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**INTRODUCTION**

The Clinical Practice Guidelines (CPG) on Management of E-cigarette or Vaping Product Use Associated-Lung Injury (EVALI) was published in 2021. A Quick Reference (QR) and a Training Module (TM) are developed to increase the utilisation of the CPG. This TM has been developed by the members of Development Group (DG) of the CPG. The contents of the TM are extracted from the main CPG. It may be reproduced and used for educational purposes but must not be used for commercial purposes or product marketing.

**OBJECTIVES**

* To actively disseminate contents of the CPG and train healthcare providers on it; it may also be used for other educational purposes in the management of EVALI in any healthcare settings in Malaysia
* To assist the ‘trainers’ in delivering all components related to the implementation of the CPG systematically and effectively

**TARGET USERS**

All healthcare providers involved in the management of EVALI in primary, secondary and tertiary health care settings

| This document contains a Training Module booklet on:   * Introduction, objectives, target users, authors and instructions for use * Proposed training programme/schedule * Test questionnaire * 6 lectures (in **PPT**) * 3 case discussions (in **PPT**) |
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**INSTRUCTIONS FOR USE**

This Training Module consists of:

1. Lecture - six sections
2. Case discussion - three sections
3. Training programme/schedule
4. Test questionnaire

(A booklet on this Training Module is enclosed together)

The training may be conducted in one day and consists of two parts. In part 1, didactic lectures are delivered to the whole group of training participants to inculcate the understanding on the management of EVALI. In Part 2, participants are grouped into smaller groups to deliberate on cases of EVALI with assigned facilitators. In both parts, there should be active participation from the training participants for effective learning.

The test questionnaire must be given to the training participants before the training session starts (pre-test) and after it ends (post-test). The pre-test is to assess the level of knowledge and understanding of training participants in the management of EVALI. The post-test is to ascertain the increase in the training participants’ knowledge after attending the training session.

Should the trainers have any queries, kindly forward to [htamalaysia@moh.gov.my](mailto:htamalaysia@moh.gov.my)

**Training of Core Trainers on CPG**

**Management of E-cigarette or Vaping Product Use Associated-Lung Injury (EVALI)**

| **Time** | **Lecture/case discussion/others** | **Lecturer/facilitator** |
| --- | --- | --- |
| 0800 - 0830 | Registration  Pre-test | MaHTAS |
| 0830 - 0840 | Welcome & Opening Remarks | Dr. Nurhayati/Dr. Mohd. Aminuddin |
| 0840 - 0900 | Introduction | Dr. Nurhayati |
| 0900 - 0930 | Diagnosis | Dr. Fazlina |
| 0930 - 1000 | Vaping History | Dr. Norliana |
| 1000 - 1030 | Imaging | Datin Dr. Zuhanis |
| 1030 - 1100 | **TEA BREAK** | |
| 1100 - 1200 | Case Discussion 1 | Facilitators |
| 1200 - 1200 | Treatment | Dr. Noorul Afidza |
| 1230 - 1300 | Referral & Follow-up | Dr. Mohd. Afiq |
| 1230 - 1400 | **LUNCH** | |
| 1400 - 1500 | Case Discussion 2 | Facilitators |
| 1500 - 1600 | Case Discussion 3 | Facilitators |
| 1600 - 1630 | Post-test  Closing | Dr. Azahirafairud  Dr. Nurhayati/Dr. Mohd. Aminuddin |
| 1630 | **END** | |

**TEST QUESTIONNAIRE**

**Answer all questions by circling the right answers.**

| **No.** | **Question** | **Answer** | |
| --- | --- | --- | --- |
| **True** | **False** |
| **1.** | **These statements regarding e-cigarette (e-cig) and EVALI are correct.** | | |
| 1. The purpose of e-cig is delivery of nicotine or other chemicals via aerosolisation. | **T** | **F** |
| 1. Exposure to nicotine and toxicants from aerosolisation of e-cig ingredients is independent from the usage and characteristics of the device. | **T** | **F** |
| 1. Dose of nicotine delivered from e-cig could be larger than conventional cigarettes. | **T** | **F** |
| 1. History of e-cig use within 90 days are important criteria for the diagnosis of EVALI. | **T** | **F** |
| 1. EVALI is not associated with death. | **T** | **F** |
| 2. | **Regarding laboratory investigations in EVALI:** | | |
| 1. Relevant laboratory investigations should be done to confirm the diagnosis of EVALI. | **T** | **F** |
| 1. Full blood count, erythrocyte sedimentation rate, C-reactive protein, and culture and sensitivity study need to be done in suspected cases for EVALI. | **T** | **F** |
| 1. In Malaysia, tuberculosis and COVID-19 work-up need be done in patients suspected of EVALI. | **T** | **F** |
| 1. There are no laboratory abnormalities specific for EVALI. | **T** | **F** |
| 1. Autoimmune screening needs to be done to confirm EVALI. | **T** | **F** |
| **3.** | **Regarding imaging in EVALI:** | | |
| 1. Abnormal chest imaging is mandatory for the diagnosis of EVALI. | **T** | **F** |
| 1. A normal chest x-ray (CXR) excludes the diagnosis of EVALI. | **T** | **F** |
| 1. A computed tomography (CT) scan should be performed to assess for lung injury if there is high clinical suspicion of EVALI. | **T** | **F** |
| 1. The common pattern of EVALI seen on CT scan is acute lung injury. | **T** | **F** |
| 1. Ground glass changes and consolidation are not seen on imaging of EVALI. | **T** | **F** |
| **4.** | **What are the case definitions of a confirmed case of EVALI?** | | |
| 1. A negative influenza polymerase chain reaction or rapid test. | **T** | **F** |
| 1. Absence of pulmonary infection on initial work-up. | **T** | **F** |
| 1. No evidence in medical record of alternative plausible diagnoses like cardiac, rheumatologic or neoplastic process. | **T** | **F** |
| 1. Presence of pulmonary infiltration e.g. opacities on plain film CXR or ground glass opacities on chest CT scan. | **T** | **F** |
| 1. Use of e-cig (vaping) or dabbing in 100days prior to symptom onset. | **T** | **F** |
| **5.** | **Regarding chemical profiling in the management of EVALI, which of the following statement is/are TRUE?** | | |
| 1. E-liquid may contain solvent, flavouring agent with or without nicotine. | **T** | **F** |
| 1. Propylene glycol, vegetable glycerin and flavouring agents are safe for inhalation and not considered as potential toxicant. | **T** | **F** |
| 1. Chemical composition in aerosol from e-cig may differ between device type, voltage used and e-liquid content. | **T** | **F** |
| 1. Potential toxicant that can be associated with EVALI has been studied only in tetrahydrocannabinol (THC)-containing products. | **T** | **F** |
| 1. Vitamin E acetate has been detected in non-THC containing product associated with EVALI cases. | **T** | **F** |
| **6.** | **Regarding treatment in EVALI:** | | |
| 1. Treatment is symptomatic based on the presenting symptoms. | **T** | **F** |
| 1. All patients should receive supplemental oxygen. | **T** | **F** |
| 1. Empirical antimicrobial is not recommended. | **T** | **F** |
| 1. Systemic corticosteroids is prescribed based on the severity of the illness. | **T** | **F** |
| 1. Corticosteroids dose should be tapered down based on clinical improvement. | **T** | **F** |
| **7.** | **Regarding hospital admission for EVALI:** | | |
| 1. Highly recommended if respiratory distress is present. | **T** | **F** |
| 1. Indicated if oxygen saturation is ≤94% on room air. | **T** | **F** |
| 1. Admission is mandatory for further work-up on EVALI. | **T** | **F** |
| 1. Poorly controlled co-morbidities may require admission. | **T** | **F** |
| 1. Not required if patient has reliable medical care access for follow-up. | **T** | **F** |
| **8.** | **Criteria appropriate for outpatient management of EVALI may include:** | | |
| 1. Normal oxygen saturation ≥95% on room air | **T** | **F** |
| 1. Presence of high-risk co-morbidities | **T** | **F** |
| 1. Normal diagnostic findings on initial work-up | **T** | **F** |
| 1. Patient with Influenza-like illness symptoms | **T** | **F** |
| 1. Presence of poor social support | **T** | **F** |
| **9.** | **Discharge from hospital prescription may include:** | | |
| * 1. A short course of oral corticosteroids with appropriate dosage, duration and tapering | **T** | **F** |
| * 1. An oral antibiotic or antiviral if necessary | **T** | **F** |
| * 1. Strict return-to-Emergency Department warnings (development of new or worsening respiratory symptoms, with or without fever) | **T** | **F** |
| * 1. Follow-up only when necessary | **T** | **F** |
| * 1. Referral to quit smoking and vaping services | **T** | **F** |
| **10.** | **During follow-up of EVALI patients, the following should be performed:** | | |
| 1. Assessment of adherence to medication regimens | **T** | **F** |
| 1. Assessment of the side effects of treatment | **T** | **F** |
| 1. Advice on abstinence from e-cig product use is not useful | **T** | **F** |
| 1. Spirometry and CXR are conducted at 48 hours of follow-up | **T** | **F** |
| 1. Referrals to other providers or services according to patient’s medical condition | **T** | **F** |

**ANSWERS FOR TEST QUESTIONNAIRE**

| **Question** | | **Answers** | **Question** | | **Answers** | **Question** | | **Answers** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** | a. | **T** | **5.** | a. | **T** | **8.** | a. | **T** |
| b. | **F** | b. | **F** | b. | **F** |
| c. | **T** | c. | **T** | c. | **T** |
| d. | **T** | d. | **F** | d. | **T** |
| e. | **F** | e. | **F** | e. | **F** |
| **2.** | a. | **F** | **6.** | a. | **T** | **9.** | a. | **T** |
| b. | **T** | b. | **F** | b. | **T** |
| c. | **T** | c. | **F** | c. | **T** |
| d. | **T** | d. | **T** | d. | **F** |
| e. | **F** | e. | **T** | e. | **T** |
| **3.** | a. | **T** | **7.** | a. | **T** | **10.** | a. | **T** |
| b. | **F** | b. | **T** | b. | **T** |
| c. | **T** | c. | **F** | c. | **F** |
| d. | **T** | d. | **T** | d. | **F** |
| e. | **F** | e. | **T** | e. | **T** |
| **4.** | a. | **T** |  |  |  |  |  |  |
| b. | **T** |  |  |  |  |  |  |
| c. | **T** |  |  |  |  |  |  |
| d. | **T** |  |  |  |  |  |  |
| e. | **F** |  |  |  |  |  |  |