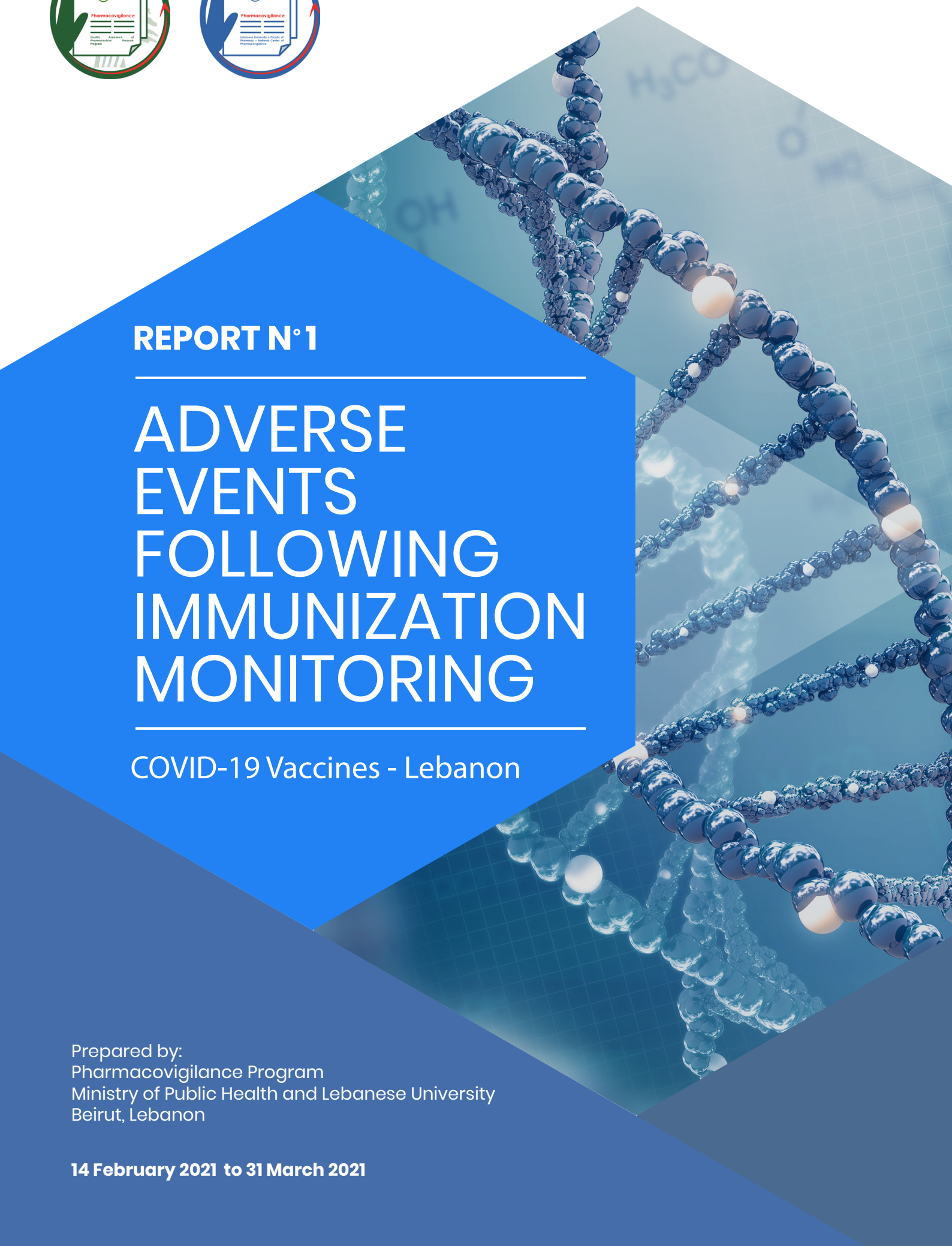

REPORT N°1

ADVERSE EVENTS FOLLOWING IMMUNIZATION MONITORING

COVID-19 Vaccines - Lebanon

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14 February 2021 to 31 March 2021

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MONTHLY SUMMARY

This report provides a summary of Adverse Events Following Immunization (AEFIs) that were temporally associated (i.e., occurred after administration of the vaccine) to the Pfizer BioNtech COVID-19 Vaccine, the only available vaccine in Lebanon during the mass campaign immunization between February 14, 2021 and March 31, 2021. According to the World Health Organization (WHO), an AEFI is any untoward medical occurrence that follows immunization and does not necessarily have a causal relationship with the vaccine. The adverse event may be any unfavorable or unintended sign, abnormal laboratory finding, symptom or disease.

203,866 doses of Pfizer-BioNTech COVID-19 Vaccine have been administered during the period of time covered by the report (14 February - 31 March 2021)

As per the COVID-19 vaccination dashboard provided by IMPACT platform

BACKGROUND

Within the scope of the AEFI surveillance related to the available COVID-19 Vaccines in Lebanon, the PharmacoVigilance (PV) Program established a procedure for the management of reported AEFIs. Vaccine recipients experiencing any AEFI post-immunization can report through one of the following means: 1214 Hotline call center, Impact Platform (refer to technical notes), or vaccination sites. All case reports are screened and validated for data completion. Incomplete or inconsistent case reports are followed-up directly with the initial reporter. The case reports are classified as serious, follow-up or non-serious cases. The non-serious case reports are entered directly into the national web-based report management system, VigiFlow. Follow-up cases are reviewed and based on the type of AEFI reported and its outcome, they are classified either as serious or non-serious cases. The surveillance aims to establish a rigorous safety profile in regards to the COVID-19 Vaccines administered in Lebanon.

HIGHLIGHTS

- A total of 705 case reports/ 1,344 AEFIs were received following the administration of 203,866 doses of Pfizer BioNTech COVID-19 vaccine in Lebanon between 14 February and 31 March 2021. This is equivalent to a reporting rate of 3.5 case reports/6.6 AEFIs per 1,000 doses administered.
- Out of the 705 case reports (Table 1):
  - Six hundred sixty three case reports were non-serious (94% of total case reports)
  - Thirty one case reports were follow-up cases (4.4% of total case reports), of which 4 case reports are important medical events (0.6% of total case reports)
  - Eleven case reports were serious (1.6% of total case reports)
- The 5 most frequently reported AEFIs were general pain (31.7% of total reported AEFIs), chills (21.9% of total reported AEFIs), injection site pain (17.1% of total reported AEFIs), headache (16.6% of total reported AEFIs) and pyrexia (14.6% of total reported AEFIs).

REPORTING OVERVIEW

a. Global Analysis

Table 1 presents a summary of case reports related to Pfizer BioNTech COVID-19 vaccine.

Table 1. Summary of all case reports related to Pfizer BioNTech COVID-19 vaccine in Lebanon, February 14, 2021 to March 31, 2021

Pfizer-BioNTech COVID-19 Vaccine	COUNT	PERCENTAGE
Total case reports	705	100%
Non serious case* reports	663	94%
Follow-up case** reports	31	4.4%
Serious case*** reports	11	1.6%
Doses administered	203,866	100%
Total reporting rate per 1,000 doses administered	3.5	
Serious reporting rate per 1,000 doses administered	0.05	

Data Source: VigiLyze (Dataset date: 07/04/2021, MedDRA version: 23.1)
** Non serious cases include expected local and systemic AEFIs resolved with no need for further follow up or investigation*
*** Follow-up cases include unexpected, but not yet serious AEFIs, local or systemic, resolved or not in the next 48 hours*
**** Serious cases are those who meet the WHO seriousness criteria (refer to technical notes)*

b. Demographics

Tables 2 and 3 present a summary of case reports related to Pfizer BioNTech Covid-19 vaccine by age group, gender and reporter qualification.

Table 2. Summary of all case reports related to Pfizer BioNTech COVID-19 vaccine by age group and gender in Lebanon, February 14, 2021 to March 31, 2021

PATIENT	COUNT	PERCENTAGE
Female	454	64.4%
Male	251	35.6%
18 - 44 years	359	50.9%
45 - 64 years	155	22.0%
65 - 74 years	15	2.1%
≥ 75 years	141	20%
Unknown	35	5.0%

Note: Age represents the age at time of vaccination. Some case reports records may be missing date of birth
Data Source: VigiLyze (Dataset date: 07/04/2021, MedDRA version: 23.1)

Table 3. Summary of all case reports related to Pfizer BioNTech COVID-19 vaccine by reporter qualification in Lebanon, February 14, 2021 to March 31, 2021

REPORTER QUALIFICATION	COUNT	PERCENTAGE
Physician	121	17.2%
Pharmacist	63	8.9%
Other Health Professional	211	29.9%
Consumer/Non Health Professional	310	44%

Data Source: VigiLyze (Dataset date: 07/04/2021, MedDRA version: 23.1)

c. Types of Adverse Events Following Immunization

An AEFI case report refers to a report received by the PV Program, which pertains to one individual vaccine recipient who has reported at least one adverse event after receiving the Pfizer BioNTech COVID-19 vaccine (i.e., temporally associated with the vaccine). The tables below give an overview of the reported AEFIs.

Table 4. Number and percentage of reported AEFIs (top 30) by symptom related to Pfizer BioNTech COVID-19 vaccine in Lebanon, February 14, 2021 to March 31, 2021

Top Reported preferred terms* (MedDRA)	COUNT	PERCENTAGE
PT: Pain	220	31.7%
PT: Chills	152	21.9%
PT: Injection site pain	119	17.1%
PT: Headache	115	16.6%
PT: Pyrexia	101	14.6%
PT: Injection site erythema	87	12.5%
PT: Injection site swelling	81	11.7%
PT: Fatigue	52	7.5%
PT: Myalgia	35	5.0%
PT: Nausea	29	4.2%
PT: Tachycardia	29	4.2%
PT: Rash	25	3.6%
PT: Hypertension	18	2.6%
PT: Oropharyngeal pain	18	2.6%
PT: Diarrhoea	15	2.2%
PT: Dizziness	14	2.0%
PT: Dyspnoea	13	1.9%
PT: Paraesthesia	13	1.9%
PT: Back pain	11	1.6%
PT: Arthralgia	10	1.4%
PT: Rhinorrhoea	10	1.4%
PT: Vertigo	9	1.3%
PT: Vomiting	9	1.3%
PT: Urticaria	8	1.2%
PT: Hypoaesthesia oral	8	1.2%
PT: Hypoaesthesia	7	1.0%
PT: Somnolence	7	1.0%
PT: SARS-CoV-2 test positive	6	0.9%
PT: Abdominal pain	5	0.7%
PT: Cough	5	0.7%

Data Source: VigiLyze (Dataset date: 07/04/2021, MedDRA version: 23.1)
**Preferred Terms (PTs), are distinct descriptors (single medical concept) for a symptom, sign, disease diagnosis, therapeutic indication, investigation, surgical or medical procedure, and medical social or family history characteristic.*

Table 5. Number and percentage of reported AEFIs by System Organ Class (SOC)* related to Pfizer BioNTech COVID-19 vaccine in Lebanon, February 14, 2021 to March 31, 2021

Reaction (MedDRA)	COUNT	PERCENTAGE
SOC: Blood and lymphatic system disorders	3	0.4%
SOC: Cardiac disorders	29	4.2%
SOC: Ear and labyrinth disorders	11	1.6%
SOC: Eye disorders	6	0.9%
SOC: Gastrointestinal disorders	66	9.5%
SOC: General disorders and administration site conditions	498	71.8%
SOC: Immune system disorders	2	0.3%
SOC: Infections and infestations	3	0.4%
SOC: Investigations	10	1.4%
SOC: Metabolism and nutrition disorders	3	0.4%
SOC: Musculoskeletal and connective tissue disorders	60	8.6%
SOC: Nervous system disorders	149	21.5%
SOC: Psychiatric disorders	4	0.6%
SOC: Renal and urinary disorders	2	0.3%
SOC: Reproductive system and breast disorders	1	0.1%
SOC: Respiratory, thoracic and mediastinal disorders	49	7.1%
SOC: Skin and subcutaneous tissue disorders	34	4.9%
SOC: Vascular disorders	23	3.3%

Data Source: VigiLyze (Dataset date: 07/04/2021, MedDRA version: 23.1)
**System Organ Classes (SOCs) are groupings by aetiology (e.g. Infections and infestations), manifestation site (e.g. Gastrointestinal disorders) or purpose (e.g. Surgical and medical procedures)*

Table 6. Number and percentage of reported follow-up AEFIs by symptoms related to Pfizer BioNTech COVID-19 vaccine in Lebanon, February 14, 2021 to March 31, 2021

	Top Reported Preferred Terms* (MedDRA)	COUNT	PERCENTAGE	NUMBER OF CASE REPORTS	PERCENTAGE OF TOTAL CASE REPORTS	OUTCOME	FINAL CLASSIFICATION (SERIOUS/ NOT SERIOUS)
Medical Events that Require Close Monitoring**	PT: Rash	10	32.3%	27	3.8%	Recovered	Not Serious
	PT: Hypertension	6	19.4%			Recovered	Not Serious
	PT: Tachycardia	5	16.1%			Recovered	Not Serious
	PT: Chills	3	9.7%			Recovered	Not Serious
	PT: Dyspnoea	3	9.7%			Recovered	Not Serious
	PT: Fatigue	3	9.7%			Recovered	Not Serious
	PT: Urticaria	3	9.7%			Recovered	Not Serious
	PT: Dizziness	2	6.5%			Recovered	Not Serious
	PT: Headache	2	6.5%			Recovered	Not Serious
	PT: Hypotension	2	6.5%			Recovered	Not Serious
Important Medical Events***	PT: Syncope	2	50.0%	4	0.6%	Recovered	Not Serious
	PT: Cellulitis	1	25.0%			Recovered	Not Serious
	PT: Laryngeal oedema	1	25.0%			Recovered	Not Serious

Data Source: VigiLyze (Dataset date: 07/04/2021, MedDRA version: 23.1)
**Preferred Terms (PTs), are distinct descriptors (single medical concept) for a symptom, sign, disease diagnosis, therapeutic indication, investigation, surgical or medical procedure, and medical social or family history characteristic.*
***Medical Events that require close monitoring are not included in the EMA Important Medical Events terms list, yet they are considered as important AEFIs within the PV Program. Some AEFIs such as chills, fatigue, dizziness and headache are non serious however co-reported with AEFIs that require follow-up.*
****Important Medical Events are defined by the EMA Important Medical Events terms list (refer to technical notes).*

DESCRIPTION OF ADVERSE EVENTS FOLLOWING IMMUNIZATION

The age group of vaccine recipients who mostly reported AEFIs was 18 to 44 years old (51.4%), with females reporting more AEFIS than Male (64.4% vs. 35.6%) (Table 2).

The most frequently reported AEFIs for Pfizer BioNtech COVID-19 vaccine were pain (31.7% of total reported AEFIs), chills (21.9% of total reported AEFIs), injection site pain (17.1% of total reported AEFIs), headache (16.6% of total reported AEFIs), and pyrexia (14.6% of total reported AEFIs) (Table 4). The most reported AEFIs for Pfizer BioNtech COVID-19 vaccine per System Organ Class were general disorders and administration site conditions (71.8% of total reported AEFIs per SOC), followed by nervous system disorders (21.5% of total reported AEFIs per SOC) and gastrointestinal disorders (9.5% of total reported AEFIs per SOC) (Table 5).

AEFIs are classified as serious, follow-up or non-serious.

Non serious AEFIs

Non serious AEFIs are benign, expected local and systemic AEFIs that are resolved without further follow-up nor investigation. The most commonly reported adverse events following immunization for Pfizer BioNtech COVID-19 vaccine listed in the paragraph above were non-serious AEFIs.

Follow-up AEFIs

Follow-up AEFIs are unexpected, local or systemic adverse events that are of concern and require special consideration. Depending on their type, follow-up AEFIs are divided into "important medical events" based on the EMA list (refer to technical notes) and those "requiring close monitoring" if they are not part of the EMA list. These cases require close surveillance by the PV Program. Such types of events may jeopardize the vaccine recipient or may require intervention to prevent an outcome described in the WHO seriousness criteria. Based on its outcome, a follow up AEFI may be reclassified as serious.

Among the follow-up AEFIs, the most reported AEFIs that require close monitoring were rash

(32.3% of reported follow-up AEFIs), hypertension (19.4% of reported follow-up AEFIs), and tachycardia (16.1% of reported follow-up AEFIs) (Table 6).
Among the follow-up AEFIs, the most reported important medical events were syncope (50% of reported follow-up AEFIs), cellulitis (25% of reported follow-up AEFIs) and laryngeal oedema (25% of reported follow-up AEFIs) (Table 6).
All follow-up cases were resolved, therefore not reclassified as serious.

Serious AEFIs

AEFIs are classified as serious according to the seriousness criteria of WHO (refer to the technical notes). These cases require investigation and causality assessment in order to evaluate the potential relationship between the AEFI and the vaccine and to implement the appropriate follow-up actions. The investigation is carried out by the PV Program and includes an extensive and rigorous scientific evaluation with vaccination site visit, access to vaccine recipient's medical reports and laboratory results, and questioning concerned recipient or his/her relatives. After collecting all available information, the investigation report is filled and a causality assessment is performed by a group of experts in order to review the potential causal association between the AEFI and vaccine. WHO forms and tools are used to carry out both the investigation and the causality assessment.

In the period of time covered by this report, there were 11 case reports classified as serious, representing 1.6% of all case reports and a serious AEFI reporting rate of 0.05 per 1,000 doses of Pfizer BioNTech COVID-19 vaccines administered. Nine vaccine recipients were above 75 years old and 2 were between 18 and 44 years old. Out of the 11 vaccine recipients, 5 died and 6 were hospitalized. The serious cases are still under investigation,

The hospitalization cases are presented below:

- Three case reports related to the SOC "Nervous System Disorder" were cerebrovascular accidents (CVAs). The vaccine recipients have multiple co-morbidities and concomitant medications. Two cases of CVAs occurred 5 and 12 days following the first dose of Pfizer BioNTech COVID-19 vaccine and the third case occurred 1 day following the second dose of Pfizer BioNTech COVID-19 vaccine. One vaccine recipient was recovering while two were not yet improving at the time of this report. The investigation has been initiated but not yet finalized.
- One case report related to the SOC "Immune System Disorder" was a severe allergy. The vaccine recipient have no co-morbidities nor concomitant medications. The allergy occurred 15 days following the first dose of Pfizer BioNTech COVID-19 vaccine. The vaccine recipient was recovering at the time of this report. The investigation has been initiated but not yet finalized.
- One case report related to the SOC "Immune System Disorder" was a hyper stimulation of immune system. The vaccine recipient has Hashimoto disease. The hyper stimulation of

immune system occurred 1 day following the second dose Pfizer BioNTech COVID-19 vaccine. It is also worth mentioning that the recipient was tested positive for COVID-19 prior to receipt of the second dose of Pfizer BioNTech COVID-19 vaccine. The vaccine recipient was recovering at the time of this report. The investigation has been initiated but not yet finalized.

- One case report related to the SOC "Investigation" was a decrease in oxygen saturation. The vaccine recipient has a chronic obstructive pulmonary disease. The desaturation occurred 7 days following the second dose of Pfizer BioNTech COVID-19 vaccine. The vaccine recipient was recovering at the time of this report. The investigation has been initiated but not yet finalized.

Five cases resulted in death following receipt of Pfizer BioNTech COVID-19 vaccine. The vaccine recipients were above 75 years old with significant co-morbidities. The death cases are still under investigation.

COMPARISON WITH INTERNATIONAL AEFI DATA

The total number of case reports related to Pfizer BioNTech COVID-19 vaccine reported on VigiBase by the member countries of the Programme for International Drug Monitoring (PIDM) (refer to technical notes) between February 1 and March 31, 2021 was 18,344/51,163 AEFIs. The United States was the country which reported the most cases (90.6%). The rate of serious case reports was 13.3%. The age group of vaccine recipients who mostly reported AEFIs was 18 to 44 years old, with females reporting more AEFIS than males.

The most frequently reported AEFIs in the global database for Pfizer BioNtech COVID-19 vaccine were headache (23.6% of total reported AEFIs), pyrexia (16.4% of total reported AEFIs), fatigue (16.1% of total reported AEFIs), chills (16.0% of total reported AEFIs), and pain (13.2% of total reported AEFIs) (Table 7). The results are compatible with the national data which include pain, chills, headache and pyrexia in the 5 most reported AEFIs in Lebanon (Table 4). The global database also showed that 11.1% of total international cases led to hospitalization in comparison with 0.8% in Lebanon.

CONCLUSION

In the scope of the post-marketing surveillance conducted by the PV Program, a total of 705 case reports/ 1,344 AEFIs were received and analyzed following a total of 203,866 doses of Pfizer BioNTech COVID-19 vaccines administered in Lebanon from February 14 till 31 March 2021. This is equivalent to a reporting rate of 3.5 case reports/6.6 AEFIs per 1,000 doses administered. The IMPACT platform was the main mean of reporting, followed by the 1214 hotline. The vaccine recipients were the main reporters. The age group of vaccine recipients who mostly reported AEFIs was 18 to 44 years old, with females reporting more AEFIs than males. Most AEFIs reported on national basis are compatible with those reported on the international database.
To date, no safety signal has been detected yet.

The PV Program continues to conduct continuous monitoring of the safety of COVID-19 vaccines in collaboration with its partners, including individual case review, daily analysis of surveillance data for vaccine safety signals and monthly reporting.

TECHNICAL NOTES

- IMPACT Platform: The IMPACT Open Data website is a Central Inspection initiative to give access to the data gathered through the most comprehensive, nation-wide, online data collection operation conducted in collaboration with different ministries and municipalities. IMPACT stands for the Inter-Ministerial and Municipal Platform for Assessment, Coordination and Tracking. The platform includes a COVID-19 vaccination dashboard. As output of daily monitoring, a daily report and automatic dashboard are issued.

- Important medical event terms list: The EudraVigilance Expert Working Group (EV-EWG) has coordinated the development of an Important Medical Event Terms (IME) list. This IME list aims to facilitate the classification of suspected adverse reactions as well as aggregated data analysis and case assessment in the frame of the day-to-day PV activities of stakeholders. The IME list is intended for guidance purposes only.

- MedDRA (Medical Dictionary tor Regulatory Activities) is a standardised medical terminology, published by the International Council for Harmonisation, used in particular for coding cases of adverse effects in clinical study reports and pharmacovigilance databases, and to facilitate searches in these databases.

- Seriousness criteria: According to the WHO, a serious AEFI is an event that results in death, hospitalization or prolongation of an existing hospitalization, persistent or significant disability or incapacity, congenital anomaly/birth, defect or is life-threatening or is a medically important event or reaction.

- PIDM: The WHO Programme for International Drug Monitoring (PIDM), established in 1968, provides a forum for WHO Member States to collaborate in the monitoring of drug safety, and notably, the identification and analysis of new adverse reaction signals from data submitted to the WHO global individual case safety report (ICSR) database by member countries.

- VigiFlow is a web-based individual case safety report (ICSR) management system that is available for use by national PV centres of the WHO Program for International Drug Monitoring.

- VigiBase is the WHO global ICSR database that contains ICSRs submitted by the participating member states enrolled under WHO's international drug monitoring programme. It is the single largest drug safety data repository in the world.
- VigiLyze supports the collection, processing, and sharing of data of case reports to facilitate effective data analysis. VigiLyze is a signal detection and management system that can use national, regional or global data as the starting point for quantitative signal detection.

DATA CAVEATS

- Each case report refers to a reporter who reported an AEFI after receiving a dose of Pfizer BioNTech COVID-19 vaccine. A case report may contain multiple AEFIs. Therefore, the total number of AEFIs can exceed the number of individual case reports reported in a given time frame. Case reports that did not contain an AEFI at the time of data extraction have been excluded.
- AEFI reporting rates were calculated using the number of Pfizer BioNTech COVID-19 vaccine-specific AEFIs reported in the specified time period in Lebanon divided by the doses of Pfizer BioNTech COVID-19 vaccines administered in the same time period in Lebanon.
- The information available in this report does not represent Uppsala Monitoring Center (UMC) nor WHO's opinions.

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