doses of a suspected COVID-19 vaccine imported into the country without authorisation (report ID 1199738). The vaccine was labelled as Hayat Vax [SARS-COV-2 Vaccine] (Vero Cell) inactivated, with batch number HV0025, but is unauthorised for use on the Zambian market as it is not registered by ZAMRA. According to the documentation, the purported manufacturer of the Hayat Vax vaccine is Gulf Pharmaceutical Industries while the selling entity is G42 Medications Trading LLC of the United Arab Emirates.

#### A.2.2.4. *Diverted COVID-19 vaccines*

##### Covishield

In India, a 20-year-old man was arrested for illegally selling the Covishield vaccine (report ID 1183740). The police seized one full and another half-filled vial of Covishield vaccine from him. Police reported that he had demanded Rs 4000 (approximately 53.63 USD) for each dose.

In Myanmar, online black-market sales of the Covishield vaccine, allegedly produced by the Serum Institute of India, was reported at up to 25 times the original price (report ID 1211006). One vial of the vaccine is typically priced at 80,000 Myanmar kyat (approximately US\$49), but it has been sold for as high as 2 million kyat (approximately \$1,215). Since early August, as many as 1,000 vials per day have been imported along Myanmar's border with India, according to local sources. Those with military ties had also reportedly been illegally importing the vaccines by air. The Covishield vials, imported unofficially from India, had labels reading "Not for Sale" and "Use in India Only." According to the report they were authentic vaccines. However, there is no guarantee that the cold chain has been maintained during the transportation process.

##### Unknown 'COVID-19 vaccines'

In Turkey, three nurses were accused of selling falsified 'vaccine passes' (report ID 1215059). The investigation revealed that the suspects also siphoned half the

content of several COVID-19 vaccines. They sold the vaccine at Turkish lira 150 (approximately 17.70 USD) a vial.

In Canada, the police are investigating a possible theft of COVID-19 vaccines from a vaccination site in Winnipeg (report ID 1217927). Neither the police service nor the provincial government has provided any further details.

#### *A.2.2.5. COVID-19 vaccines for which the quality is unclear*

##### *Sinovac*

Media reports that the Brazilian Health Regulatory Agency (Anvisa) has suspended the use of over 12.1 million doses of China's Sinovac COVID vaccine for three months over fears of the vials being contaminated (report ID 1206268). According to the Washington Post, the vaccines were believed to be filled at an unauthorised production base. The matter is being investigated. Anvisa has also halted plans to distribute an additional 9 million doses of Sinovac, as they were also filled at a location that was not inspected by the health officials.

### A.3. Reports from scientific literature

#### **Falsified COVISHIELD products in India and Uganda. *React Wkly.***

2021;1869(1):2. doi:10.1007/S40278-021-00867-0

Extract: "The manufacturer of COVISHIELD (Serum Institute of India) has confirmed the following two products as falsified: COVISHIELD Batch 4121Z040, with a falsified expiry date (10.8.2021), which was identified in Uganda; and COVISHIELD 2mL which was identified in India, as the genuine manufacturer does not produce a COVISHIELD 2mL (4 doses) vial."

#### **Lachman P, van der Wilden-van Lier E. Use of Barcode Technology Can Make a Difference to Patient Safety in the Post COVID era. *IJQHC Commun.* Published online August 3, 2021:1-2. doi:10.1093/IJCOMS/LYAB014**

Extract. "The COVID- 19 pandemic has demonstrated the value of digital solutions to patient care and to patient safety. here are many solutions that have yet to be fully implemented. In this commentary we discuss the value of barcode technology to ensure secure supply chains and the delivery of reliable and efficient processes in healthcare. This will facilitate the implementation of WHO policies on supply chains as well as support initiatives on medication safety. [...] The introduction of the COVID-19 vaccine is a good example of how we must apply technology to ensure reliability in the process, from production to the distribution and then administration of the vaccine. The production of the vaccines at scale and then worldwide distribution requires accountability in origin and route of the supply. Barcoding technology can provide the public with reassurance of the safety of the vaccines and can ensure that there is reliability in the process. While the first COVID-vaccine-batches were not at all traceable, the vaccines are now traceable in Europe, in compliance with the EU Falsified Medicines Directive. As the spread of vaccines happens worldwide, the identification with barcodes will decrease the potential of counterfeit vaccines being used. Product identification with a globally unique identifier, with each batch having a unique identifier, allows for identification and traceability, should sideeffects be an issue."

#### **Mukherjee D, Maskey U, Ishak A, Sarfraz Z, Sarfraz A, Jaiswal V. Fake COVID-19 vaccination in India: an emerging dilemma? *Postgrad Med J.* Published online August 26, 2021:1-2. doi:10.1136/POSTGRADMEDJ-2021-141003**

Extract. "When reports of fake vaccination surfaced in the Indian media, the country was shaken. Mumbai and Kolkata saw the most harrowing situation associated with this racket, which culminated to be part of an organised syndicate. In Mumbai at least 2053 people were given fake jabs of the vaccines at nine centres as part of vaccination drives/camps. An entire housing committee was scammed by fake vaccines and one hospital was even sealed for conducting a fake vaccination drive. A special investigation team was set up by the Mumbai Police which arrested several people. A similar situation was witnessed in Kolkata, where 800 people were duped with fake jabs. In the fake vaccination drive, there are suspicions that people received either expired vaccines, empty vials, saline water or an antibiotic, amikacin, in place of the vaccine."

#### **To KK-W, Li X, Lung DC, et al. False Coronavirus Disease 2019 Cases due to Contamination by Inactivated Virus Vaccine. *Clin Infect Dis.* Published online September 9, 2021:1-4. doi:10.1093/CID/CIAB684**

Abstract. "A false-positive severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) reverse-transcription polymerase chain reaction result can lead to unnecessary public health measures. We report 2 individuals whose respiratory specimens were contaminated by an inactivated SARS-CoV-2 vaccine strain (CoronaVac), likely at vaccination premises. Incidentally, whole genome sequencing of CoronaVac showed adaptive deletions on the spike protein, which do not result in observable changes of antigenicity."

#### A.4. Reports from international organisations

WHO. **Medical Product Alert N°5/2021: Falsified COVISHIELD vaccine (Update).**

Medical product alert. Published August 31, 2021. Accessed November 10, 2021.

<https://www.who.int/news/item/31-08-2021-medical-product-alert-n-5-2021-falsified-covishield-vaccine>

Extract. *“This WHO Medical Product Alert refers to falsified COVISHIELD (ChAdOx1 nCoV-19 Corona Virus Vaccines (Recombinant)) identified in the WHO African Region, and the WHO South-East Asia Region. The falsified products were reported to WHO in July and August 2021. The genuine manufacturer of COVISHIELD (Serum Institute of India Pvt. Ltd.) has confirmed that the products listed in this alert are falsified. These falsified products have been reported at the patient level in Uganda, India and Myanmar.”*

INTERPOL. **Crackdown on illicit health and counterfeit products identifies 179 suspects in Southern Africa.** News and Events. Published August 5, 2021.

Accessed November 10, 2021. <https://www.interpol.int/en/News-and-Events/News/2021/Crackdown-on-illicit-health-and-counterfeit-products-identifies-179-suspects-in-Southern-Africa>

<https://www.interpol.int/en/News-and-Events/News/2021/Crackdown-on-illicit-health-and-counterfeit-products-identifies-179-suspects-in-Southern-Africa>

Extract. *“An operation across Southern Africa supported by INTERPOL against the trafficking of illicit health products and other goods has led to the identification of 179 suspects and to the seizure of products worth some USD 3.5 million. Operation Afya II which ended last month saw more than 4,000 inspections carried out at warehouses, storerooms, pharmacies and other premises in rural areas, triggering more than 300 investigations across the ten participating countries: Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Tanzania and Zimbabwe. [...] Commenting on the operation, Mozambique’s National Criminal Investigation Service (SERNIC) said in a statement: “The illegal production, distribution and sale of medicines contribute daily to the deaths of thousands of children and adults across the world. The participation of Mozambican Law Enforcement Agencies in Operation Afya II helped increase the level of synergies in combating criminal organization groups that are dealing with pharmaceutical crimes and other harmful products, especially during this period when the region in particular is impacted by the pandemic.” Particularly within the Southern African region, the pandemic has shown a surge in the trade of illicit medical products and other related items, including vaccines, face masks and fake COVID-19 certificates.”*

INTERPOL. **INTERPOL issues global alert as fraudsters target governments with COVID-19 vaccine scams.** News and Events. Published August 16, 2021.

Accessed November 10, 2021. <https://www.interpol.int/en/News-and-Events/News/2021/INTERPOL-issues-global-alert-as-fraudsters-target-governments-with-COVID-19-vaccine-scams>

<https://www.interpol.int/en/News-and-Events/News/2021/INTERPOL-issues-global-alert-as-fraudsters-target-governments-with-COVID-19-vaccine-scams>

Extract. *“INTERPOL has issued a global alert for organized crime groups attempting to defraud governments with fake offers to sell COVID-19 vaccines. The warning follows some 60 cases in 40 countries around the world where individuals in health ministries and hospitals have received offers for COVID-19 vaccines approved for distribution in their country. Usually claiming to represent a vaccine manufacturer or a government agency facilitating the distribution of vaccines, the scammers are targeting both professional and personal email accounts of potential buyers, as well as making contact via phone.”*

US Pharmacopeia (USP). **USP Expands Global COVID-19 Response to Tackle Substandard & Falsified Vaccines.** Pharmacopeia Blog. Quality Matters - Medicines. Published August 18, 2021. Accessed August 30, 2021.

Published August 18, 2021. Accessed August 30, 2021.

<https://qualitymatters.usp.org/usp-expands-global-covid-19-response-tackle-substandard-falsified-vaccines>

Extract. *“The challenges posed by COVID-19 transcend international borders and require global solutions. This includes addressing the potential for substandard and falsified (SSF)*

*COVID-19 vaccines, particularly in low- and middle-income countries. At the U.S. Pharmacopeia (USP), we've produced a suite of resources to help the people who are responsible for managing the risks and ensuring trust in quality-assured COVID-19 vaccines."*

US Pharmacopeia (USP). **Confronting Substandard and Falsified COVID-19 Vaccines: Strategies and Tools for Use in Global Settings.**; 2021. Accessed August 30, 2021. <https://www.usp.org/covid-19/vaccines>

*Extract. "The problem of substandard and falsified (SF) COVID-19 vaccines is a global challenge that is likely to intensify. Acute shortages of vaccines in many low-and middle income countries (LMICs) followed by eventual surges of supply provide both motive and opportunity for a rise in SF vaccines. This issue impacts individuals, our ability to control the pandemic, larger societal health, public trust, and social justice. Ensuring vaccine quality is integral to equitable access. This paper clarifies the challenges related to SF COVID-19 vaccines, highlights relevant policies to combat these, explores practical approaches and tools to prevent, detect, and respond to this threat, and proposes strategies and interventions to stakeholders in medicines quality."*

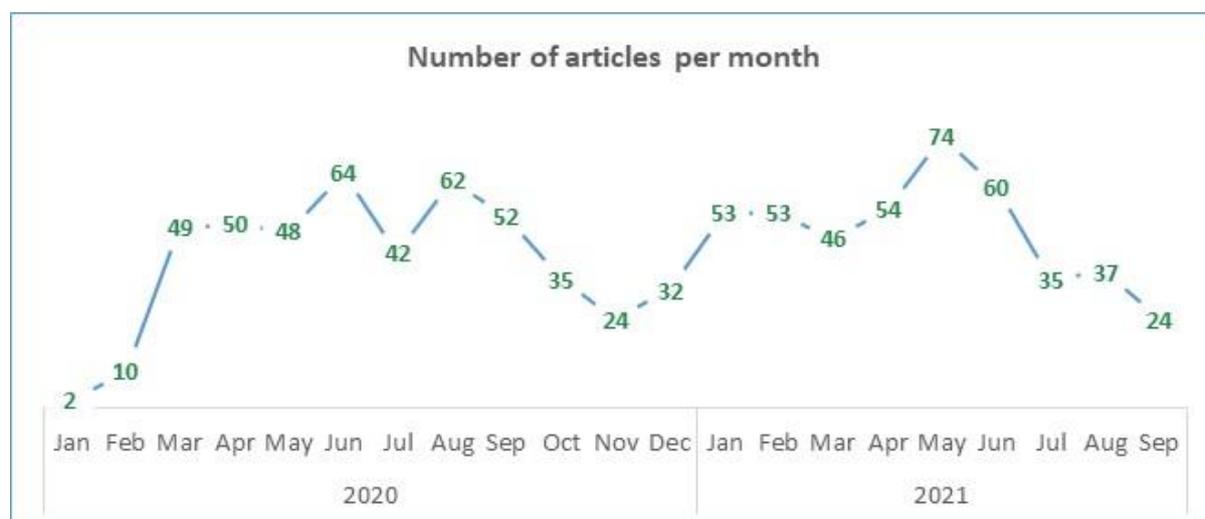
## Part B.

### Other medical products linked to COVID-19

#### B.1. Articles of incidents in the lay literature

##### B.1.1. Overview of all categories

Since the beginning of the pandemic we have identified 906 relevant articles on quality problems with COVID-19 medical products: (a) vaccines, (b) diagnostics, (c) Personal Protective Equipment (PPE), (d) sanitisers & disinfectants, (e) medicines, and (f) ventilation & oxygenation equipment and consumables. In this issue, we report on 61 relevant articles: 37 articles for August 2021 and 24 articles for September 2021 (see Figure 3), including vaccines. The number of articles in August and September is lower than two previous months. After a surge of articles in the spring, fewer articles reported on quality issues of COVID-19 medical products over the summer.



**Figure 3. Number of articles on the Medicines Quality Monitoring Globe on quality issues of COVID-19 supplies by month.**

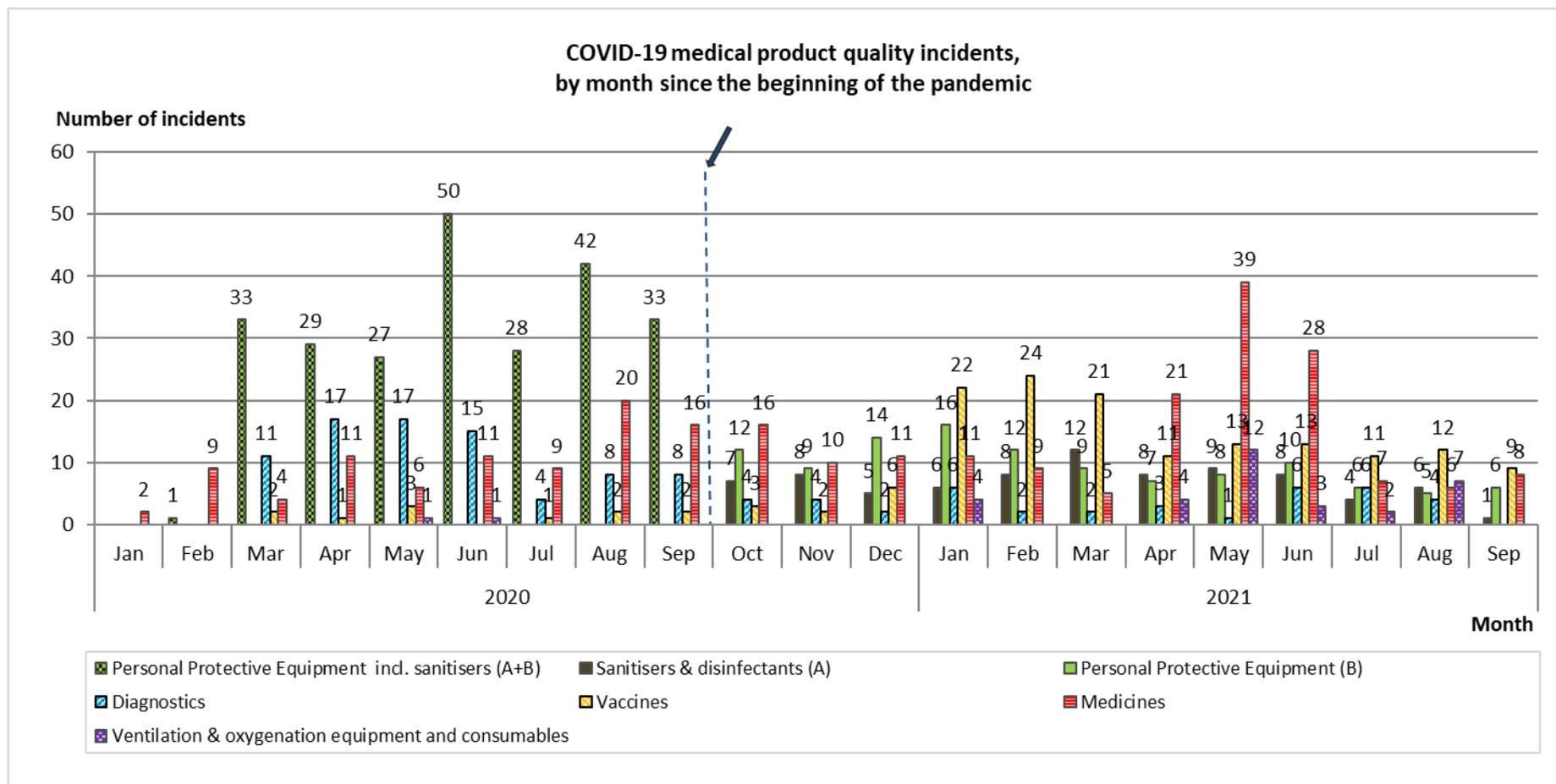
As some articles describe more than one category of products, the sum of incidents per month as shown in Figure 4 may exceed the sum of articles per month of Figure 3. Note (i) since November '20, non-COVID-19 medicines containing hidden active pharmaceutical ingredients (API) that are used or trialed for COVID-19 are no longer included. Only medicines for which the stated API is used or trialed for COVID-19 treatment are included in this report. The observed decrease of the number of articles can be at least partially due to this change. Note (ii) search terms for COVID-19 vaccines theft and diversion have been added, the observed rise in the number of articles from January '21 can be at least partially due to this change.

The articles we discuss for August and September include 64 incidents: 14 (6;8) on COVID-19 related medicines, 21 (12;9) on vaccines, 11 (5;6) on PPE, 7 (6;1) on sanitisers & disinfectants, 4 (4;0) on diagnostics, and 7 (7;0) on ventilation &

oxygenation equipment and consumables. Figure 4 shows the number of alerts for each category by month since the beginning of the pandemic.

Some articles summarize or describe multiple product categories used during the COVID-19 pandemic. When an article discusses more than 2 product categories, we describe the content of those articles in this section and do not report on them in the sections for the different product categories.

According to authorities of Ho Chi Minh City, Vietnam, several businesses are trading medical equipment without knowing the origin of the product (report ID 1186319). They are investigating cases of smuggling of hundreds of thousands of medical supplies of unknown origin. For example, in mid-August, they detected and seized thousands of 3M masks, SARS-CoV-2 rapid test kits, and oxygen ventilators without a clear indication of origin at warehouses in different districts. Allegedly, the owner of the items said that most of them will be sold via social networks and a few of them in stores.



**Figure 4. Incidents on the Medicines Quality Monitoring Globe on quality issues with COVID-19 medical products by month.**

The arrow indicates the end of September 2020 when the category of ‘Personal Protective Equipment Incl. sanitisers’ was split in two distinct categories: (A) Sanitiser & disinfectants, and (B) Personal Protective Equipment. As some articles describe more than one category of products, the sum of incidents per month may exceed the sum of articles per month reported in Figure 3.

Note (i) since November ‘20, non-COVID-19 medicines containing hidden active pharmaceutical ingredients (API) that are used or trialled for COVID-19 are no longer included. Only medicines for which the stated API is used or trialled for COVID-19 treatment are included in this report. The observed decrease of the number of articles can be at least partially due to this change. Note (ii) search terms for COVID-19 vaccines theft and diversion have been added, the observed rise in the number of articles from January ‘21 can be at least partially due to this change.

## **B.1.2. COVID-19 diagnostics**

### *B.1.2.1. Falsified COVID-19 diagnostics*

US Customs and Border Protection (US CBP) officers reported counterfeit products in Louisville, including falsified COVID-19 product materials, such as test kits and vaccination cards (report ID 1179830).

### *B.1.2.2. Substandard COVID-19 diagnostics*

The Rural Doctors Society in Thailand has condemned the Government over the purchase of 8.5 million unreliable COVID-19 Rapid test kits produced by Lepu Medical Technology (China), despite many countries banning them (report ID 1177994). The statement cited as an example a study published in *Virology Journal* on 33,000 people in Pakistan, which found Lepu had a low sensitivity rate, compared to its 90% claim, and a 48% false-negative chance. The rural doctors' group issued a statement demanding that the Government Pharmaceutical Organization, Rajavithi Hospital, and the Ministry of Public Health take full responsibility if they proceed with the purchases.

### *B.1.2.3. Unregistered COVID-19 diagnostics*

The Malaysian Pharmacists Society (MPS) is concerned about the unregulated sale of COVID-19 self-test kits, especially via social media platforms including WhatsApp (report ID 1185922). They are particularly concerned about the rampant sale of falsified kits as well as sales by unqualified sellers. MPS has received numerous complaints from both the public and pharmacists of the online sales of self-test kits at extremely low prices and with no guarantee. MPS also urges the government to manage these unregulated sales and distribution of self-test kits.

## **B.1.3. Personal Protective Equipment**

### *B.1.3.1. Falsified masks*

Two articles discuss falsified masks in the USA. The first article presented that Westchester County, New York, is suing Jason Brand and Essential Manufacturing Corp (report ID 1167460). In May 2020, the county bought a total of 30,660 face masks branded as 3M from the company, costing 206,995 USD. Only in 2021, after a fraud alert issued by 3M, the masks from Essential were found to be falsified 3M masks. The second incident concerns the seizure of about 622,000 falsified 3M N95 masks at a Detroit storage facility (report ID 1237228). A hospital system had spent some 3.5 million USD for them. The discovery was part of an ongoing probe tied to a Chinese company that has distributed falsified face coverings across the country. This company had also been linked to shipments of falsified 3M masks found in Seattle, New York and Arizona.

In Argentina, eight people were arrested for allegedly manufacturing falsified face masks imitating leading commercial brands, including those made by Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET; report ID 1179569). During raids by authorities several partially made masks were found in five textile workshops and one home. In addition, the authorities discovered a machine to stamp

logos onto the masks for false authenticity and falsified packing material. The workshops failed to register with the government and were operating without licenses. Basic security and safety measures were not in place; for example, some of the equipment that needs sterilization before use had not been sterilized.

One article reported on the 'Fake Mask USA' website that was popular on Facebook for providing falsified masks (report ID 1223601). They purposely market products with the word 'fake' and do not block transmission of disease but otherwise look legitimate. Their target buyers were people with anti-mask and anti-vaccine sentiment. Videos from the website claimed that the company had fulfilled orders for at least hundreds of thousands of falsified masks. The website also sold a 'Double Incognito Fake Mask' which is black and might appear to be effective against the virus. However, the website said that *"These masks do nothing at all."* The website's FAQ mentioned nylon and polyester as some of the key materials used to make the masks. It also added that *"Our masks do not stop the spread of COVID-19 and will not protect you from it either."*

In Jamaica, an official has called for an urgent investigation into the procurement and distribution of falsified 3M masks which allegedly have been distributed to at least two health centres (report ID 1259396). Following an alert by 3M on August 9<sup>th</sup>, two of the falsified batch codes have been recognised among the purchases by the government.

#### **B.1.3.2. Substandard Personal Protective Equipment**

In England, the government is currently in dispute with several companies over £1.2 billion (approximately 1.61 billion USD) worth of personal protective equipment deemed *"substandard"* or undelivered (report ID 1202755). According to the health minister, the government hopes to recover costs and is considering legal action over 40 separate contracts covering 1.7 billion items of PPE. The health department was still discussing masks, gowns, goggles and gloves which *"have not been delivered or failed quality tests"*.

A Hong Kong company has been fined for stocking of 935 boxes of face masks, containing 32,725 masks with an estimated market value of about HK\$93,500 (approximately 12,002.63 USD), with false performance claims (report ID 1236558). Customs officers seized the masks, stored in yellow boxes printed with the declaration *"Not made in China"*. The masks were labelled with *"ASTM Level 1"* in product specification, the lowest grade (based on ratings of filtration and fluid resistance). However, a laboratory test revealed that the sample masks failed to attain the declared performance standard.

In Philippines, the Senate Blue Ribbon Committee is conducting a probe into Pharmally Pharmaceuticals Corp., a company that supplied allegedly overpriced and substandard face masks, face shields and other medical equipment to the government (report ID 1232067). Senators have found many problems with government deals with Pharmally, including repacking substandard face shields for the Department of Health. According to the staff, they were told to repack face shields that were already yellowing, wet, old, and even dirty. They were also changing the stickers of expired medical-grade face shields from 2020 to 2021.

### **B.1.3.3. Unregistered masks**

The US FDA has sent a warning letter to Invisi Smart Technologies UK LTD, based in the United Kingdom (report ID 1193000). The company offers face masks for sale without marketing approval, clearance, or authorization from the US FDA: ISM5 Invisi Smart Mask, ISM5 Invisi Smart Mask (Black Edition) and ISM30 Invisi Smart Mask.

The US FDA has issued an alert to health care providers to stop using certain N95 respirator face masks manufactured by Shanghai Dashen Health Products Manufacturing Co, China (report ID 1192621). National Institute for Occupational Safety and Health (NIOSH) has revoked the approval of Shanghai Dashen's N95 respirator face masks because they did not implement, maintain, and control a quality management system. As a result, previously authorized Shanghai Dasheng respirators are no longer authorized for emergency use.

### **B.1.4. Sanitisers & disinfectants**

In May-July 2021, a study was conducted collecting hand sanitiser samples from various markets and households in Uttarakhand state, India (report ID 1164808). The study revealed that 578 samples out of 1,050 had extremely low amounts of alcohol. The presence of toxic colours was found in 278 samples, while methanol was found in eight samples. The concentration of hydrogen peroxide was also found in excess in around 112 samples.

One of the articles highlights that the list of recalled hand sanitizers established by the US FDA has continuously been growing during the pandemic (report ID 1208377). In mid-August 2021 the list counted 255 different hand sanitizers mostly produced and distributed in Mexico. Other countries of origin were China, South Korea, Guatemala, Poland, Turkey, and USA.

Another article reports that the US FDA alerted consumers, health care providers and specifically parents to be aware of the recall of 75 hand sanitisers containing methanol or wood alcohol, instead of ethanol (report ID 1186717). The FDA notes: *“Although all persons using these products on their hands are at risk for methanol poisoning, young children who accidentally ingest these products and adolescents and adults who drink these products as an alcohol (ethanol) substitute, are most at risk.”* Most of the recalled products were made in Mexico, and some have been sold at Walmart, Costco and other grocery stores.

The US FDA published warning letters sent in August and September to one Chinese company and two different Mexican companies concerning the quality of their hand sanitisers. The goods were detained and refused admission at the US border because they were adulterated and not approved by the US FDA. For the China based 'BBC Group Limited', the hand sanitiser was marketed without an FDA-approved application (report ID 1171766). In addition, according to the product label, products contain the active ingredient *“chloroxylenol 0.015%”*. Chloroxylenol is not permitted as an active ingredient for use as a consumer antiseptic hand rub drug product. For 'Tropicosmeticos SA de CV' the hand sanitiser was wrongly labelled to

contain 70% v/v ethanol (report ID 1180886). However, the FDA laboratory testing of a batch of this product found that the sanitiser contained only methanol at more than 50% v/v. For 'Nanomateriales Químicos Avanzados' the hand sanitiser was wrongly labelled to contain 65% v/v ethanol (report ID 1224668). However, the FDA laboratory testing of a batch of this product found that the sanitiser contained only an average of 41% 1-propanol v/v.

Health Canada advised Canadians to stop using and discard all products manufactured by Eco-Med Pharmaceuticals including hand sanitisers, first aid antiseptics, ultrasound gels due to potential bacterial contamination with *Burkholderia stabilis* (report ID 1196204). Previously, the manufacturer had launched a voluntary recall for certain lots of ultrasound gels due to the contamination issue. They were expanding the list of impacted products to include all the company's products because the source of the bacterial contamination is unknown and cannot be determined at the moment. Health Canada has also suspended the company's licences to manufacture and sell health products based on potential safety issues.

## **B.1.5. COVID-19 medicines**

### **B.1.5.1. Falsified COVID-19 medicines**

*Artesunate.* The Nigeria custom service seized falsified pharmaceutical medicines and cosmetics in July and August (report ID 1223149). The list of the falsified medicines included 440 cartons of 'Artesunate injection zensunate' without the National Agency for Food and Drugs Administration and Control (NAFDAC) number, which is worth N8,580,000 (Nigerian naira, approximately 20,906.20 USD).

*Codeine.* In Ho Chi Minh City, Vietnam, police officers arrested a man with 150 suspicious boxes containing falsified COVID-19 treatment pills with the brand name Terpincodein (report ID 1186319). The man has confessed that it was a fake medicine because he bought the raw materials then produced and sold them to the market to make a profit.

*Green chiretta.* Thai authorities warned consumers about falsified 'green chiretta' capsules after a man was arrested for allegedly producing them (report ID 1163268). Green chiretta is herbal medicine known as 'Fah Talai Jone', that was recently approved to treat asymptomatic COVID-19. Officials found 450 bottles of capsules claimed to contain green chiretta, about 60,000 capsules containing powdered herbs, 300 unlabeled packs of capsules and 6,000 empty bottles with caps. The suspect confessed to having filled empty capsules with powdered *tinospora crispa*, a moonseed herb with heart-shaped leaves since it had a bitter taste like green chiretta.

*Remdesivir.* In Manipur state, India, local police have arrested a man and seized 441 Desrem (remdesivir 100 mg) injections, which were suspected to be falsified (report ID 1163133). The seized vials showed various discrepancies compared to the genuine injection produced by Mylan, for example, the seized box looks bigger than that of the genuine medicine.

In the previous issue of this report we reported that in July, authorities in Mexico found doses of remdesivir offered for sale on the internet and at a private hospital near the US border which later were confirmed by the manufacturer, Gilead Sciences, to be falsified<sup>22</sup>. In August, WHO issued a warning of two batches of falsified remdesivir injection in Mexico which were claimed to be the genuine product manufactured by Gilead Sciences (report ID 1182127). "*These falsified products have been reported at the patient level (including at a hospital) in Mexico and are illicitly supplied on the internet*" according to the agency.

*Unspecified 'COVID-19 medicines'*. In Turkey, police seized 92,139 falsified medical products, including medicine used to treat COVID-19, and detained one suspect (report ID 1229014). According to the report, the medicines worth 4.2 million Turkish liras (approximately 475,123 USD) were manufactured in unqualified environments, endangering public health.

*Various active pharmaceutical ingredients*. In Pampanga province of Philippines, a 47-year-old man was arrested for allegedly being involved in the proliferation of illegal medicines along with sacks of medicines believed to be falsified (report ID 1230985). A total of seven sacks of falsified medicines including a sack each of celecoxib, cefuroxime, etoricoxib, omeprazole and recombinant human erythropoietin, and two sacks of Co-Amoxiclav were found in a suspect's residence. In Dhaka, Bangladesh, seven people have been arrested for allegedly producing falsified medicines in an illegal factory (report ID 1202811). Police have seized 700 boxes of ACME-brand medicine Monas (montelukast), 50 boxes of Square company's Seclo (omeprazole), 748 boxes of Jenith's Naproxen-plus and other falsified medicines.

#### **B.1.5.2. Substandard COVID-19 medicines**

Two articles described the results of the monthly random quality tests performed by the Indian Central Drugs Standard Control Organization (CDSCO). We only highlight the medicines that were declared as "Not of Standard Quality" that are used or trialled in the treatment for COVID-19.

For July (report ID 1177368), the CDSCO list contained 44 medicines that were not of standard quality, including paracetamol tablets I.P 500mg (Biocin) manufactured by Danish Healthcare, Brutab-400 (ibuprofen tablets IP 400mg) manufactured by Neutec Healthcare, remdesivir for injection 100mg/vial (CIPREMI) manufactured by Cipla and by Teena Labs Ltd, liposomal amphotericin B injection 50mg (ABHOPE INJ.), and amphotericin B Lipid complex injection I.V. (AMPHOLIP 50MG/10ML). The reasons why the samples were defined as not of standard quality included the failure of the assay, failure of the dissolution test, failure of disintegration, failure of the Vitamin D3 assay and others.

For August (report ID 1212321), the list contained 37 medicines that were not of standard quality, including Hetero Healthcare's antiviral medicine Fluvir (oseltamivir phosphate Oral Suspension I.P. 12mg/ ml), Dispersible paracetamol Tablets

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<sup>22</sup> Report ID 1164000 discussed in Medical Product Quality Report – COVID-19 issues. Issue 12. Source article: Associated Press. (2021, July 20). Mexico detects fake remdesivir at hospital, for sale on web. New York Post. <https://nypost.com/2021/07/20/mexico-detects-fake-remdesivir-at-hospital-for-sale-on-web/>

manufactured by Micron Pharmaceuticals, dexamethasone sodium phosphate IP manufactured by Anuh Pharma, paracetamol Tablets IP 500 mg (TEMPNIL-500) manufactured by Nuclotec Remedies, atorvastatin Tablet I.P. 20 mg manufactured by Unicure India and Galpha Laboratories, favipiravir Tablets 400 mg (Favimax-400) manufactured by Max Relief Health Care. Apart from that, Life Plus Hand Sanitizer (Alcohol 70% v/v, Chlorhexidine Gluconate Soln 2.5 per cent w/v) was declared misbranded due to the absence of batch number and manufacturer name. The reasons why the samples were defined as not of standard quality included the failure of the assay, failure of the dissolution test, failure of disintegration, failure of the uniformity of dispersion test, failure of identification test and others.

Generic drug makers Granules India and Jubilant Cadista issued a recall for different products in the US for different reasons (report ID 1213635). As per the latest enforcement report by US FDA, the US-based unit of Granules India recalled over 1.14 crore naproxen sodium tablets due to "*Current Good Manufacturing Practice (CGMP) deviations*". A second recall is from US-based Jubilant Cadista Pharmaceuticals. About 14,544 bottles of donepezil HCL tablets were recalled due to it being "*subpotent*".

#### **B.1.5.3. Unregistered COVID-19 medicines**

*Sildenafil*. US CBP officers in Louisville, USA, seized a shipment containing 4,780 'unapproved' Viagra (sildenafil) pills and 2,000 'unapproved' Cialis (tadalafil) pills (report ID 1232390). The shipment was arriving from Hong Kong and was headed to an individual in Montreal, Canada. The medicine quality was unclear. However, if genuine, the pills would have had an estimated manufacturer's suggested retail price (MSRP) of more than \$460,000.

#### **B.1.5.4. Diverted COVID-19 medicines**

*Remdesivir*. In Mumbai, India, three men were arrested in relation to the sales of remdesivir on the black market at Rs 25,000 (approximately 336.88 USD) per vial (report ID 1185560). They allegedly impersonated a Nationalist Congress Party leader to fool others and they had contacted persons affiliated with the medical industry to source remdesivir during the second wave of COVID-19 when there was a shortage of the medicine.

*Tocilizumab & baricitinib*. In Philippines, a doctor was arrested along with his daughter and another person for allegedly smuggling 10 vials of tocilizumab and 25 boxes of baricitinib tablets sold at threefold the maximum price (report ID 1232292). According to an official, the maximum suggested retail price of tocilizumab is P25,000 (Philippine peso, approximately 494.31 USD) per 400 mg/20mL vial. However, it was sold for more than P100,000 on the black market.

## **B.1.6. Ventilation & oxygenation equipment and consumables**

### ***B.1.6.1. Falsified oximeters***

There have been reports worldwide of falsified pulse oximeters being sold to customers (report ID 1172925). Media reported that a Taiwanese customer found that the oximeter he bought online showed a reading when measuring a stuffed toy. Indian media also have reported similar incidents with other objects such as pens and toothbrushes.

In Malaysia, the Federation of Malaysian Consumers Associations (Fomca) has received over 15 complaints about fake oximeters since July (report ID 1186843). *“In one case, a consumer used an oximeter on a pencil, and it ‘detected’ oxygen levels.”*, says Fomca deputy secretary-general. In addition, most complainants bought the devices through social media or online marketplaces. The dubious devices are usually very cheap, costing around RM 20 (Malaysian ringgit, approximately 4.78 USD).

Several articles discussed the quality of oximeters in Sri Lanka. One article reports that most oximeters being sold were falsified, according to an importer of oximeters approved by the National Medicines Regulatory Authority (NMRA; report ID 1194346). He further added that the falsified products provide false readings and tend to work even on a pen, instead of a finger. The products are reported to enter the country through certain corrupt individuals and allegedly the NMRA has not taken any measures to address the issue. Another article reported that due to a shortage of high-quality NMRA-approved pulse oximeters in the market, various types of very low quality or toy-type pulse oximeters were put on the market for extremely high prices, sometimes even at Rs 5,000 (Indian rupee, approximately 67.44 USD; report ID 1199130). Some of those pulse oximeters are pre-programmed toys that only show a value that was entered during the manufacturing process. Some of them work even when with a pen, stick or finger-liked things. In addition, some media reported the NMRA conducted a few raids and around 3,500 falsified low-quality pulse oximeters were seized.

### ***B.1.6.2. Substandard oximeters***

In Thailand, 'rescue volunteers' experienced issues with substandard oximeters in assessing COVID-19 patients' conditions (report ID 1166502). Allegedly substandard and 'pirate' oximeters, showing false readings, were found online. The 'rescue volunteers' called the government to action concerning the problem of substandard oximeters.

In Sri Lanka, the NMRA seized a stock of substandard oximeters (report ID 1195371). During raids in the Colombo district, four suspects and more than 600 substandard oximeters were seized. In another raid conducted in Galle district, more than 252 substandard oximeters were seized.

## B.2. Reports from scientific literature

### B.2.1. General

[Preprint] Abuga K, Nyamweya N, King'onde O. **Quality of Alcohol Based Hand Sanitizers Marketed in the Nairobi Metropolis.** *Preprints*. Published online September 24, 2021:1-10. doi:10.20944/PREPRINTS202109.0427.V1.

Abstract. "The emergence of the COVID-19 pandemic has propelled the use of alcohol-based hand sanitizers to the fore as a SARS-CoV-2 control measure. To be effective these products must comply with relevant quality parameters such as alcohol concentration, methanol limits and purity. The current study was designed to determine the quality of alcohol-based hand sanitizer products in the Nairobi metropolitan area. For this purpose, 74 commercially marketed samples were collected and subjected to analysis by gas chromatography. Only three samples (4.1%) complied with the regulatory specifications for alcohol content, methanol limits and pH. Five samples (6.8%) complied with the specification for alcohol content but did not meet methanol or pH limits. A total of 44 (59.5%) samples had methanol levels that exceeded threshold limits. Eleven samples (14.9%) were found with methanol substitution (i.e., methanol, instead of ethanol or isopropanol, was the main alcohol component). The results show that users of alcohol-based hand sanitizers are being exposed to substandard and falsified products which in addition to being non-efficacious pose harm due to unacceptable levels of toxic impurities. Regular, routine post-market surveillance is needed to prevent such products from reaching the market."

Govindasamy LS, Hsiao KH, Foong LH, Judkins S. **Planning for the next pandemic: Reflections on the early phase of the Australian COVID-19 public health response from the emergency department.** *Emerg Med Australas*. 2021;33(4):759-761. doi:10.1111/1742-6723.13799

Abstract. "Review of PPE stockpile adequacy and distribution during the early response should be considered. This is vital to protecting HCW, and in turn, preserving the functionality of the healthcare system. Significant shortages because of high global demand and disruptions in supply chains are the predictable scenario a National Stockpile is intended to address. This was exacerbated by reports of fraudulent, counterfeit and ineffective PPE. Future planning should definitively resolve the expectations and responsibilities for PPE provision at the level of community-based services (including general practices and residential aged care facilities [RACF]) and hospitals by states, territories and the Commonwealth."

Halim E, Subagio MA, Halim DD, Hebrard M. **The implementation of supply chain management in the n95 respirator product by using blockchain technology.** *Proceedings of 2021 International Conference on Information Management and Technology, ICIMTech 2021*. Institute of Electrical and Electronics Engineers Inc.; 2021:539-544. doi:10.1109/ICIMTECH53080.2021.9535077

Abstract. "As it starts at the end of the year 2019, the Covid-19 pandemic has already disturbed the condition of human life, socio-culture, and economics globally. As the virus is spreading from human to human, the need for a respirator mask is critical. One very well-known respirator mask is N95. The huge demand and high price of the N95 respirator effect create a bogus mask. This study proposes using blockchain in a global implementation of supply chain management of N95 respirator supply chain activity. Blockchain systems may help to reduce people's worldwide anxiety about the spread of N95 respirator counterfeits. The method used in this research is a systematic literature review and proposing a blockchain framework base on blockchain components. The implementation can use RFID at the level of manufacturers, distributors, and sellers. Using QR code or RFID stickers are possible in the level of customers or buyers. The result of this research is a proposal of blockchain technology for N95 respirator supply chain management systems, N95 respirator supply chain activities workflow, and a use case diagram."

Karim M, Rony K, Das Bala S. **Experiences of front-line nurses caring for patients with COVID-19 in Bangladesh: A qualitative study.** *Belitung Nurs J.* Published online September 13, 2021:1-7. doi:10.33546/bnj.1680

Extract. "participants stated that the highest number of hospitals offered substandard personal protective equipment to nurses causing them to suffer. To protect nurses first, it is necessary to provide high-quality personal protective equipment (Bala et al., 2021). How can a patient be treated when nurses fail to protect themselves from virus transmission (Gunawan et al., 2021)?"

Shen B, Cheng M, Dong C, Xiao Y. **Battling counterfeit masks during the COVID-19 outbreak: quality inspection vs. blockchain adoption.** *Int J Prod Res.* Published online August 31, 2021:1-17. doi:10.1080/00207543.2021.1961038

Abstract. "The coronavirus pandemic (COVID-19) threatens people's health. During the COVID-19 outbreak, people are encouraged to wear masks to reduce the spread of the virus. With the strong demand for masks, it has come a boom in counterfeit production. Combating counterfeit masks is vital and urgent to reduce the risks for public health. Motivated by the actual practices during the COVID-19, we examine how quality inspection and blockchain adoption help combat counterfeit masks. We find that quality inspection may not be always effective, as the government will tolerate the presence of counterfeit masks if the presence of the counterfeits is not significant. Comparing quality inspection with blockchain adoption, when the spread of COVID-19 is mild, authentic mask sellers may be encouraged to use the blockchain technology, which can increase their profits and reduce the social health risk. Furthermore, we extend our model to investigate the impacts of endogenous quality. Both quality inspection and blockchain adoption can induce low-quality mask sellers to enhance the quality level. When the number of counterfeit masks is increasing, encouraging the high-quality mask sellers to adopt the blockchain technology is effective to reduce social health risk when the spread of the coronavirus is rapid."

Van Houtven C, Miller K, Gorges R, et al. **State Policy Responses to COVID-19 in Nursing Homes.** *J Long-Term Care.* Published online September 20, 2021:264-282. doi:10.31389/JLTC.81

Extract. "Hospitals were prioritized for emergency PPE assistance in the early months of the pandemic (Brown and Berger, 2020). In early May, Federal Emergency Management Agency (FEMA) announced that a two-week supply of PPE would be shipped to all nursing facilities nationwide. However, into June, some facilities noted that PPE supplied with these shipments contained faulty or outdated PPE that could not be used safely or that shipments had yet to be received (Jacobs, 2020; Rau, 2020). This supporting role has been questioned by many stakeholders, including the NY and IL governors, who argue that it leaves health care facilities and localities competing with each other for scarce PPE, requiring substantial and redundant investment in procurement and driving up prices unnecessarily (Gross, 2020). As a result of inadequate PPE supplies, several of the 12 states referenced media reports of health care workers at nursing facilities, who reported inadequate PPE and reuse of supplies or use of substandard supplies, such as makeshift gowns and cloth face coverings."

Yusuf I, Sarkinfada F. **Gaps in the implementation of COVID-19 mitigation measures could lead to development of new strains of antimicrobial resistant pathogens: Nigerian perspective.** *PAMJ 2021; 40(12).* 2021;40(12). doi:10.11604/PAMJ.2021.40.12.23274

Abstract. "the need for improved personal hygiene practices through hand washing and use of alcohol-based hand sanitizers, has caused a significant rise in the use and sale of hand sanitizers. The rise in price and scarcity has also made it possible for substandard sanitizers to flood the market while advice about their prudent use or of the consequences of their misuse is not available"

## B.2.2. Seizures/Surveys/Case reports/Reviews

Irungu BN, Koech LC, Ondicho JM, Keter LK. **Quality assessment of selected co-trimoxazole suspension brands marketed in Nairobi County, Kenya.** *PLoS One.* 2021;16(9):1-13. doi:10.1371/JOURNAL.PONE.0257625

Abstract. *"Conclusion. This study has demonstrated that majority of co-trimoxazole suspensions tested were compliant with USP requirements. Additionally, it has provided evidence of poor quality co-trimoxazole medicines that could compromise treatment of infectious diseases in children. This emphasizes the need for regular quality assurance tests to ensure only quality medicines are in the market."*

## B.3. Reports from international organisations

WHO. **Medical Product Alert N°4/2021: Falsified remdesivir.** Medical product alert. Published August 13, 2021. Accessed November 10, 2021.

<https://www.who.int/news/item/13-08-2021-medical-product-alert-n-4-2021-falsified-remdesivir>

Extract. *"This WHO Medical Product Alert refers to two batches of falsified remdesivir injection 100mg/20ml (5mg/ml) identified in the WHO Region of the Americas and reported to WHO in July 2021. These products claim to be manufactured by GILEAD. However, GILEAD has confirmed that the remdesivir products listed in this alert are falsified and were not manufactured by them. These falsified products have been reported at the patient level (including at a hospital) in Mexico and are illicitly supplied on the internet. [...] The products identified in this alert are confirmed as falsified on the basis that they deliberately / fraudulently misrepresent their identity, composition, or source. The composition of the vials is currently unknown and laboratory analyses are to be conducted. Batch EN2005A2-B: the batch number and the expiry date (06/2023) do not correspond to any remdesivir manufactured by GILEAD. Batch EN2009D7-Q: the batch number does not correspond to any remdesivir manufactured by GILEAD."*

## B.4. Miscellaneous

Gaetano P. **The Impact of the Covid-19 Pandemic on Transnational Organised Crime** [Bachelor's Degree Thesis]. Luiss Guido Carli; 2021. Accessed January 21, 2022. <http://tesi.luiss.it/30252/>

Extract. *"Covid-19 has been the perfect opportunity for some criminals to extend their already rising global market of substandard and falsified medical products, including personal protective equipment (PPE). Many seizures by authorities worldwide indicate that very quickly criminal groups have taken advantage of the emerging [...]. The threat, however, did not stop with the sale of falsified masks. Criminals started more and more seizing the opportunity of creating false medicines and even vaccines, exploiting the great demand and the slowdown in production from the legal market. They had to rely for this venture on the fear of many people triggered by the uncertainty of the health emergency and on the ignorance and fake news regarding the vaccine spreading on the internet and published by people with no knowledge or experience in the medical field."*

## Annexes

### Annex A. Methodology changes for searches in the lay literature.

We report on incidents that were reported in the lay press. In the introduction (2. Methodology for reporting on the lay literature) we briefly describe the methodology we apply to collect the lay press articles. Changes in methodology since the first 'Medical Product Quality Report – Covid-19 issues' that was published in July 2020 are listed below.<sup>23</sup>

#### Since the October 2020 issue

- Personal protective equipment (PPE), and sanitisers & disinfectants: alerts from January to September 2020 in the PPE category included sanitisers and disinfectants. From October 2020 onwards, we created two distinct categories: sanitizers/disinfectants and other PPE.
- Search terms used to generate the summary MQM Globe-reports: key terms applied to search the Globe database to compile the Globe-reports were revised in October & November 2020. Therefore caution is required when interpreting the number of alerts or articles over time.

#### Since the November 2020 issue

- COVID-19 medicines: Non-COVID-19 medicines, containing hidden API(s) that are used or trialled for COVID-19 are no longer included in the COVID-19 reports (e.g. hidden sildenafil in sexual enhancement supplements). Only medicines for which the stated API is used or trialled for COVID-19 are included in the COVID-19 report (e.g. falsified 'Viagra'). The observed decrease of the number of articles/alerts over time may at least partially be due to this change.

#### Since the January 2021 issue

- COVID-19 vaccines:
  - Search terms used for Google News scraping: It is highly likely that diverted vaccines will not be stored appropriately and their use is likely to result in people being unprotected when they think they are. To ensure that the system includes articles that are related to diversion and theft of COVID-19 vaccines from legitimate supply chains, we adapted the search terms for Google News searches linked to COVID-19 vaccines.
  - Inclusion of reports: scams and fraudulent claims are included in the report if involving the direct offer of a COVID-19 vaccine. For all the other product categories, our reporting policy remains the same, and we do not aim to include discussion of fraudulent claims of efficacy.

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<sup>23</sup>Infectious Diseases Data Observatory. Medical Product Quality Reports. Medical Product Quality Reports. Published 2020. Accessed January 24, 2022. <https://www.iddo.org/mq/research/medical-product-quality-reports>

- Ventilation & Oxygenation equipment and consumables: We include incidents related to ventilation equipment in the overall article count. In the first Medical Product Quality Report, we reported on two incidents with ventilators (one in May and one in June 2020) but they were not included into the overall count in subsequent reports. From the January 2021 issue onwards the figures for ventilation equipment are included, including those incidents in May and June 2020).

#### **Since the March 2021 issue**

- PPE: 'face shield' was added to the search terms used to generate the summary MQM Globe-reports for PPE. Therefore caution is required when interpreting the number of alerts or articles over time.
- COVID-19 medicines:  
'Amphotericin' was added to the search terms used to generate the summary MQM Globe-reports for COVID-19 medicine. Although the product is not used as direct treatment for COVID-19 it has been included in the search terms. Amphotericin is used to treat mucormycosis, a fungal infection increasingly reported in patient that previously suffered from COVID-19. Adding Amphotericin to the search terms does not generate bias in the previous reports since the Globe database did not hold any incidents with amphotericin from 1<sup>st</sup> of January 2020 to 31<sup>st</sup> of March 2021.

#### **Since the April-May 2021 issue**

- Ventilation & Oxygenation equipment and consumables: In the search terms used to generate the summary MQM Globe-reports "pulse oximeter" was replaced by "oximeter" to ensure all relevant articles are included.

## Annex B. Table - Articles in lay literature on COVID-19 vaccine quality incidents published in 2020

Between 12<sup>th</sup> March 2020 and 31<sup>st</sup> December 2020 we found, excluding duplicates, 22 reports of quality incidents with COVID-19 vaccines. We only report on articles published in the English lay press and present in the online [Medicine Quality Monitoring Globe](#) (MQM Globe) and exclude articles that discuss the same incident (i.e. 'duplicates').

**Table 4. Articles from 2020 on quality issues with COVID-19 vaccines available in the Medicine Quality Monitoring (MQM) Globe, in chronological order.**

Reports date from 12 March 2020 until 31 December 2020. We list here only one report per incident— there are many other reports describing these issues but we have not included them unless they provide additional relevant information. We only included in this table articles from the English lay press.

2020					
Publication date	Location	Product/ organization	Title	MQM Globe report ID	URL <sup>24</sup>
12 March 2020	India	-	Maharashtra: Three held for administering fake coronavirus vaccines	487568	<a href="https://www.deccanherald.com/national/west/maharashtra-three-held-for-administering-fake-coronavirus-vaccines-812962.html">https://www.deccanherald.com/national/west/maharashtra-three-held-for-administering-fake-coronavirus-vaccines-812962.html</a>
23 March 2020	USA	-	US Court Blocks Website Selling Fake #COVID19 Vaccine	497263	<a href="https://www.infosecurity-magazine.com/news/us-court-blocks-fake-covid-19/">https://www.infosecurity-magazine.com/news/us-court-blocks-fake-covid-19/</a>
30 April 2020	USA	-	Man busted for selling fake coronavirus vaccine in Washington	549794	<a href="https://mynorthwest.com/1847021/coronavirus-vaccine-scam-washington/">https://mynorthwest.com/1847021/coronavirus-vaccine-scam-washington/</a>
01 May 2020	Online	-	Blood of coronavirus survivors sold on the dark web as 'makeshift vaccine'	550753	<a href="https://www.thescottishsun.co.uk/news/5550884/coronavirus-vaccine-blood-dark-web/">https://www.thescottishsun.co.uk/news/5550884/coronavirus-vaccine-blood-dark-web/</a>
23 May 2020	USA	-	US FDA issues warning letters to two groups for selling fake COVID-19 vaccines	578176	<a href="https://www.republicworld.com/world-news/us-news/us-fda-issues-warning-to-two-groups-for-selling-fake-covid-19-vaccines.html">https://www.republicworld.com/world-news/us-news/us-fda-issues-warning-to-two-groups-for-selling-fake-covid-19-vaccines.html</a>
27 May 2020	Ecuador	<b>Migal, The Galilee Research Inst.</b>	Fake Israeli coronavirus vaccine being sold in South America	582392	<a href="https://www.jpost.com/health-science/fake-coronavirus-vaccine-with-hebrew-label-being-sold-in-south-america-629416">https://www.jpost.com/health-science/fake-coronavirus-vaccine-with-hebrew-label-being-sold-in-south-america-629416</a>
13 July 2020	USA	-	US attorney shuts down Louisville man's website advertising fake coronavirus vaccine	646267	<a href="https://www.courier-journal.com/story/news/local/2020/07/13/louisville-man-advertised-fake-coronavirus-vaccine/5431942002/">https://www.courier-journal.com/story/news/local/2020/07/13/louisville-man-advertised-fake-coronavirus-vaccine/5431942002/</a>
13 August 2020	Online, China	* <b>Sinovac</b> * <b>Wuhan Inst. of Biological Products</b>	Fake pre-orders for coronavirus vaccines found in China	688388	<a href="https://www.taiwannews.com.tw/en/news/3987217">https://www.taiwannews.com.tw/en/news/3987217</a>

<sup>24</sup> Over time some URLs might not work anymore, and in that case one can find a summary/extract of the article [on the online MQM Globe](#) using 'reportID:XXXXXX' in the search box.

<b>21 August 2020</b>	Online, China	* <b>Sinopharm</b> * <b>Sinovac</b>	Authorities warn against illegal COVID-19 vaccines and medication sold online	723320	<a href="https://www.abc.net.au/news/2020-08-22/border-force-warn-against-importing-coronavirus-vaccines/12581996">https://www.abc.net.au/news/2020-08-22/border-force-warn-against-importing-coronavirus-vaccines/12581996</a>
<b>11 September 2020</b>	Online	-	Darknet Dealers are Selling COVID-19 Test Kits for Thousands of Dollars	723812	<a href="https://www.vice.com/en_us/article/akzpv5/covid-19-rapid-test-kits-for-sale-dark-web">https://www.vice.com/en_us/article/akzpv5/covid-19-rapid-test-kits-for-sale-dark-web</a>
<b>26 September 2020</b>	India	-	Fake COVID-19 Vaccine Manufacturing Unit Busted In Bargarh	742841	<a href="https://odishatv.in/odisha-news/fake-covid-19-vaccine-manufacturing-unit-busted-in-bargarh-478473">https://odishatv.in/odisha-news/fake-covid-19-vaccine-manufacturing-unit-busted-in-bargarh-478473</a>
<b>02 October 2020</b>	Myanmar	-	Myanmar Health Chiefs Warn Against Fake COVID-19 Vaccines	750450	<a href="https://www.irrawaddy.com/specials/myanmar-covid-19/myanmar-health-chiefs-warn-fake-covid-19-vaccines.html">https://www.irrawaddy.com/specials/myanmar-covid-19/myanmar-health-chiefs-warn-fake-covid-19-vaccines.html</a>
<b>13 October 2020</b>	Brazil	<b>Oxford- AstraZeneca</b>	Sales of fake Covid-19 vaccine in Brazil reported	764662	<a href="https://www.plenglish.com/index.php?o=rn&amp;id=60698&amp;SEO=sales-of-fake-covid-19-vaccine-in-brazil-reported">https://www.plenglish.com/index.php?o=rn&amp;id=60698&amp;SEO=sales-of-fake-covid-19-vaccine-in-brazil-reported</a> <a href="https://riotimesonline.com/brazil-news/miscellaneous/covid-19/fake-covid-19-vaccine-sold-in-brazils-city-of-niteroi-regulatory-body-alerts/">Accessible duplicate article</a> <a href="https://riotimesonline.com/brazil-news/miscellaneous/covid-19/fake-covid-19-vaccine-sold-in-brazils-city-of-niteroi-regulatory-body-alerts/">https://riotimesonline.com/brazil-news/miscellaneous/covid-19/fake-covid-19-vaccine-sold-in-brazils-city-of-niteroi-regulatory-body-alerts/</a>
<b>30 October 2020</b>	Online	-	FDA Warns Of Bogus Coronavirus Vaccines And Treatments Being Sold Online	787356	<a href="https://pittsburgh.cbslocal.com/2020/10/30/fda-warns-of-bogus-coronavirus-vaccines-and-treatments-being-sold-online/">https://pittsburgh.cbslocal.com/2020/10/30/fda-warns-of-bogus-coronavirus-vaccines-and-treatments-being-sold-online/</a>
<b>11 November 2020</b>	Online	-	Dark Web Has Become a Market place for 'Vaccines' and Other Pandemic Scams	835199	<a href="https://www.bloomberg.com/news/articles/2020-11-11/dark-web-has-become-a-marketplace-for-vaccines-and-other-pandemic-scams?sref=Pqfp0AgC">https://www.bloomberg.com/news/articles/2020-11-11/dark-web-has-become-a-marketplace-for-vaccines-and-other-pandemic-scams?sref=Pqfp0AgC</a>
<b>13 November 2020</b>	Online, Australia	* <b>Sinopharm</b> * <b>Sinovac</b>	COVID-19 vaccines selling for \$24k on black market	803482	<a href="https://www.noosanews.com.au/news/covid-19-vaccines-selling-for-24k-on-black-market/4139565/">https://www.noosanews.com.au/news/covid-19-vaccines-selling-for-24k-on-black-market/4139565/</a>
<b>04 December 2020</b>	Online	<b>Pfizer/BioNTech</b>	Darknet Drug Dealers Are Now Selling 'Pfizer COVID Vaccines'	830853	<a href="https://www.vice.com/en/article/akdkkg/darknet-drug-dealers-are-now-selling-pfizer-covid-vaccines">https://www.vice.com/en/article/akdkkg/darknet-drug-dealers-are-now-selling-pfizer-covid-vaccines</a>
<b>11 December 2020</b>	Online	<b>Pfizer/BioNTech</b>	Covid vaccine: Scammers are flogging fake coronavirus jabs on the dark web for £230	841777	<a href="https://www.mirror.co.uk/tech/covid-vaccine-scammers-flogging-fake-23151276">https://www.mirror.co.uk/tech/covid-vaccine-scammers-flogging-fake-23151276</a>
<b>21 December 2020</b>	Philippines	<b>Sinopharm</b>	Locsin says reported COVID-19 vaccine in Binondo could be fake, just 'dextrose'	855225	<a href="https://www.gmanetwork.com/news/news/nation/768836/locsin-says-reported-covid-19-vaccine-in-binondo-could-be-fake-just-dextrose/story/">https://www.gmanetwork.com/news/news/nation/768836/locsin-says-reported-covid-19-vaccine-in-binondo-could-be-fake-just-dextrose/story/</a>
<b>23 December 2020</b>	Brazil	<b>Vero Cell,</b> Beijing Institute of Biological Products	Creative Professional Says He Saw Street Vendor Selling a False Vaccine in Rio for \$R50	890939	<a href="https://www1.folha.uol.com.br/internacional/en/scienceandhealth/2020/12/street-vendors-sell-fake-vaccine-against-covid-19-for-r-50-in-rio.shtml">https://www1.folha.uol.com.br/internacional/en/scienceandhealth/2020/12/street-vendors-sell-fake-vaccine-against-covid-19-for-r-50-in-rio.shtml</a>
<b>28 December 2020</b>	South Africa	-	Interpol notes fake Covid-19 vaccine bust in SA	865724	<a href="https://citizen.co.za/news/south-africa/crime/2413293/interpol-notes-fake-covid-19-vaccine-bust-in-sa/">https://citizen.co.za/news/south-africa/crime/2413293/interpol-notes-fake-covid-19-vaccine-bust-in-sa/</a>
<b>31 December 2020</b>	USA	<b>Moderna</b>	Pharmacist Arrested, Accused Of Destroying More Than 500 Moderna Vaccine Doses	895651	<a href="https://www.npr.org/2020/12/31/952536531/pharmacist-arrested-accused-of-destroying-more-than-500-moderna-vaccine-doses?t=1614099235033">https://www.npr.org/2020/12/31/952536531/pharmacist-arrested-accused-of-destroying-more-than-500-moderna-vaccine-doses?t=1614099235033</a>

## Annex C. Report ID information and source articles

This annex contains the reports generated by the Medicine Quality Monitoring Globe (MQM Globe) using pre-defined search terms for each of the six product categories. At the beginning of each MQM Globe-report the pre-defined search terms used to generate the report are displayed.

Only the relevant articles in the MQM Globe-reports were selected for the current COVID-19 report. For each of the report IDs (six or seven digit code) discussed in the sections on 'Articles of incidents in the lay literature', additional information (including the source article) can be found in the MQM Globe reports in Annexes C.1 to C.6 or they are available on the online [MQM Globe](#)<sup>25</sup>, when introducing "reportID:XXXXXXX" in the search box.

As the file size of annexes C.1 up to C.6 is too large to include in this file, please consult the Medical Product Quality Report page on the [IDDO](#) or [MORU](#) webpage to access the MQM Globe reports by product category.

### **Annex C.1. Vaccines**

### **Annex C.2. COVID-19 diagnostics**

### **Annex C.3. Personal Protective Equipment**

### **Annex C.4 Sanitisers & disinfectants**

### **Annex C.5 COVID-19 medicines**

### **Annex C.6 Ventilation & oxygenation equipment and consumables**

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<sup>25</sup>Infectious Diseases Data Observatory. Medicine Quality Monitoring Globe. Web Page. Published 2020. Accessed January 24, 2022. <https://www.iddo.org/medicine-quality-monitoring-globe>