

Egyptian Guidelines for Detecting & Reporting of Adverse Reactions For Pharmaceutical products and Medical Devices

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Table of contents

Content	Page
1. Introduction	3
2. Scope	3
3. Definitions	4
4. content	7
4.1. What is Pharmacovigilance?	7
4.2. WHO Program for International Drug Monitoring	8
4.3. Types of Adverse Drug Reactions	10
4.4. Minimum Criteria for a valid report	13
4.5. The Basic principles of efficient reporting	18
4.6. Causality assessment	20
4.7. Adverse Events Following Immunization	22
4.8. Medical device vigilance	25
4.9. Responsibilities of the Users	27
5.Annexes:	30
5.1. ANNEX I: English yellow card	30
5.2. ANNEX II: Arabic yellow card	31
5.3. ANNEX III: Arabic AEFI Reporting Form	32
5.4. ANNEX IV: AEFI English Reporting Form	33
5.5. ANNEX V: English Pink Card	34
5.6. AANNEX VI: Arabic Pink Card	35
6. References	36





This Guideline for the Egyptian Pharmaceutical Vigilance
System has been developed to complement and support
the efforts of orienting all healthcare professionals on the
important concept of Pharmacovigilance, vaccine
vigilance and Medical device safety.

It gives an overview of what Pharmaceutical vigilance is, how to detect and classify Adverse Reaction. It also describes the reporting system to the Egyptian Pharmaceutical Vigilance Center.

The reporting requirements stated in this guideline are based mainly on the international guidelines including, International Conference for Harmonization (ICH) and the European Medicine Agency (EMA).



Its ultimate goal is to enhance efforts in ensuring that safe, efficacious, and quality pharmaceutical products and Medical device are made available for all Egyptians. All healthcare professionals are encouraged to actively participate in Pharmaceutical vigilance and to report all



suspected adverse reactions to help safeguard the population health.

3 Definitions

<u>Adverse Event/ Adverse Experience:</u> Any untoward medical occurrence that may present during treatment with a pharmaceutical product / Medical device but which does not necessarily have a causal relationship with this treatment.

<u>Adverse Drug Reaction (ADR)</u>: A noxious and unintended response to a pharmaceutical product. Contrary to an adverse reaction, an ADR is characterized by the suspicion of a causal relationship between the medicine and the occurrence, i.e. judged as being at least possibly related to treatment by the reporting or a reviewing health professional.

<u>AEFI</u>: An Adverse event following immunization is any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine. The adverse event may be any unfavorable or unintended sign, abnormal laboratory finding, symptom or disease.

<u>Causality assessment:</u> The evaluation of the likelihood that a medicine was the causative agent of an observed adverse reaction. Causality assessment is usually made according established algorithms.

<u>Clusters:</u> Two or more instances of an event related in time, place, population subgroup, or common exposure (e.g., vaccine). AEFI clusters are usually associated with a particular provider, health facility, and/or a vial of vaccine that has been inappropriately prepared or contaminated.

<u>Drug/Medicine</u>: Any substance in a pharmaceutical product that is used to modify or explore physiological systems or pathological states for the benefit of the recipient. The term drug/medicinal product is used in a wider sense to include the whole formulated and registered product, including the presentation and packaging, and the accompanying information.

<u>Dechallenge:</u> The withdrawal of a medicine from a patient; the point at which the continuity, reduction or disappearance of adverse effects may be observed.

EPI: Expanded program for immunization

EPVC: Egyptian Center for Pharmaceutical Vigilance

<u>Expected of the adverse drug reaction</u>: The expectedness of the reaction is assessed in accordance with the approved product information; the reaction is defined as expected if it is included in package insert or the summary of product characteristics (SPC).



<u>Field safety corrective action (FSCA)</u>: It is an action taken by a MANUFACTURER to reduce a risk of death or serious deterioration in the state of health associated with the use of a medical device that is already placed on the market.

<u>Field Safety Corrective Actions Guidance:</u> A field safety corrective action (FSCA) is an action taken by a MANUFACTURER to reduce a risk of death or serious deterioration in the state of health associated with the use of a medical device that is already placed on the market.

<u>Lack of Efficacy</u>: Unexpected failure of a medicine to produce the intended effect as determined by previous scientific investigation.

<u>Medical device</u>: Any instrument, apparatus, appliance, software, implant, reagent, material or other article intended by the manufacturer to be used, alone or in combination, for human beings for one or more of following specific medical purposes.

Minor AEFI: an AEFI that usually contains all of the following criteria

- An event that is not "serious" and that has no potential risk to the health of the recipient of the vaccine.
- Usually occur within a few hours of injection.
- Resolve after short period of time and pose little danger.

<u>National Pharmacovigilance Center:</u> A single, governmentally recognized center (or integrated system) within a country with the clinical and scientific expertise to collect, collate, analyze and give advice on all information related to medicine safety.

<u>Rechallenge</u>: The point at which a medicine is again given to a patient after its previous withdrawal. (see Dechallenge)

<u>Serious Adverse Event or Reaction:</u> A serious adverse event or reaction is any untoward medical occurrence that at any dose results in:

- * Death
- * Is life-threatening
- * Requires inpatient hospitalization or prolongation of existing hospitalization
- * Persistent or significant disability/incapacity
- * Congenital Anomaly
- * Medically important event or reaction

To ensure no confusion or misunderstanding of the difference between the terms 'serious' and 'severe', the following note of clarification is provided:

The term 'severe' is not synonymous with serious. In the English language, 'severe' is used to describe the intensity (severity) of a specific reaction (as in mild, moderate or severe). However; the reaction itself may be of relatively minor medical significance (such as severe headache).



Serious AEFI:

Like other ADRs from medications, An AEFI will be considered serious, if it meets any of the following

- Results in death,
- Is life-threatening,
- Requires in-patient hospitalization or prolongation of existing hospitalization,
- Results in persistent or significant disability/incapacity,
- Is a congenital anomaly/birth defect?

Requires intervention to prevent permanent impairment or damage

<u>Seriousness</u> (not severity) which is based on patient/reaction outcome or action criteria serves as guide for defining regulatory reporting obligations.

Severe event:

Severe reaction is a term including serious reactions but also including other severe reactions

- Usually do not result in long-term problems.
- Could be disabling.
- Rarely life-threatening.

<u>Side Effect:</u> Any unintended effect of a pharmaceutical product occurring at doses normally used in humans, which is related to the pharmacological properties of the medicine.

<u>Signal</u>: Reported information on a possible causal relationship between an adverse reaction and a drug, the relationship being unknown or incompletely documented previously. Usually more than a single report is required to generate a signal, depending upon the seriousness of the reaction and the quality of the information.

<u>Spontaneous Reporting:</u> A system whereby case reports of adverse drug reactions are voluntarily submitted from health professionals and pharmaceutical manufacturers to the national regulatory authority.

<u>Unexpected Adverse Reaction:</u> An adverse reaction, the nature or severity of which is not consistent with domestic labeling or market authorization, or expected from characteristics of the medicine



ADR



4.1 What is Pharmacovigilance?

According to the WHO, Pharmacovigilance is the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other medicine- related problem.

This term is expanded to include other pharmaceutical products and Medical devices as well.

Adverse drug reaction (ADR) Vs. Adverse Events (AE)

Adverse drug reaction is any response which is noxious and unintended, and which occurs at doses normally used in humans for the prophylaxis, diagnosis, or therapy of disease, or for the modification of physiological function.

Adverse Event is any untoward medical occurrence that may present during treatment with a pharmaceutical product but which does not necessarily have a causal relationship with this medicinal product.

An adverse drug reaction, is distinguished from the adverse event by; the former has a suspicion of a causal relationship between the medicinal product and the reaction, i.e. judged as being at least possibly related to the reaction by the reporting or the reviewing health professional, while the adverse event does not necessarily have such causal relationship.

Importance of Pharmacovigilance

The information about pharmaceutical products collected during the pre-marketing phase is incomplete with regard to adverse drug reactions and this is mainly because:

- Patients enrolled in clinical trials are limited in number and are not representative to the public at large.
- In addition, the conditions of use of medicines differ from those in clinical practice and the duration is limited.
- Information about rare but serious adverse reactions, chronic toxicity, use in special groups (such as children, the elderly or pregnant women) or drug interactions is often incomplete.
 - ❖ Therefore, monitoring the pharmaceutical products in the post marketing settings is important to permit detection of less common but sometimes very serious ADRs. Therefore, healthcare professionals worldwide should report on Adverse Reaction as it can save lives of their patients and others.

Objectives of Pharmacovigilance

- ✓ To improve patient care and safety in relation to the use of pharmaceutical products
- ✓ To improve public health and safety in relation to the use of pharmaceutical products.
- ✓ To detect problems related to the use of pharmaceutical products and communicate the findings in a timely manner.

AE



- ✓ To contribute to the assessment of benefit, harm, effectiveness and risk of medicines, leading to the prevention of harm and maximization of benefit
- ✓ To encourage the safe, rational and more effective (including cost-effective) use of medicines; and
- ✓ To promote understanding, education and clinical training in pharmacovigilance and its effective communication to health professionals and the public.

4.2 WHO Program for International Drug Monitoring

As a means of pooling existing data on ADRs, WHO's Program for International Drug Monitoring (PIDM) was started in 1968. Initially a pilot project in 10 countries with established national reporting systems for ADRs, the network has since expanded significantly as more countries worldwide developed national Pharmacovigilance centers for the recording of ADRs. Currently, many countries participate in the program, which is coordinated by WHO together with its collaborating center in Uppsala, Sweden (UMC). The collaborating center is responsible for maintaining the global ADR database, Vigibase.

The WHO Collaborating Center analyses the reports in the database to:

Through an advisory committee, WHO plays an important role in the provision of expert advice on all matters relating to the safety of pharmaceutical products. The Committee also exists to facilitate consistent policies and action among member countries and to advise those who may be concerned about action taken in another country.

Egypt has been a full member within the Program for International Drug Monitoring since 2001, allowing the communication with vigilance centers globally and the access to safety

1. Identify early warning signals of serious adverse reactions to medicines.

2.Evaluate the hazard

3. Undertake research into the mechanisms of action to aid the development of safer and more effective medicines.

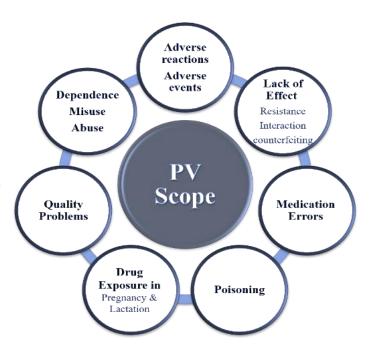
information gathered globally, and sharing the collected Egyptian data with the Global database.



Introduction to the Egyptian Pharmacovigilance system

The Egyptian Pharmaceutical Vigilance Center has been established in December 2009 within the Egyptian Drug Authority (EDA), in line with the global trend to strengthen the rules governing pharmacovigilance. It is the national center in Egypt responsible for monitoring the safety of pharmaceutical products throughout its life cycle. It also represents the regulatory body for pharmaceutical companies for subjects related to the field of pharmaceutical vigilance. Regional centers and collaborating centers were established in order to spread the awareness of pharmacovigilance and collect safety information from all governorates of Egypt.

In order perform its role, EPVC collects all safety information that falls within the safety scope including "Adverse events, lack of efficacy, drug interactions, overdoses, misuse, medication errors, off-label use and problems resulting from the use of counterfeit medicines quality problems and medical device incidence reports"



4.3 Types of Adverse Drug Reactions:

Type A effects

•Augmented pharmacologic effects - dose dependent and predictable (medicine actions) are those which are due to (exaggerated) pharmacological effects. Type A effects tend to be fairly common, dose related (i.e. more frequent or severe with higher doses) and may often be avoided by using doses which are appropriate to the individual patient. Such effects can usually be reproduced and studied experimentally and are often already identified before marketing.

Type B effects

•Bizarre effects (or idiosyncratic) - dose independent and unpredictable (Patient reactions) characteristically occur in only a minority of patients and display little or no dose relationship. They are generally rare and unpredictable, and may be serious and are notoriously difficult to study. Type B effects are either immunological or non- immunological and occur only in patients, with - often unknown - predisposing conditions. Immunological reactions may range from rashes, anaphylaxis, vasculitis, inflammatory organ injury, to highly specific autoimmune syndromes. Also non-immunological Type B effects occur in a minority of predisposed, intolerant, patients, e.g. because of an inborn error of metabolism or acquired deficiency in a certain enzyme, resulting in an abnormal metabolic pathway or accumulation of a toxic metabolite. **Examples** are chloramphenicol aplastic anemia and isoniazid hepatitis.

Type C effects

•Chronic effects refer to situations where- often for unknown reasons- the use of a medicine increases the frequency of a "spontaneous" disease. Type C effects may be both serious and common (and include malignant tumors) and may have pronounced effects on public health. Type C effects may be coincidental and often concern long term effects; there is often no suggestive time relationship and the connection may be very difficult to prove.

Type D effects

•Delayed effects, example is tardive dyskinesia after decades of using typical antipsychotics.

Type E effects

•End-of-treatment effects refer to the undesired effects of ceasing the drug (withdrawal reactions). Example: opiate withdrawal.

Type F effects

• Failure of therapy.



Seriousness of Adverse drug reactions

A serious adverse event or reaction is any untoward medical occurrence associated with the use of a medical product in a patient that at any dose, the patient outcome is one of the following:

- 1. <u>Death</u>: Report if the patient's death is suspected as being a direct outcome of the adverse reaction.
- 2. <u>Life-Threatening</u>: Report if the patient was at substantial risk of dying at the time of the adverse reaction or it is suspected that the use or continued use of the product would result in patient's death.

NOTE

The term "life-threatening" in the definition of "serious The term "life-threatening" in the definition of "serious" refers to an event/reaction in which the patient was at risk of death at the time of the event/reaction; it does not refer to an event/ reaction which hypothetically might have caused death if it were more severe.

3. <u>Hospitalization</u> (initial or prolonged): Report if admission to the hospital or prolongation of a hospital stay results because of the suspected adverse reaction

NOTE

"Hospitalization" refers to inpatient hospitalization that includes initial admission to the hospital on inpatient basis.

An emergency room visit, examination or treatment delivered as an outpatient -which does not result in admission to the hospital- does not qualify for this outcome but it should be evaluated for one of the other serious outcomes (e.g., life-threatening; required intervention to prevent permanent impairment or damage; other serious medically important event).

- 4. <u>Disability</u>: Report if the adverse reaction resulted in a significant, persistent, or permanent disability/incapacity; (change, impairment, damage, or disruption in the patient's body function/structure, physical activities, or quality of life).
- 5. <u>Congenital Anomaly:</u> Report if there are suspicions that exposure to a medical product in one of the parents prior to conception or during pregnancy resulted in an adverse outcome in the child (birth defect).
- 6. <u>Medically important event or reaction</u>: Medical and scientific judgment should be exercised in deciding whether other situations should be considered serious such as important medical events that might NOT be immediately life-threatening or result in death or hospitalization but might cause danger to the patient or might require intervention to prevent one of the other outcomes listed in the definition above. Examples:
 - Acetaminophen overdose that could induce hepatotoxicity and require treatment with acetylcysteine to prevent permanent damage;



- Burns from radiation equipment requiring medicine therapy;
- Breakage of a screw requiring replacement of hardware to prevent malunion of a fractured long bone.
- Any suspected transmission via a medicinal product of an infectious agent is also considered a serious adverse reaction.
- Intensive treatment in an emergency room or at home for allergic bronchospasm,
- Convulsions that do not result in hospitalization,
- Development of medicine dependency or medicine abuse

NOTE

- It is important to note that 'serious' and 'severe' are often used as interchangeable terms but they are not synonyms
- Severe is used to describe the intensity of a specific event (as in mild, moderate or severe); the event itself, however, may be of relatively minor medical significance (such as severe headache).
- Seriousness (not severity) is based on patient/reaction outcome.

The Spontaneous reporting structure is the voluntary and the most common way through which the regulatory bodies collect safety information for pharmaceutical products and medical devices once they are on the market.

The pharmaceutical product reporting form -Yellow Card- (Annex I, II) is used by Egyptian pharmaceutical vigilance center to collect information on medicinal products' ADRs from healthcare professionals and members of the public. Each yellow card concerns an individual case experienced ADRs. There is a special consideration concerning the reporting for vaccines clarified in appendix I

The Medical Devices Incident User Report Form (Pink Card) (Annex IV, V) is used by EPVC to collect information on Medical Devices' incidents from healthcare professionals and members of the public. The Medical Devices Vigilance System is clarified in (Appendix II).

Who should report?

- 1. Healthcare Professionals are the preferred source of information in pharmaceutical vigilance. This includes:
 - Physicians-who prescribe the pharmaceutical products and follow up with the patients.
 - Family practitioners, medical specialists, and dentists.
 - Nurses and other health workers who may administer medicines and should report relevant adverse drug reactions experienced by their patients.













- Pharmacists who can play an important role in the stimulation of reporting and in the provision of additional information (for example, on co-medication and previous
- 2. Patients or users and their relatives: They can also report their experienced adverse drug reactions directly to EPVC, or through their healthcare professionals. In this case the patient's permission is sought to contact their healthcare professionals for additional information and data verification.
 - 3. Marketing authorization holder (MAH): As being responsible for the safety of their products, are obligated to report serious adverse drug reactions they receive about their products to EPVC (In accordance to the good pharmacovigilance practices guidelines for MAHs).
 - Importers, exporters and distributers should report directly to the MAHs within the timelines specified in the safety exchange agreement (In accordance to the good pharmacovigilance practices guidelines for MAHs).



4.4 Minimum Criteria for a valid report

medicine use).

At least <u>four basic information</u> should be present for a report to be valid and subsequently entered to the national ADR database and become available for signal generation. When one or more of these information is missing, a follow up should be done in order to validate the report and complete its processing as described above.

As follow:

One identifiable patient

At least 1 of the following information about the patient should be reported:

I. Patient initials

II. Sex

III. Age at time of reaction or date of birth or age group

An identifiable reporter

1.Name

It is also preferable to report the following

I. Contact details

II. Qualification (if healthcare professional)

III. Address

Valid Report

Suspected pharmaceutical product (s)

(Generic name and/or brand name)

Suspected adverse reaction(s)

(Description of the reaction)

13

Guideline Title: Egyptian Guidelines for Detecting & Reporting of Adverse Reactions for Pharmaceutical products and Medical Devices
Version No.:2.1



Characteristics of good case report

The quality of the reports is critical for appropriate evaluation of the relationship between the product and adverse reaction; thus, a good case report includes the following elements:

- 1. Description of the adverse reaction, including time to onset of signs or symptoms and the seriousness of the reaction/s; date the reaction stopped, clinical course of the
- reaction and patient outcome with relevant investigation results (if available)

 2. Suspected and concomitant medicines details (i.e., Name, strength, dose, frequency, dosage form, route of administration, indication for use, duration of use and batch number especially for vaccines and other biological products), including over-the-counter medications, dietary supplements, and recently discontinued medications;
- 3. Patient characteristics, including the initials, age, sex, weight, and baseline medical condition prior to product therapy, co-morbid conditions, relevant family history of disease, and presence of other risk factors;
- 4. Documentation of the diagnosis of the reactions, including methods used to make the diagnosis;
- 5. Clinical course of the reaction and patient outcomes (e.g., hospitalization or death);
- 6. Relevant therapeutic measures and laboratory data at baseline, during therapy, and subsequent to therapy, including blood levels, as appropriate;
- 7. Information on dechallenge and rechallenge.
- 8. Any other relevant information (e.g., other details relating to the reaction or information on benefits received by the patient, if important to the assessment of the reaction).

What should be reported?

Any suspected adverse reaction that a patient has experienced should be reported, especially the following:

• Medicines under additional monitoring: When new drugs and vaccines are first marketed they are intensively monitored in order to confirm the risk/benefit profile of the product. Such products are labelled with an inverted black triangle ▼, and healthcare professionals are encouraged to report all suspected ADRs which occur as a result of the use of all black triangle drugs regardless of the seriousness of the reaction.

Also black triangle status may be re-assigned to an established product if it is granted a new indication or route of administration, if it is marketed as a new combination with another established active ingredient, or if it is targeted towards a new patient population.





Guideline

- For established medicines or well-known medicines report all serious or unusual unexpected suspected adverse reactions.
- Report if an increased frequency of a given reaction is suspected.
- Report all suspected ADRs associated with drug-drug, drug food or drug-food supplements (including herbal and complementary products) interactions.
- Report ADRs in special fields of interest such:
 - o ADRs occurring from overdose or medication error.
 - Medicine abuse and misuse.
 - Medicine use in pregnancy (including teratogenicity) and during lactation.
 - o In children under the age of 18, all suspected ADRs occurring, should be reported regardless of whether the medicine is licensed for use in children. Children are often not exposed to medicines during clinical trials and many medicines are used in children even if they are not licensed for this
 - purpose. This means that monitoring of medicine safety is particularly important for this age group.

 ADRs in Geriatrics: since they are more likely to experience them as a result of age-related increases
 - in the frequency of drug use, sensitivity to drug effects, and prevalence of predisposing conditions.

 O ADRs in patients with impaired kidney or liver function, ADRs are more frequent among them
 - o ADRs in patients with impaired kidney or liver function, ADRs are more frequent among them because of alteration in their pharmacokinetics and pharmacodynamics parameters and multiple comorbidities

How to recognize ADRs in patients?

As soon as possible

Reports on all suspected adverse reactions

- known or not, serious or not -are welcome and useful

If there is any doubt about whether or not, it is an ADR; it is always the best practice to submit

ADRs are difficult and sometimes impossible to distinguish from the disease being treated since they may act through the same physiological and pathological pathways. However, the following approach is helpful in assessing possible drug-related ADRs:

- 1. Ensure that the medicine ordered is the medicine received and actually taken by the patient at the dose advised.
- 2. Take a proper history and do a proper examination of patient
 - ✓ A full medicine and medical history should be taken
 - ✓ An ADR should be your first differential diagnosis at all times
 - ✓ Ask if this adverse reaction can be explained by any other cause e.g. Patient's underlying disease, other medicines including over-the-counter medicines or traditional medicines, toxins or foods
 - ✓ It is essential that the patient is thoroughly investigated to decide what the actual cause of any new medical problem is.
 - ✓ A medicine-related cause must be considered, especially when other causes do not explain the patient's condition



- 3. Establish time relationships by answering the following question: Did the ADR occur immediately following the medicine administration?
 - Some reactions occur immediately after the medicine has been given while others take time to develop. The time from start of therapy to the time of onset of the suspected reaction must be logical.
- 4. Carry out a thorough physical examination with appropriate laboratory investigations if necessary. Try to describe the reaction as clearly as possible. Where possible, provide an accurate diagnosis
- 5. Effect of Dechallenge and Rechallenge should be determined
- 6. Check the known pharmacology of the medicine
- 7. Check if the reaction is known to occur with the particular suspected medicine as stated in the package insert or other reference
 - ✓ Remember: if the reaction is not documented in the package insert, it does not mean that the reaction cannot occur with that particular suspected *medicine*.

What are the benefits of these reports for the patients and the health care providers?

The reporting by the healthcare provider and patient is completely voluntarily, they will stand to benefit

Improvement on the quality of care offered to patients

Reduction of medicine related problems leading to better treatment outcome

Improved patient confidence in professional practice, hence professional growth

Improved knowledge

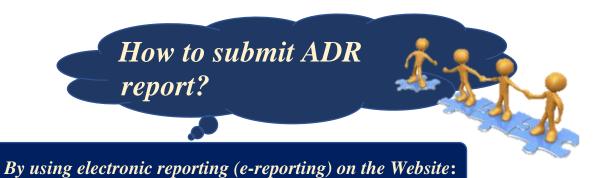
Access to feedback information on medicine related problems reported within the country and internationally

Satisfaction for the fulfillment of a moral and professional obligation

Will reporting have any negative consequences on the reporter?

- The adverse drug reaction report does not constitute an admission that the reporter or any other health professional or the medicine contributed to or caused the reaction in any way.
- The names of the reporters / any other health professionals named on the report and the patient will be removed before any details about a specific adverse drug reaction is used or communicated to others.
- The information obtained from the report will not be used for commercial purposes. It is only meant to improve our understanding and safe use of medicines in Egypt.





https://sites.google.com/view/epvc-reporting/healthcare-professional-public-adverse-drug-event-

reporting/reporting-other-adverse-drug-event-cases









2. In case of using the printed yellow card:

After filling the card; it can be sent to the EPVC by:

Website: https://www.edaegypt.gov.eg

Address: 21 Abd el Aziz Al Saood, Manial Al Rawda, Cairo-Egypt



E-mail: pv.followup@edaegypt.gov.eg



Hotline: 15301



Adverse reaction resulting from vaccines, can be reported through the above-mentioned ways. However, for mandatory vaccines; it is better to report to the Health facility where the vaccine was given.

4.5 Remember: The Basic principles of efficient reporting

• In-time reporting

- ✓ Report the suspected adverse drug reaction as soon as it occurs.
- ✓ Send the report quickly to the Egyptian Pharmacovigilance center.

• Suspicion:

- ✓ Continue your suspicion of the medicine-induced illness in the same patient and in other patients. You don't have to be sure to report.
- ✓ Be Vigilant for signs and symptoms that indicate Adverse Reactions

• Follow-up

- ✓ Follow up the patient (if possible) to know the reaction(s) outcome and document it with any new available supplementary information to submit them to the Egyptian Pharmaceutical Vigilnce center as a "Follow up" report
- ✓ When submitting a "Follow up" report, clearly state that it is "follow- up report" and include enough details to allow accurate linking it to the originally submitted report (especially patient's identifiers such as initials, age, weight and patient's file number)





Accuracy and completeness

- ✓ Ensure that each reported suspected adverse reaction is accurate with all the necessary information, as much as is available to you. This is very important for accurate causality assessment of the medicine to have caused that reaction.
- ✓ Remember the 4 basic components that make a report valid are:
 - i. One identifiable patient
 - ii. Identifiable reporter
 - iii. One or more adverse reaction or product problem
 - iv. One or more pharmaceutical product (suspected)

If the above information is missing, the report will not be valid

✓ Remember to fill in all information accurately and in clear legible writing



What happens to the reported ADRs?

Case repoeted from any source

Case entry and assessment in national database (Vigiflow)

Validated / Assessed cases are sent to global database (Vigilize)

- A healthcare professional or a marketing authorization holder reports a suspected adverse drug reaction related to one or more pharmaceutical products, to EPVC. Reports are made in writing (e.g. using reporting forms) or electronically via the e-reporting link.
- Reports are collected, collated, validated and assessed (causality assessment clarified below) by the pharmacovigilance center then entered into the national database. Serious reactions are handled with the highest priority. The details of the report stored in the national database submitted to the global database (monitored by Uppsala monitoring Center (UMC) for more analysis.
- The information compiled in the national database is used to identify potential signals, clarify risk
 factors and apparent changes in reporting profiles and to promote safe use of medicines in the local,
 national and international levels.
- A suitable action maybe recommended accordingly, such as:
 - o Requesting Additional investigations into the use of a pharmaceutical product
 - o Appropriate changes in the package insert
 - o Enhancing educational initiatives to improve the safe use of pharmaceutical products
 - Other regulatory and health promotion interventions as the situation may warrant including withdrawal / recall.

10

Guideline Title: Egyptian Guidelines for Detecting & Reporting of Adverse Reactions for Pharmaceutical products and Medical Devices
Version No.:2.1



Guideline

Thus, the ultimate purpose of ADR reporting and monitoring is to reduce risks associated with drug prescribing and administration and improve patient care, safety and treatment outcome

4.6 Causality assessment

Causality is the relationship between two events (the cause and the effect), where the second event is a consequence of the first.

Causality assessment is the method by which the extent of relationship between a medicine and a suspected reaction is established i.e. to attribute clinical events to medicines in individual patients or in case reports.



EPVC Adopts the WHO probability scale

Term	Description
Certain	 A clinical reaction, including laboratory test abnormality, occurring in a plausible time relationship to medicine administration, and which Cannot be explained by concurrent disease or other medicines or chemicals. The response to withdrawal of the medicine (dechallenge) should be clinically plausible. The reaction must be definitive pharmacologically or phenomenologically, (i.e. an objective and specific medical disorder or a recognized pharmacological phenomenon) Using a satisfactory rechallenge procedure if necessary.
Probable / Likely	 A clinical reaction, including laboratory test abnormality, with A reasonable time sequence to administration of the medicine, Unlikely to be attributed to concurrent disease or other medicines or chemicals, and which Follows a clinically reasonable response on withdrawal (dechallenge). Rechallenge information is not required to fulfill this definition.
Possible	 A clinical reaction, including laboratory test abnormality, with A reasonable time sequence to administration of the medicine, but which could also be explained by concurrent disease or other medicines or chemicals. Information on medicine withdrawal may be lacking or unclear.
Unlikely	 A clinical reaction, including laboratory test abnormality, with a temporal relationship to medicine administration which makes a causal relationship improbable, and Other medicines, chemicals or underlying disease provide plausible explanations.
Conditional/	Event or laboratory test abnormality
Unclassified	 More data for proper assessment needed, or Additional data under examination



Unassessable/	Report suggesting an adverse reaction
Unclassified	 Cannot be judged because information is insufficient or contradictory Data cannot be supplemented or verified

^{*}The terms "Conditional/unclassified" and "Unassessable/unclassifiable" are not causality terms, they describe the status of adverse reaction reports and therefore allow for practical communication about ADR issues.



4.7 Adverse Event Following Immunizations (AEFI)

The general public has low tolerance to any adverse events following vaccination because unlike medications, vaccines are given to healthy persons to prevent disease. For this reason, a higher standard of safety is expected of immunizations compared with medications that are used to treat people who are sick. This lower tolerance for risks from vaccines translates into a greater need to detect and investigate any adverse event following immunization (AEFI) than is generally expected for other pharmaceutical products. Vaccine pharmacovigilance aims to detect adverse events early to trigger accurate risk assessment and appropriate response to the problem and to lessen the potential negative impact on users and immunization programs

AEFI categories:

AEFIs are divided in 5 categories as follows

Vaccine product-related reaction:	 An AEFI that is caused by a vaccine due to one or more of the inherent properties of the vaccine product. Example: Extensive limb swelling following DTP vaccination.
Vaccine quality defect-related reaction:	An AEFI that is caused or precipitated by a vaccine that is due to one or more quality defects of the vaccine product including its administration device as provided by the manufacturer
Immunization error-related reaction:	 An AEFI that is caused by inappropriate vaccine handling, prescribing or administration and thus by its nature is preventable. such as: Reconstitution of vaccines with an incorrect diluent. Inadequate shaking of vaccine. Injection at incorrect site
Immunization Anxiety-related reaction:	 An AEFI arising from anxiety about the immunization. Example: Vasovagal syncope that leads to fainting in an adolescent during/following vaccination.
Coincidental event:	Event occurs after a vaccination has been given but is not caused by the vaccine or its administration.



•	i.e. AEFI that is caused by something other than the
	vaccine, immunization error or immunization anxiety.
•	Example: A fever occurs at the time of the
	vaccination (temporal association: Two or more
	events that occur around the same time.

Who should report an AEFI?

- As mentioned before, all HCPs should report adverse reaction. Health workers (workers at immunization facilities and staff of accident and emergency rooms in hospitals) have the responsibility to detect AEFIs and report AEFIs when appropriate.
 They also have the responsibility to treat or refer patients for treatment.
- Parents of vaccinated children and any vaccine user who experienced adverse events believed to be because of the vaccine should report

Which AEFIs should be reported?

Any AEFI that is of concern to the parents or to the healthcare worker should be reported.

Especially:

- 1. Serious AEFIs
- 2. Any adverse events associated with a newly introduced vaccine.
- 3. AEFIs that may have been caused by an immunization error.
- 4. Significant events of unexplained cause occurring within 30 days after vaccination. (Recommended by WHO to be investigated)
- 5. Events causing significant parental or community concern. Example: HHE (Hypotonic-Hyporesponsive Episodes, Seizures)
- 6. Swelling, redness, soreness at injection site if it last for more than 3 days or swelling extended to the nearest joint.
- 7. Any clusters of minor AEFIs.

AEFI reporting form:

AEFI can be reported on yellow cards or on vaccines specific reporting form (annex III), those forms should be filled and submitted through the previously mention routes (check page 29).

Causality Assessment of AEFIs:

Causality assessment is the systematic review of data about an AEFI case. It determines the likelihood of a causal association between the event and the vaccine(s) received.



Guideline

An AEFI with adequate information for causality conclusion can be classified as following:

Consistent causal association to immunization

Indeterminate

Inconsistent causal association to immunization (coincidental)

Unclassifiable.

- a. Vaccine productrelated reaction
- b. Vaccine quality defect-related reaction
- c. Immunization errorrelated reaction
- d. Immunization anxiety-related reaction

- a. Temporal relationship is consistent but there is insufficient definitive evidence that vaccine caused the event (it may be a new vaccine-linked event). This is a potential signal and needs to be considered for further investigation.
- b. Reviewing factors result in conflicting trends of consistency and inconsistency with causal association to immunization (i.e. it may be vaccine-associated as well as coincidental and it is not possible clearly to favour one or the other).

Underlying or emerging condition(s) caused by exposure to something other than vaccine

information is not available. Such cases require additional information for further review of

causality.

Adequate



4.8 Medical Devices Vigilance System

It is critically important that the safety and performance of medical devices are continually assessed when they are in use i.e. Post-Marketing, as the information collected during the pre-marketing phase is incomplete with regard to adverse incidents and this is mainly because:

- Data available in the pre-marketing review process cannot predict all possible device failures or incidents arising from device misuse in the Post-Marketing phase.
- It is through actual use that unforeseen problems related to safety and performance can occur.

Medical device means any instrument, apparatus, appliance, software, implant, reagent, material or other article intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the following specific medical purposes:



- diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease,
- diagnosis, monitoring, treatment, alleviation of, or compensation for, an injury or disability.
- investigation, replacement or modification of the anatomy or of a physiological or pathological process or state.
- providing information by means of in vitro examination of specimens derived from the human body, including organ, blood and tissue donations, and which does not achieve its principal intended action by pharmacological, immunological or metabolic means, in or on the human body, but which may be assisted in its function by such means.

The following products shall also be deemed to be medical devices:

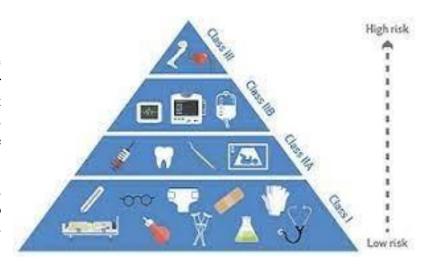
- Devices for the control or support of conception;
- Products specifically intended for the cleaning, disinfection or sterilisation of devices.



Classification of Medical Devices:

Devices shall be divided into classes I, IIa, IIb and III, taking into account the intended purpose of the devices, their inherent risks, the duration of contact with the patient, the degree of invasiveness and the part of the body affected by the use Dof the device

The Medical Device Vigilance System was set up under the medical device directives to minimize risks to the safety of patients, users and others.



Medical device safety issues can be identified through manufacturer or health professional (user) reporting, through identification and reporting of issues by members of the public or through information sharing with other competent authorities.

Objectives of the Vigilance System are:

- 1. To improve the protection of health and safety of patients, users and others by reducing the repetition of the same type of adverse incident.
- **2.** To enable the competent authorities to monitor the effectiveness of the Manufacturers' follow-up on reported incidents.
- 3. To facilitate a direct and early implementation of Field Safety Corrective Actions (FSCAs).
- **4.** To enable the health-care professionals and users who are responsible for the maintenance and the safety of medical devices to take the necessary steps once the corrective (or other) action is identified.
- **5.** Competent authorities may also monitor experience with devices of the same kind (for instance, all defibrillators or all syringes), but made by different manufacturers.

The Medical device vigilance system achieves its objectives in several ways:

- Through manufacturers and users submitting vigilance reports to the relevant competent authorities (The Egyptian Drug Authority EDA).
- Through the evaluation of reported incidents by the competent authorities.
- Through the dissemination of information, which may be used to prevent recurrence of the incident, or to alleviate the consequences of such incidents, in cases when it's necessary to do so.
- By the device being updated, modified or taken off the market in cases when it's necessary to do so.



Vigilance issues can be related to an adverse incidents or to a field safety corrective actions.

4.7 Responsibilities of the Users

USERs are encouraged to have an active role in the Vigilance System. Furthermore, for the successful operation of the vigilance system to be established, their involvement is vital. It is through the users that:

- Suspected incidents are made known to the manufacturers, and
- With their close involvement and co-operation that the implementation of FSCAs is made possible.

The involvement of users is promoted and encouraged through the relationship the manufacturer develops with his customer (the user). This user involvement may also be reinforced by separate advice from Medical Device Safety Unit (MDSU).

1. Reporting Guidance

An adverse incident is an event during use of the device which might lead to or might have led to death of a patient, or user or of other persons or to a serious deterioration in their state of health should be reported to the MDSU/EDA.

1.1. What to Report

USERs or those given specific responsibility for reporting incidents that have occurred with medical devices should report incidents that meet the criteria within this guideline to the manufacturer and/or to MDSU.

1.2. Who Should Report

The MDSU/EDA strongly encourages those who have experienced a safety issue with a medical device to report that issue to us. A voluntary reporting system is currently operated for users of medical devices, healthcare professionals or any other person who identifies a medical device safety issue.

1.3. When to Report

USERs are encouraged to report all adverse incidents as soon as possible. Serious cases ought to be reported by the fastest means possible. Initial incident reports should contain as much relevant detail (e.g. Medical Device name, type, model ... etc.) as is immediately available, but reporting ought not to be delayed for the sake of gathering additional information.

1.4. How to Report

The USERs are encouraged to use the "USER Reporting Form - The Pink Card" in accordance with this guidance and to provide contact details when reporting to the manufacturer or MDSU. (Annex I)



1.5. What to Do with the Device

- All items, together with relevant packaging materials, ought to be quarantined; they ought not to be repaired, or discarded.
- The device should be returned to the manufacturer in accordance with their instructions unless otherwise required by MDSU or other legal requirements.
- USERs ought to contact the manufacturer to obtain information relating to the procedure for returning the suspect device. The device should be appropriately decontaminated, securely packaged, and clearly labelled, including the CA (Registration No.) or manufacturer reference number if needed.
- Medical devices ought not to be sent to MDSU unless it has been specifically requested.

1.6. Further Local Information

Reporters are encouraged to cooperate with the manufacturer and MDSU by providing further information

- Concerning incidents which should become available e.g. relevant outcomes of internal investigations.
- Concerning the device or patient outcomes e.g. subsequent death.

2. Field Safety Corrective Actions Guidance

A field safety corrective action (FSCA) is an action taken by a MANUFACTURER to reduce a risk of death or serious deterioration in the state of health associated with the use of a medical device that is already placed on the market. Such actions, whether associated with direct or indirect harm, should be reported and should be notified via a Field Safety Notice (FSN). The Field Safety Corrective Actions (FSCA) may include, for example:

- The repair/replace/return of a medical device to the supplier;
- Device modification/adjustment/relabelling;
- Advice given by manufacturer regarding the use of the device and/or the follow-up (monitoring) of patients, users or others.

2.1. Importance of Field Safety Notices (FSNs)

Field Safety Notices are an important means of communicating safety information to medical device users in all healthcare areas. Field Safety Notices may also be used to provide updated information and request feedback.

It is therefore important that users are encouraged to develop effective closed loop systems that ensure the dissemination of the Field Safety Notices and the timely completion of the actions outlined.



2.2. Distribution

Healthcare organizations should be encouraged to help ensure that the FSN reaches all in the organization that needs to be aware and/or take the recommended action.

2.3. Action

USERs responsible for the maintenance and the safety of medical devices are encouraged to take the actions advised in the manufacturer's Field Safety Notice. These actions ought to be taken in co-operation with the manufacturer where required. They may also include associated actions recommended by MDSU and/or inspection department in connection with the FSCA, including providing any requested feedback.

2.4. Access to Devices

USERs are responsible for the maintenance and the safety of medical devices are encouraged to:

- **a.** Facilitate manufacturer access to the device if this is required, and
- **b.** Work with the manufacturer when needing to balance the individual risks and benefits for any dependent patients using affected devices.





5.1 ANNEX I: English yellow card

((E)A))					
Adverse Drug R	eactions Reporting Form				
Pharmaceutical care Egyptian Pharmaceutical Vigilance Center	•				
 If you suspect that an adverse reaction may be related to a certain drug, o address shown at the end of the card. Please report all serious and minor adverse reactions. A - Patient Details 	r a combination of drugs, you should complete this form and send it to the				
Patient initials: Sex: Male (Optional)	Female Weight:kg Age/age group:				
B - Suspected Drug(s)					
Drug Name Concentration Used for Dose (Generic & trade)	Route Date Date Batch started stopped number				
C - Suspected Reaction(s)					
Please describe the reaction(s):					
Date reaction(s) started: Date					
• Did the Reaction Stop after stopping the drug?	□ No □ Don't Know				
• Did the Reaction Reappear after retaking the drug?	□ No □ Don't Know □ Did not retake the drug				
Patient Condition (Outcome): Recovered	•				
 Was the reaction serious (based on the reasons below)? Yes If yes (serious), specify one or more: 	□ No □ Don't Know				
☐ Patient Died ☐ Life threatenin☐ Prolonged Hospitalization☐ ☐ Congenital A☐ Required intervention to prevent Damage ☐ Other, specif	nomaly Permanent Disability				
D - List of other drugs taken (Please list any other d	rugs taken while (concurrently) administered other than				
the suspected drug/s) Drug Name Concentration Used for Dose (Generic & trade)	Route Date Date Batch started stopped number				
E – Reporter Details The One who fill in this form: □ Patient □ Physician Name:	□ Pharmacist □ Nurse □ Other, specify Specialty (if physician):				
Professional address(institution/ clinic):					
e-mail: Signature:	Telephone/ mobile :				
F- Any More Comments (Medical history "eg: chroni	• •				
r-Any More Comments (Medical history "eg: chronic	t diseases", omer diseases, attergress.				
 The information in this report is confidential and totally protected including both the Patient and Reporter identity. Contact details required to complete the case information if fracessay; You can send voluntarily the Adverse Drug Reactions (ADRs) Reports to the Egyptian Pharmaceutical Vigilance Center as per the contact details below. Reporting for ADRs is Vital for Safely usage of drugs. Enough information will help the Center to evaluate the Safety of the Drugs marketed in our Country. 					
Head quarter: Egyptian Pharmaceutical Vigilance Center (EPVC)- Egyptian Drug Authority (EDA) 21 Abd Elaziz Al Souad st. – Manial El-Roda – Cairo,	Alexandria Regional Center: San Stefano for Family Health Centre, 2 Elkazino st, El-Awkaf building, San Stefano , Alexandria e-mail: pv.alex@edaegypt.gov.eg				
Tel: (+2)02 25354100 Extension (Tel):1333 Extension (tel): 1470	Cairo Regional Center:				
Website: www.edaegypt.gov.eg	e-mail: pv.cairo@edaegypt.gov.eg				
e-mail: pv.followupt@edaegypt.gov.eg QR Code:	Sohag Regional Center: The old building of the Health Affairs Directorate- 2nd floor-next to the security directorate building- Nasser city-Sohag e-mail: pv.sohag@edaegypt.gov.eg				



Guideline

5.2 ANNEX II: Arabic yellow card

نموذج الإبلاغ عن الأثار العكسية للأدوية مرافعة الإبلاغ عن الأثار العكسية الأدوية الإبلاغ عن الأثار العكسية الأدوية المرافعة المر							
 في خالة حدوث أي أثار عكسية عند تلولك دواء معين أو مجموعة من الأدوية، فطوك باستيفاء هذا التقرير و إرساله إلى الطوان المبين في أسفل اللموذج. من فضلك سجل جميع الآثار الحكسية سواء كانت عانية أو خطيرة. 							
ع ذكر النق الوزن: ــــــكجم الممر/الثلة الممرية:	<u>i - ببانات العريض</u> الحروف الأولى من اسم المريض: الذوع: (/شارع)						
عة طريقة تاريخ تاريخ رقم الاستخدام بدء الاستخدام وقف الاستخدام التتسويلة	ب - الأدوية المشتبه بها اسم المستحضر التركيز يستخدم لملاج الجر (التجاري والملمي)						
-	 ح - الأثار العكسية المشتبة بها • من فضلك صف الأثر الحكسي الذي ظهر :						
تاريخ إنتهاء الأتــرالمكمي:	• تاريخ بدء الأتـــر العكسي:						
□ لا □ لا أعرف	 هل توقف الأتر بعد وقف استخدام المستحضر؟: نعم 						
 لا أعرف الم يتم إعادة الاستخدام 							
، ماز آل یتماهی استمادی مع وجود مضناعفات ا لا اعرف الا اعرف							
۵ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱ ۱	 هل كان الأثر الحكسي خطيراً (وفقا لأسباب الخطورة المذكورة أدناه) ؟: عنم إذا كاتت الإجابة بنعم (الأثر خطير) حدد سبب أو أكثر: 						
 □ تسبب في دخول المريض المستشفى 	□ تُسبِب في الوفاة □ مهدد للحياة						
لتية للأجنة - تسبب في إعاقة دائمة - التي الأجنة - التي التي التي التي التي التي التي التي	تسبب في إطالة مدة البقاء في المستقفي _ تسبب في عبوب خا تطلب تدخل طبي أو جراحي لملح حدوث إعاقة أو تلف دائم						
ت حری (حدی۔	ل تطلب شکل طبی او چراکی تمنع کنوت إناده او تلف دانم						
	د - بيانات عن الأدوية الأخرى المتناولة (اذكر الأدوية الأخرى التي تم						
جرعة طريقة تاريخ تاريخ رقم	اسم المستحضر التركيز يستخدم لعلاج ال						
الاستخدام بدء العلاج وقف العلاج التشعيلة	(التجاري والعلمي)						
							
							
	ه - بيانات عن مقدم التقرير						
🗆 التمريض 🗀 أخرى (حدد):							
الشريطان العراق (حدد).	التي قام بنسيفاء التقرير المتريض التعبيب التعبيدي التعبيدي التعبيدي						
	عنوان العمل (لمقدمي الرعاية الصحية):						
الإلكتروني:							
في والمراضع درارية عن المراضع درارية	و- أي تطيقات اخرى: (التاريخ الطبي «مثل الأمراض مزمنة»، أمراض أد						
ترى پىدى شەرىپ	<u> </u>						
في ذلك هوية المزيض و معد التقرير .	 يتم التعامل مع المعلومات الواردة في التقرير بسرية تامة وهي محمية بشكل كامل بما ف 						
وقالما والاستالية والاستارات	 بيانات الاتصال مطلوبة لاستكمال مطرمات الحالة المقدمة إذا دعت الحالة لذلك. تستطيع إرسال تقارير الأثار العكسية لعركز اليقظة الصييلية المصدي بشكل تطوعي 						
وقعا للعقومات الالعقال سريعت المدن. معلومات الكافية المقدمة من قبل المرضى تمكن المركز من تقدير مدى مأمولية	السطيع إرسان تعاريق الإنتار العلسية تعريض البيطة الصيبية المصري بنسل عقومتي ابن الإيلاغ عن الآثار العكسية أمر حيوي وهام لتحقيق الاستخدام الأمن الدواء . كما أن ال						
◄ المركز الفرعى بالإسكندرية. مركز سان ستيفانو لصحة الأسرة- 2 ش الكازينو عمارة الأوقاف	المركز الرئيسي: إدارة اليقظة الدوانية - مركز اليقظة الصيدلية المصري - هينة الدواء المصرية						
- سان ستيفاقر - الإسكندرية بريد الكتروني: pv.alex@edaegypt.gov.eg	21 ش عبد العزيز آل سعود – المنيل الروضة – القاهرة.						
1470 (2) 1111 1222 (2) 111							
﴿ العركز الفرعى بالقاهرة: pv.cairo@edaegypt.gov.eg	الغطرات: 1333 واغلي (2): 1470 الغط الساخن: 15301 الغط الساخن: 15301						
 السركز الفرعي يسوهاج مديرية الشئون الصحية – المبنى التديم الدور الثاني- بجوار مديرية الأمن - صدينة ناصر – سوهاج بريد الكنوني: pv.sohag@edaegypt.gov.gg 	www.edaegypt.gov.eg بوقة الكثروني: www.edaegypt.gov.eg بريد الكثروني: عن طريع OR code وريد الإكثروني: عن طريع OR code						
	Labor-Comidate Dt						



5.3 ANNEX III: Arabic AEFI Reporting Form

بلاغ عن أثر عكسى بعد التطعيم							
ة: يخ الإبلاغ: / /	شهر عام إدار تار		محافظة: وحدة التطعيم:				
	قم المحلى: ()	الر	اسم الحالة:				
7	اسطة EPI للحالات الخطرة فقد	يوا	الرقم القومي: ()				
			العنوان:				
			النوع:				
	العمر:		تاريخ الميلاد: / /				
		/ /	تاريخ ظهور الأعراض:				
			الاعراض				
			1.00				
تاريخ اخر جرعة	انتهاء الصلاحية	رقم التشغيله	الطعم المشتبه				
	رقم التليفون: البريد الإلكتر		جهة الإبلاغ: اسم المبلغ:				

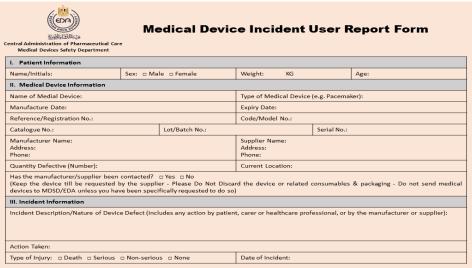
* النموذج متوافق مع تقرير الابلاغ الخاص بالبرنامج الموسع للتطعيمات



5.4 ANNEX IV: AEFI English Reporting Form

*Patient Name: *Patient's full Address: Telephone: Sex: M F *Date of birth: / OR Age at onset: Years Months Days OR Age Group at onset: <1 Year 1 to 5 Years >5 Years Health facility (place or vaccination centre) name & address:				*Reporter's Name: Institution: Designation & Department: Address: Telephone & E-mail: Date patient notified event to health system: Today's date://					
		vacci ne					Diluent (if	applicable)	
*Name of vaccine	*Date of vaccination	*Time of vaccination	Dose (1 st , 2 nd , etc.)	*Batch /Lot number	Expiry date	Name of diluent	*Batch /Lot number	Expiry date	Date and time of reconstitution
*Adverse event(s): Severe local reaction									
Past medical history (including history of similar reaction or other allergies), concomitant medication and other relevant information (e.g. other cases). Use additional sheets if needed:									
first Decision making leve	•	1							
Investigation needed: Yes No If Yes, date investigation planned: / /									
National level to complete:									
Date report received at National level / / AEFI worldwide unique ID :									
Comments:									

5.5 ANNEX V : English Pink Card





5.6 Annex VI: Arabic Pink Card









- Law 151/2019 Establishment of the Egyptian Drug Authority
- Egyptian Good Pharmacovigilance Practice guideline
- Safety of Medicines, A guide to detecting and reporting adverse drug reactions. World Health Organization (WHO) Geneva 2002.
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- VOLUME 9A -of The Rules Governing Medicinal Products in the European Union—Guidelines on Pharmacovigilance for Medicinal Products for Human Use, (EMEA) 2008
- Good Pharmacovigilance Practice Guide, (MHRA), 2009
- ICH Topic E2E Pharmacovigilance Planning (Pvp), European Medicines Agency, June 2005
- ICH Topic E2D, Definitions and standards for expedited reporting, November 2003
- Good Pharmacovigilance Practices and Pharmacoepidemiologic Assessment, U.S. Department of Health and Human Services Food and Drug Administration, Center for Drug Evaluation and Research (CDER), Center for Biologics Evaluation and Research (CBER). March 2005.
- Pharmacovigilance guidance for countries participating in AMFm phase 1, WHO-MMV joint technical consultation on active pharmacovigilance monitoring with a special focus on AMFm, WHO April 2009
- Procedure for the SFDA on the undertaking of Pharmacovigilance activities, Saudi Food and
- Drug Authority
- Guidelines for The National Pharmacovigilance System in Kenya. February 2009, Second Edition
- A method for establishing the probability of Adverse Drug Reactions NARANJO et al
- Causality Assessment, Uppsala Monitoring Center
- Glossary of terms used in Pharmacovigilance, Uppsala Monitoring Center
- Reporting adverse drug reactions: A guide for healthcare professionals, BMA Board of
- Science, UK, May 2006
- Who Course On Vaccine Safety Basics (https://vaccine-safety-training.org/home.html)
- Causality Assessment Of An Adverse Event Following Immunization (AEFI) 2018 (https://apps.who.int/iris/handle/10665/259959)
- Causality assessment of an adverse event following immunization (AEFI)- Updated user manual for the revised WHO classification 2019
- (https://www.who.int/vaccine_safety/publications/gvs_aefi/en/
- Surveillance of Adverse Events Following Immunization (AEFIs), EPI, 2020.