Republic of the Philippines
Department of Health
OFFICE OF THE SECRETARY

11 September 2023

DEPARTMENT MEMORANDUM
No. 2023 - 0365

FOR: **ALL UNDERSECRETARIES AND ASSISTANT SECRETARIES OF HEALTH; MINISTER OF BANGSAMORO AUTONOMOUS REGION IN MUSLIM MINDANAO (BARMM); DIRECTORS OF BUREAUS, SERVICES, AND CENTERS FOR HEALTH DEVELOPMENT; SPECIAL AND SPECIALTY HOSPITAL DIRECTORS; CHIEFS OF MEDICAL CENTERS, HOSPITALS AND SANITARIA, AND OTHER CONCERNED OFFICES**

SUBJECT: **Interim Guidelines on the Diagnosis, Treatment, Management and Reporting of E-cigarette, or Vaping Product, Use Associated Lung Injury (EVALI) and Related Injury Cases and Deaths**

I. RATIONALE

Vaporized nicotine or non-nicotine products, referring to both vapor products and heated tobacco products and other novel tobacco products, have emerged in the recent decade. While evidence of the potential harms caused by these products is still evolving, studies have shown that the chemicals found within these products and their emissions can still be as addictive, harmful, toxic, and cancer-causing, as those from conventional tobacco product use. Hence, these products have become a public health concern. In order to protect citizens from the potential hazards of these novel consumer products, Republic Act No. 11900 or the "Vaporized Nicotine and Non-Nicotine Regulation Act", which lapsed into law in 2022, is intended to regulate its assembly, manufacture, sale, packaging, distribution, use, advertisement, promotion and sponsorship.

Recently, the Department of Health (DOH) has received reports of E-cigarette or Vaping Product Use Associated Lung Injury (EVALI) and related injury cases. With the increasing incidence of suspected EVALI reports, it is paramount to put in place a strong surveillance system for injury cases resulting from the use of and exposure to covered products, to guide planning and implementation of appropriate prevention and control measures. In view of the foregoing and to guide the diagnosis, treatment, management, and reporting of EVALI, this interim guidance is hereby issued.

II. OBJECTIVE

This Department Memorandum aims to provide interim guidelines on the diagnosis, treatment, management, and reporting of EVALI and related injury cases and deaths. In particular, this Memorandum intends to:

1. Define EVALI cases and set parameters for identifying probable and confirmed EVALI cases;

2. Define Vapor product or Heated Tobacco Product (HTP) use-related explosion injury;
3. Identify the healthcare pathway for treatment and management of EVALI cases; and
4. Establish the reporting mechanism and data management.

III. SCOPE

This Memorandum shall apply to all DOH Central Office Bureaus and Services, Centers for Health Development, including the Ministry of Health — Bangsamoro Autonomous Region in Muslim Mindanao subject to the applicable provisions of RA 11054 or the "Bangsamoro Organic Act" and subsequent rules and policies issued by the Bangsamoro government, hospitals, treatment and rehabilitation centers, and other health facilities, LGUs, partners from National Government Agencies, non-government or civil society organizations, development partners, academe, and all others involved in implementation of policies, projects, and programs on tobacco prevention and control, and violence and injury prevention and service delivery.

IV. IMPLEMENTING GUIDELINES

A. Case Definition and Diagnosis

EVALI, defined after exclusion of other probable diagnosis, is a medical condition wherein the patient is clinically diagnosed with a respiratory illness or lung injury associated with the use of electronic cigarettes (e-cigarette), or vaping,[1] products.

The diagnosis of EVALI cases shall be categorized as probable or confirmed based on the following (MaHTAS, 2021):

1. *Probable case.* A patient is categorized as a probable case of EVALI if all of the following criteria are met:
   a. A history of e-cigarette or vaping product use within 3 months or 90 days of symptom onset. Symptoms may include shortness of breath, fever, chills, cough, vomiting, diarrhea, headache, dizziness, rapid heart rate, or chest pain; AND
   b. Pulmonary infiltrate, such as opacities, seen on plain film chest radiograph or computed tomography; AND
   c. Infection identified via culture or PCR but clinical team believes infection is not the sole cause of the underlying lung injury, or minimum criteria to rule out pulmonary infection is not met *(testing not performed)* and clinical team believes infection is not the sole cause of the underlying lung injury; AND
   d. No evidence in medical records of alternative plausible diagnoses (e.g., cardiac, rheumatologic, or neoplastic process).

2. *Confirmed case.* A patient is categorized as a confirmed case of EVALI if the following criteria are met:
   a. A history of e-cigarette or vaping product use within 3 months or 90 days of symptom onset. Symptoms may include shortness of breath, fever, chills, cough, vomiting, diarrhea, headache, dizziness, rapid heart rate, or chest pain

[1] Terms can be used interchangeably, taking into account the classification and the generation where the e-cigarette, or vaping, product fits. (US CDC, 2023)

AND

b. Pulmonary infiltrate, such as opacities, seen on plain film chest radiograph or computed tomography; AND
c. Absence of pulmonary infection on initial work-up. Minimum criteria are:
    i. Negative respiratory viral panel; AND
    ii. Negative influenza PCR or rapid test AND
    iii. Negative for all other clinically-indicated respiratory infectious disease testing (e.g., urine Antigen for Streptococcus pneumoniae and Legionella, sputum culture if productive cough, bronchoalveolar lavage culture if done, blood culture, HIV-related opportunistic respiratory infections if appropriate); AND
d. No evidence in medical records of alternative plausible diagnoses (e.g., cardiac, rheumatologic, or neoplastic process).

Vapor product or Heated Tobacco Product (HTP) use-related explosion injury shall be defined as any pathology secondary to explosion of any e-cigarette/vapor product/HTP device or battery. Pathologies may include burn injuries, soft tissue and/or bone trauma, or any injuries secondary to a fire incident ignited by a vapor product or HTP device explosion, etc.

B. History and Physical Examination (MaHTAS, 2021; Siegel et al, 2019).

1. Observe empathy and respect when questioning patients. Ensure patient confidentiality.
2. Obtain the following information during history taking:
    a. Presence of respiratory (cough, chest pain, shortness of breath), gastrointestinal (nausea and vomiting, diarrhea, abdominal pain), and constitutional symptoms (fever, fatigue, headache, myalgia, weight loss). A high index of suspicion is necessary since the presenting signs and symptoms of EVALI are variable and can mimic other diseases. Rapid recognition is critical in preventing severe outcomes.
    b. Recent use of e-cigarette, or vaping products (e.g., within 3 months of symptom onset) in all patients who present with any of these symptoms.
    c. Information on the recently-used e-cigarette/vapor product/HTP:
        i. types of substances used (e.g., tetrahydrocannabinol [THC], cannabis [oil, dabs], nicotine, modified products or the addition of substances [e.g., Vitamin E acetate]);
        ii. product source, specific product brand and name;
        iii. duration and frequency of use, time of last use;

3. Assess vital signs and perform pulse oximetry to determine peripheral oxygen saturation. Look for tachycardia, tachypnea, and respiratory desaturation.
    a. Pulse oximetry should be routinely performed when examining patients who report the use of e-cigarette or vaping products.
    b. Pulmonary auscultation may be unremarkable even in the presence of severe lung injury.

4. Consider pneumonia (e.g. bacterial, fungal, viral etiology), COVID-19 pneumonia or other inflammatory lung diseases (e.g., diffuse parenchymal lung diseases, acute respiratory distress syndrome, diffuse alveolar hemorrhage) as differential diagnoses (Kathuria, 2023; MaHTAS, 2021; Siegel et al, 2019).

C. Diagnostic Testing (Jatlaoui et al, 2019; MaHTAS, 2021; Siegel et al, 2019).
Because the presentation of EVALI is common to various diseases and there is no specific marker or test to confirm its diagnosis, EVALI is considered a diagnosis of exclusion. The following laboratory investigations can be used to rule out the differential diagnoses.

1. Initial evaluation:
   a. Chest x-ray [CXR] (should be obtained on all patients suspected of having EVALI). Refer to image 1 of Annex A for a representative CXR.
   b. Influenza testing (especially during flu season)
   c. COVID-19 testing
   d. Tuberculosis work-up
2. Additional tests (if clinically indicated):
   a. Complete Blood Count
   b. Liver transaminases (aspartate aminotransferase [AST], alanine aminotransferase [AST])
   c. Inflammatory markers (e.g., erythrocyte sedimentation rate (ESR), C-reactive protein (CRP)
   d. Urinalysis
   e. Urine toxicology (including tetrahydrocannabinol [THC]), provided the patient gives informed consent
   f. Evaluation for other infectious diseases based on clinical probability (e.g., culture and sensitivity/serologic testing for various infections such as *Streptococcus pneumoniae, Legionella pneumophilia, Mycoplasma pneumoniae,* fungal infections, and opportunistic infections)
   g. Chest Computed Tomography (CT) if CXR is unremarkable or does not correlate with clinical manifestations, there is severe or worsening disease, or complications are suspected.
   h. Bronchoscopy with bronchoalveolar lavage (BAL) or lung biopsy, in consultation with lung specialists.
3. The diagnosis of EVALI should be based on the case definitions outlined in Section A.

D. Outpatient Management of probable or confirmed cases of EVALI (Jatlaoui et al, 2019; MaHTAS, 2021; Siegel et al, 2019).

1. *Candidates for Outpatient Management.* Healthcare providers may opt to manage patients who fulfill the following criteria in the outpatient setting:
   a. Normal O2 saturation (≥95%) with no respiratory distress on room air
   b. Absence of high-risk comorbidities (e.g., chronic obstructive pulmonary disease or congestive cardiac failure)
   c. No significant diagnostic findings on initial emergency department workup
   d. Availability of support system and resources to ensure outpatient follow-up within 24–48 hours of initial evaluation

2. *Outpatient therapeutic options.* Healthcare providers may administer the following treatments in an outpatient setting:
   a. Oral corticosteroids (e.g. prednisolone), appropriately dosed and tapered based on clinical improvement, with treatment duration of no longer than two weeks.

i. Ideally, coexisting pulmonary infections, particularly those of fungal etiologies, should be ruled out prior to initiation of corticosteroids to avoid worsening the infection.
ii. The decision to start corticosteroids together with empiric antibiotic therapy should be made on a case-by-case basis, ideally in consultation with a pulmonologist. Currently, the use of corticosteroids for EVALI in the outpatient setting is not yet well-studied, hence, their use in this context should be made with caution.

b. Consider empiric use of antimicrobials, including antivirals, if clinically indicated, according to existing infectious disease practice guidelines and local microbiology and resistance patterns.

3. *Home instructions and follow-up for patients managed as outpatients.* Provide the following advice to patients who are probable or confirmed cases of EVALI prior to discharge from the ER or the clinic:
   a. Instructions about discharge medication (e.g., corticosteroids, antibiotics, or antivirals, as applicable) and counseling of patients about warning signs (e.g., development of new or worsening respiratory symptoms, with or without fever) prompting primary care or emergency department consult.
   b. Follow-up with the healthcare provider after 24-48 hours from the initial consult. Follow-up immediately if with worsening of symptoms. Refer to the Patient Follow-up Checklist in Annex B for guidance.

E. Hospital Management of probable or confirmed cases of EVALI (Jatlaoui et al, 2019; MaHTAS, 2021; Siegel et al, 2019).

1. *Criteria for admission.* Healthcare providers should facilitate hospital admission of patients who fulfill the following criteria:
   a. Decreased oxygen saturation (<95%) on room air,
   b. Concurrent illness especially if respiratory distress is present,
   c. Have comorbidities that compromise pulmonary reserve (i.e., obstructive or restrictive disease),
   d. Have unreliable access to medical care in the event of rapidly worsening respiratory symptoms
   e. Have poor social support

2. *Inpatient therapeutic options.* Healthcare providers can consider the following in hospitalized patients:
   a. Corticosteroids (e.g., intravenous methylprednisolone for severe cases, oral prednisone for less severe cases) with appropriate dosing and duration according to severity of illness and tapering based on clinical improvement.
      i. Several reports and reviews have documented rapid improvement of EVALI in hospitalized patients.
      ii. In less severe cases, there may be time to rule out concomitant infections prior to starting steroids.
      iii. The decision to start corticosteroids together with empiric antibiotic therapy should be made on a case-by-case basis, ideally in consultation with a pulmonologist.

iv. Consider limiting the duration of corticosteroid therapy to less than 2 weeks if the patient is clinically improving, to avoid steroid-related complications (e.g., adrenal insufficiency, immunosuppression).

b. Supplemental oxygen
c. Consider empiric use of antimicrobials, including antivirals, if clinically indicated, according to existing infectious disease practice guidelines and local microbiology and resistance patterns.
d. Refer to relevant specialists (e.g., infectious disease specialists, psychiatrists, psychologists, addiction medicine specialists) as necessary.

3. *Discharge criteria.* Probable or confirmed EVALI cases who are hospitalized can be discharged provided the following are all fulfilled:
   a. The patient is clinically stable for 24 - 48 hours before discharge.
   b. The symptoms have resolved and the comorbidities have improved or stabilized. (Kathuria, 2023)
   c. The patient is able to follow-up within 24-48 hours of discharge.
   d. Instructions about discharge medication (i.e. corticosteroids, antibiotics, or antivirals, as applicable) and warning signs (e.g., development of new or worsening of respiratory symptoms, with or without fever) prompting primary care or emergency department consult, are given.
   e. Screening for substance use disorders, addiction or other mental health conditions and social support needs is conducted through tools appropriate to the patient's condition (e.g., PhilPEN Risk Factor Assessment, Modified Fagerstrom Test, etc.,). Refer to the Omnibus Health Guidelines per life stage for recommended screening tests: https://doh.gov.ph/dpcb/omnibus-health-guidelines or https://bit.ly/OmnibusHealthGuidelines.
   f. Counseling and offering e-cigarette and tobacco use cessation intervention, including behavioral intervention and medications have been discussed.

4. *Follow-up instructions.* All probable or confirmed cases of EVALI managed outpatient or hospitalized should have succeeding follow-up visits:
   a. Initial follow-up within 24-48[2] hours and within 1 to 2 weeks and with repeat chest x-ray and pulse-oximetry tests
   b. Consider additional follow-up in 1–2 months after discharge and with spirometry, and repeat chest x-ray tests.

F. Additional Interventions. Offer the following interventions/services to all probable and confirmed cases of EVALI (Jatlaoui et al, 2019; MaHTAS, 2021; Siegel et al, 2019):

1. Cessation of use of vaping products or electronic cigarettes. Emphasize that discontinuation of e-cigarette, or vaping products use is central to patient care and that resumption of their use will potentially cause delayed recovery, symptom recurrence, and worsening of lung injury. Refer to the DOH quitline 1558 or to the nearest smoking cessation service provider. Access the directory of smoking cessation clinics through: bit.ly/CessationDirectory.
2. Avoidance or cessation of use of other tobacco products, alcohol, and other illicit substances.

[2] Consider among probable or confirmed cases with comorbidities due to the considerable degree of rehospitalization and death..

3. Targeted screening for substance use disorders, addiction, other mental health conditions, and social support needs.
4. Evidence-based interventions and referral for patients with substance-use disorders
5. Appropriate vaccination for adolescents and adults as indicated in the Omnibus Health Guidelines, especially the annual influenza vaccine and appropriately timed pneumococcal vaccine (DOH, 2022a-c).

G. Reporting

1. All EVALI and related explosion injury cases and deaths as defined in Section IV.A shall be reported by the attending healthcare provider through the Online National Electronic Injury Surveillance System (ONEISS) of the DOH.

2. In reporting EVALI and related explosion injury cases and deaths, the reporting healthcare provider must provide the following information in the ONEISS:
   a. Minimum patient demographic information
   b. Presence of comorbidities
   c. Clinical information, including but not limited to diagnosis, onset of illness, clinical characteristics
   d. Duration of vapor product or HTP use/exposure
   e. Methods of use and/or exposure to vapor product or HTP as defined:
      i. Direct (patient is user of vapor product or HTP)
      ii. Indirect (patient is a non-user but is exposed to emissions of vapor product or HTP)
      iii. Both (patient is a user and is exposed to emissions from other users)
   f. Method of acquisition of e-cigarette/vapor product/HTP device
      i. Formal (from licensed/recognized retailers/sellers)
      ii. Informal (from friends/family)
      iii. Illicit (from non-licensed/non-recognized retailers/sellers; off-the-street)
   g. Type of e-cigarette/vapor product/HTP liquid or juice used:
      i. Commercially available vapor product or HTP products (i.e. bottles, cartridges, pods)
      ii. Homemade liquids/non-commercially available products
      iii. Both (mixture of both commercially available and non-commercially available e-liquids)

3. Additional/Updated case and laboratory information shall be reported through ONEISS by the reporting facility.

4. In reporting Vapor product or Heated Tobacco Product (HTP) use-related explosion injury, the reporting healthcare provider must tick off the appropriate classification of External Cause/s Injury/ies section of the ONEISS form as 'Vapor product or Heated Tobacco Product (HTP) use-related explosion injury'.

5. If ONEISS reporting is inaccessible, case reporting may be done by filling up the appropriate annexed forms (Annex D - EVALI, Annex E - HTP/Vape Explosion Injury) and sent to the Epidemiology Bureau.

6. Upon receipt of an EVALI or a Vapor product or Heated Tobacco Product (HTP) use-related explosion injury case, the Epidemiology Bureau (EB) shall endorse the said case to the Health Promotion Bureau (HPB) for appropriate investigation and action. The HPB, for this purpose, may mobilize relevant offices including but not limited to the Food and Drug Administration (FDA), the Department of Trade and Industry (DTI), the Department of Social Welfare and Development (DSWD), and Local Government Units (LGUs) for appropriate response, guided by their respective mandates pursuant to RA No. 11900.

H. The provisions of this Department Memorandum shall be applicable to all EVALI and related explosion injury cases. The treatment and management guidelines set out in this Department Memorandum shall be complied with and applicable to any alleged or actual occurrences of EVALI and related explosion injury cases; and the reporting protocols provided herein shall be immediately enforceable, and intended to be retroactive for acts or failures to act that have occurred prior to the date hereof.

V. EFFECTIVITY

For strict compliance.

By the authority of the Secretary of Health:

MARIA ROSARIO SINGH-VERGEIRE, MD, MPH, CESO II
Undersecretary of Health
Public Health Services Team

REFERENCES

1. Department of Health (2022a). Omnibus Health Guidelines for Adolescents. https://doh.gov.ph/sites/default/files/basic-page/OMNIBUS-HEALTH-GUIDELINES-FOR-ADOLESCENTS-2022.pdf

2. Department of Health (2022b). Omnibus Health Guidelines for Adults. https://doh.gov.ph/sites/default/files/basic-page/OMNIBUS-HEALTH-GUIDELINES-FOR-ADULTS-2022.pdf

3. Department of Health (2022c). Omnibus Health Guidelines for the Elderly. https://doh.gov.ph/sites/default/files/basic-page/OMNIBUS-HEALTH-GUIDELINES-FOR-THE-EL DERLY-2022.pdf

4. Jatlaoui TC, Wiltz JL, Kabbani S, et al. Update: Interim Guidance for Health Care Providers for Managing Patients with Suspected E-cigarette, or Vaping, Product Use–Associated Lung Injury — United States, November 2019. *MMWR Morb Mortal Wkly Rep 2019*;68:1081-1086. DOI: http://dx.doi.org/10.15585/mmwr.mm6846e2

5. Kathuria, H. M. (2023). E-cigarette or vaping product use-associated lung injury (EVALI) - *UpToDate*.https://www.uptodate.com/contents/e-cigarette-or-vaping-product-use-associated-lung-injury-evali?search=evali&source=search_result&selectedTitle=1%7E19&usage_type=default&display_rank=1

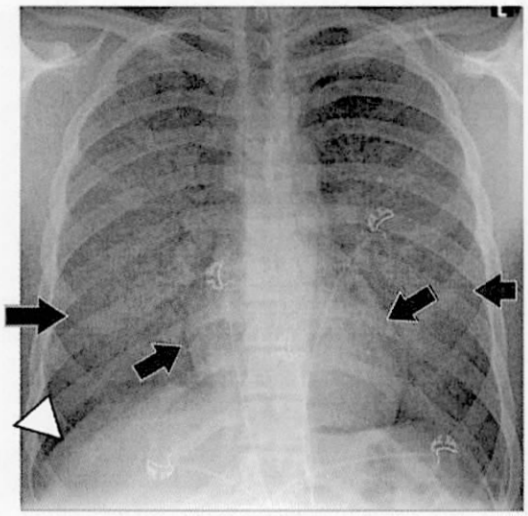
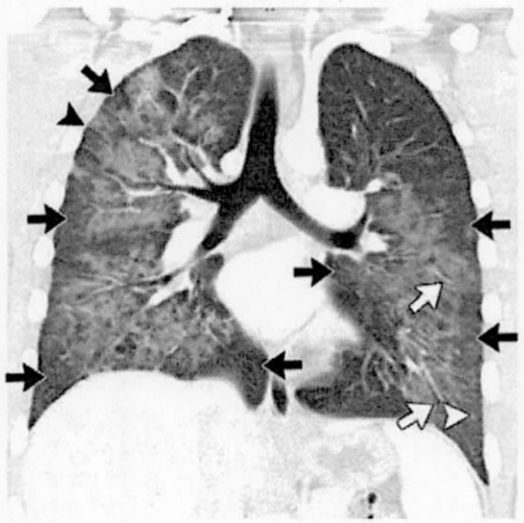
6. Malaysian Health Technology Assessment Section (MaHTAS) (2021). Management of E-Cigarette or Vaping Product Use-Associated Lung Injury (EVALI). *Ministry of Health Malaysia*. https://www.moh.gov.my/moh/resources/Penerbitan/CPG/Respiratory/e-CPG_Management_of_EVALI_for_Online_Publication.pdf

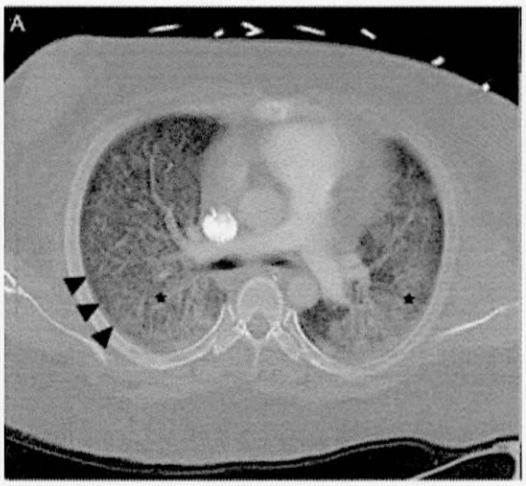
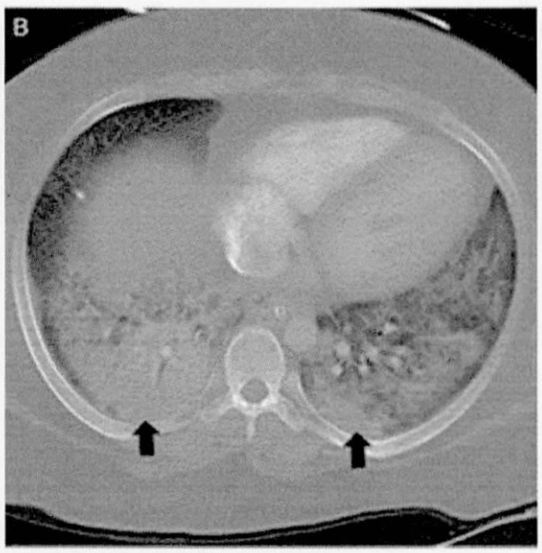
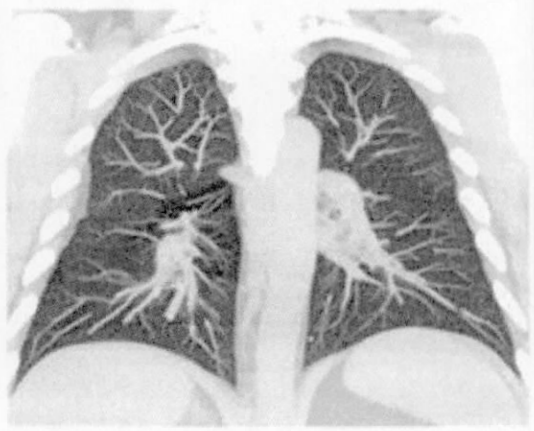
7. Siegel DA, Jatlaoui TC, *Koumans* EH, et al. Update: Interim Guidance for Health Care Providers Evaluating and Caring for Patients with Suspected E-cigarette, or Vaping, Product Use Associated Lung Injury — United States, October 2019. *MMWR Morb Mortal Wkly Rep 2019*;68:919–927. DOI: http://dx.doi.org/10.15585/mmwr.mm6841e3

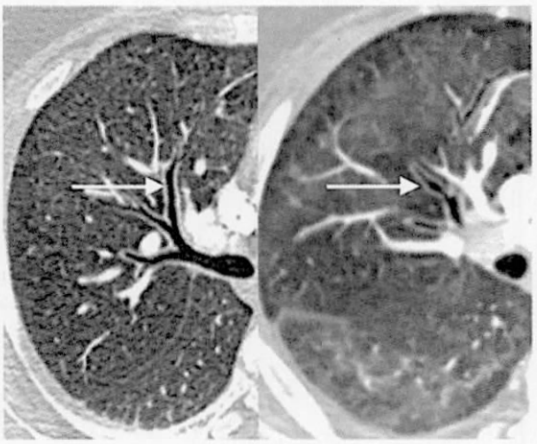
8. US Centers for Disease Control (2023). E-cigarette, or Vaping, Products Visual Dictionary. https://www.cdc.gov/tobacco/basic_information/e-cigarettes/pdfs/ecigarette-or-vaping-products-visual-dictionary-508.pdf

ANNEXES

Annex A. Radiologic Findings in EVALI

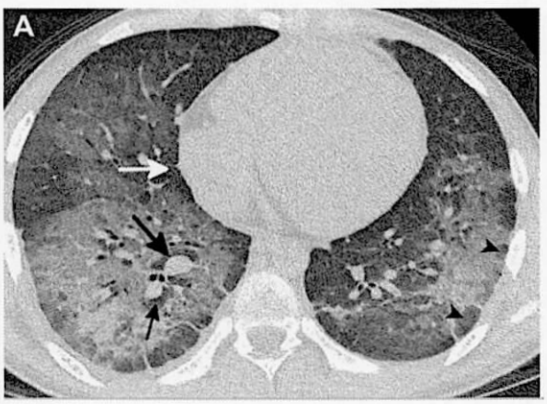
	Chest radiograph shows infiltrates with sparing of subpleural region (black arrows) and interlobular septal thickening (white arrowhead) (Kligerman et al., 2020). Kligerman S, Raptis C, Larsen B, et al. Radiologic, Pathologic, Clinical, and Physiologic Findings of Electronic Cigarette or Vaping Product Use Associated Lung Injury (EVALI): Evolving Knowledge and Remaining Questions. Radiology. 2020;294(3):491-505. https://doi.org/10.1148/radiol.2020192585
	Corresponding CT image shows perihilar predominant ground-glass opacity with prominent sparing of subpleural interstitium both peripherally and centrally (black arrows) with intermixed areas of lobular sparing. In addition, there is sparing of peribronchovascular interstitium (white arrows). Septal thickening (black arrowhead) and scattered centrilobular nodules (white arrowhead) are present. (Kligerman et al., 2020) Kligerman S, Raptis C, Larsen B, et al. Radiologic, Pathologic, Clinical, and Physiologic Findings of Electronic Cigarette or Vaping Product Use Associated Lung Injury (EVALI): Evolving Knowledge and Remaining Questions. Radiology. 2020;294(3):491-505. https://doi.org/10.1148/radiol.2020192585

	Axial CT scan in lung window: Presence of bilateral ground glass opacities (asterisks) with subpleural sparing at the upper lobes (black arrowheads) **Source:** Radiology Department, Hospital Umum Sarawak, Kuching, Sarawak
	Axial CT scan in lung window: Bilateral lung consolidation at the lower lobes (black arrows). **Source:** Radiology Department, Hospital Umum Sarawak, Kuching, Sarawak
	Coronal maximum intensity projection image showing diffuse centrilobular nodularity. (Kligerman et al., 2020) Kligerman S, Raptis C, Larsen B, et al. Radiologic, Pathologic, Clinical, and Physiologic Findings of Electronic Cigarette or Vaping Product Use Associated Lung Injury (EVALI): Evolving Knowledge and Remaining Questions. Radiology. 2020;294(3):491-505. https://doi.org/10.1148/radiol.2020192585



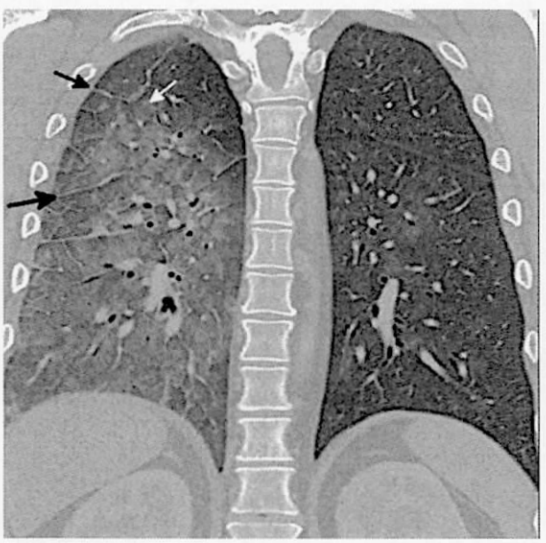
Airway Wall thickening in Right Upper Lobe in 2 Patients (Abergg SK et al., 2020)

Aberegg, S. K., Cirulis, M. M., Maddock, S. D., Freeman, A., Keenan, L. M., Pirozzi, C. S., Raman, S. M., Schroeder, J., Mann, H., & Callahan, S. J. (2020). Clinical, Bronchoscopic, and Imaging Findings of e-Cigarette, or Vaping, Product Use-Associated Lung Injury Among Patients Treated at an Academic Medical Center. JAMA network open, 3(11), e2019176. https://doi.org/10.1001/jamanetworkopen.2020.19176



CT Scan shows subpleural (white arrow) and lobular (arrowheads) areas of sparing. There is also peribronchovascular sparing around the right inferior pulmonary vein and right lower basilar segmental artery (black arrows). (Kligerman et al., 2021)

Kligerman, S. J., Kay, F. U., Raptis, C. A., Henry, T. S., Sechrist, J. W., Walker, C. M., Vargas, D., Filev, P. D., Chung, M. S., Digumarthy, S. R., Ropp, A. M., Mohammed, T. L., Pope, K. W., Marquis, K. M., Chung, J. H., & Kanne, J. P. (2021). CT Findings and Patterns of e-Cigarette or Vaping Product Use-Associated Lung Injury: A Multicenter Cohort of 160 Cases. Chest, 160(4), 1492–1511. https://doi.org/10.1016/j.chest.2021.04.054



Diffuse alveolar hemorrhage (DAH) pattern in e-cigarette or vaping product use-associated lung injury. Coronal reformatted CT image of a 42-year-old man presenting with hemoptysis shows asymmetrical ground-glass opacity predominantly on the right with septal thickening (black arrows) and ill-defined ground-glass acinar nodules (white arrow) that fill most of the secondary lobule, a finding common in DAH. BAL confirmed the diagnosis, and the patient rapidly improved with steroids. DAH was the only pattern that was commonly asymmetrical. (Kligerman et al., 2021)

Kligerman, S. J., Kay, F. U., Raptis, C. A., Henry, T. S., Sechrist, J. W., Walker, C. M., Vargas, D., Filev, P. D., Chung, M. S., Digumarthy, S. R., Ropp, A. M., Mohammed, T. L., Pope, K. W., Marquis, K. M., Chung, J. H., & Kanne, J. P. (2021). CT Findings and Patterns of e-Cigarette or Vaping Product Use-Associated Lung Injury: A Multicenter Cohort of 160 Cases. Chest, 160(4), 1492–1511. https://doi.org/10.1016/j.chest.2021.04.054

Annex B. EVALI Patient Follow-up Checklist

EVALI Patient Follow-up Checklist	
At 24 - 48 hours follow-up:	Check if done
- Continue education about EVALI	☐
- Assess and encourage adherence to medication regimens	☐
- Ask about side effects of treatment	☐
- Reinforce the importance of abstinence from e-cigarette, or vaping, product use	☐
- Facilitate referrals to other providers or services indicated by patients' medical history or conditions	☐
- Provide relevant resources on social, mental health and substance use disorder	☐
At 1 - 2 weeks follow-up	
- Do pulse oximetry	☐
- Do Chest x-ray	☐
At 1 - 2 months follow-up	
- Repeat all the steps previously performed at 48 hours follow-up	☐
- Do spirometry	☐
- Do Chest x-ray	☐

Adapted from MaHTAS, 2021

Annex C. Summary Guide for Outpatient and Hospital Management of EVALI

<table>
<tr><th></th><th>Outpatient Management</th><th>Hospital Management</th></tr>
<tr><td>Eligible Patients</td><td>Healthcare providers may opt to manage patients who fulfill the following criteria in the outpatient setting
a. Normal O2 saturation (≥95%) with no respiratory distress on room air
b. Absence of high-risk comorbidities, e.g. chronic obstructive pulmonary disease or congestive cardiac failure
c. No significant diagnostic findings on initial emergency department workup
d. Availability of support system to ensure outpatient follow-up within 24–48 hours of initial evaluation</td><td>Healthcare providers should facilitate hospital admission of patients who fulfill the following criteria:
a. Decreased oxygen saturation (<95%) on room air,
b. Concurrent illness especially if respiratory distress is present,
c. Have comorbidities that compromise pulmonary reserve (i.e. obstructive or restrictive disease),
d. Have unreliable access to medical care in the event of rapidly worsening respiratory symptoms
e. Have poor social support</td></tr>
<tr><td rowspan="2">Diagnosis</td><td colspan="2">Perform the following tests at the minimum:
A. Influenza testing
B. COVID-19 Screening
C. Chest X-ray
D. TB work-up</td></tr>
<tr><td colspan="2">Consider the following additional tests as clinically indicated:
A. Complete Blood Count
B. Liver transaminases (aspartate aminotransferase (AST), alanine aminotransferase (AST))
C. Inflammatory markers (e.g., erythrocyte sedimentation rate (ESR), C-reactive protein (CRP)
D. Urinalysis
E. Urine toxicology (including tetrahydrocannabinol (THC)
F. Culture and Sensitivity, serologic testing for other infectious diseases
G. Chest Computed Tomography
H. Bronchoscopy with bronchoalveolar lavage or lung biopsy</td></tr>
</table>

Manage-ment	Healthcare providers may administer the following treatments in an outpatient setting: a. Oral corticosteroids (e.g. prednisolone), appropriately dosed and tapered based on clinical improvement, with treatment duration of no longer than two weeks. b. Consider empiric use of antimicrobials, including antivirals, if clinically indicated, according to existing infectious disease practice guidelines and local microbiology and resistance patterns.	Healthcare providers can consider the following in hospitalized patients: a. Corticosteroids (e.g., intravenous methylprednisolone for severe cases, oral prednisone for less severe cases) with appropriate dosing and duration according to severity of illness and tapering based on clinical improvement. b. Supplemental oxygen c. Consider empiric antimicrobials, including antivirals, if indicated d. Refer to relevant specialists (e.g., infectious disease specialists, psychiatrists, psychologists, addiction medicine specialists) as necessary.

Annex D. E-cigarette/Vape-use Associated Lung Injury (EVALI) Case Report Form

REPORTER INFORMATION

Facility Name: _____ Facility Phone: _____
Reported by: _____ Reporter's Phone: _____
Reporter's Email: _____ Date of Reporting: _____

PATIENT INFORMATION

Type of Patient: □ ER □ OPD □ In-Patient □ BHS □ RHU Facility Patient ID No. _____

Name of Patient: _____ (LAST NAME) _____ (FIRST NAME) _____ (MIDDLE NAME)

Sex: □ Female □ Male Date of Birth: ___/___/_____ (MM DD YYYY) PhilHealth No. _____

Permanent Address:

_____ (REGION) _____ (PROVINCE) _____ (CITY/MUNICIPALITY)

Temporary Address:

_____ (REGION) _____ (PROVINCE) _____ (CITY/MUNICIPALITY)

ATTACHED RECORDS		
□ Patient Data Sheet □ Clinical Abstract □ Discharge Summary	□ Radiologic Results □ CXR □ CT Scan (as applicable)	□ Infectious Disease Test Results □ Respiratory Viral Panel □ Influenza A and B □ Other Tests

CHIEF COMPLAINT: _____ Date of onset: _____

OTHER SIGNS AND SYMPTOMS:

□ shortness of breath □ fever □ chills □ cough □ vomiting
□ diarrhea □ headache □ dizziness □ rapid heart rate □ chest pain

SUBSTANCE USE HISTORY

	Date of Last Use:	Frequency of Use:	Brand/Source:
□ E-cigarette			
□ Vape pen/mod/tank			
□ Dripping (coil-cotton) mod			
□ Dabbing (dab rig)			

CBD/THC-containing? □ Yes □ No Tobacco Smoker: □ Never □ Previous □ Current
Nicotine-containing? □ Yes □ No

Source of E-cig/Vapor Product/HTP device	Source of E-cig/Vapor Product/HTP liquid or juice used:	Level of Exposure
□ Formal (from licensed sellers) □ Informal (from friends/family) □ Illicit (from non-licensed sellers)	□ Commercial (bottles, cartridges, pods) □ Homemade liquids □ Both commercial and homemade	□ Direct User □ Indirect / Secondhand smoke □ both direct and indirect

PAST MEDICAL HISTORY

□ Respiratory disease (COPD, Asthma, PTB) □ Others: _____
□ Heart Disease □ None

PATIENT STATUS

Admitted: □ No □ Yes ___/___/_____ (MM DD YYYY) Discharged: □ No □ Yes ___/___/_____ (MM DD YYYY)
ICU: □ No □ Yes ___/___/_____ (MM DD YYYY) Deceased: □ No □ Yes ___/___/_____ (MM DD YYYY)

RADIOLOGIC RESULTS Findings:

□ Chest x-ray Infiltrates:□ No □ Yes, located at _____ □ test not done

□ Chest CT scan Opacities: □ No □ Yes, located at _____ □ test not done

INFECTIOUS DISEASE RESULTS Findings:

Respiratory Viral Panel □ Positive for_____ □ Negative □ Pending □ Not done

Sputum Culture □ Positive for_____ □ Negative □ Pending □ Not done

PCR □ Positive for_____ □ Negative □ Pending □ Not done

Influenza A/B □ Positive for_____ □ Negative □ Pending □ Not done

Blood Culture □ Positive for_____ □ Negative □ Pending □ Not done

Others: _____ □ Positive □ Negative □ Pending □ Not done

_____ □ Positive □ Negative □ Pending □ Not done

TREATMENT

Antibiotic given: □ None □ Yes, specify drug(s) _____

Antiviral given: □ None □ Yes, specify drug(s) _____

Steroids given: □ None □ Yes, specify drug(s) _____

Respiratory support: □ None □ Nasal Cannula □ Oxygen mask □ High-flow NC □ Intubated

FINAL DIAGNOSIS:

OTHER COMMENTS / FINDINGS:

Reported by:

_____

PRINTED NAME AND SIGNATURE OF REPORTER

Annex E. Vapor Product or Heated Tobacco Product (HTP) use-related Explosion Injury Case Report Form

REPORTER INFORMATION

Facility Name: _____ Facility Phone: _____
Reported by: _____ Reporter's Phone: _____
Reporter's Email: _____ Date of Reporting: _____

PATIENT INFORMATION

Type of Patient: □ ER □ OPD □ In-Patient □ BHS □ RHU
Facility Patient ID No. _____

Name of Patient: _____ (LAST NAME) _____ (FIRST NAME) _____ (MIDDLE NAME)

Sex: □ Female □ Male Date of Birth: ___/___/_____ (MM DD YYYY) PhilHealth No. _____

Permanent Address:

_____ (REGION) _____ (PROVINCE) _____ (CITY/MUNICIPALITY)

Temporary Address:

_____ (REGION) _____ (PROVINCE) _____ (CITY/MUNICIPALITY)

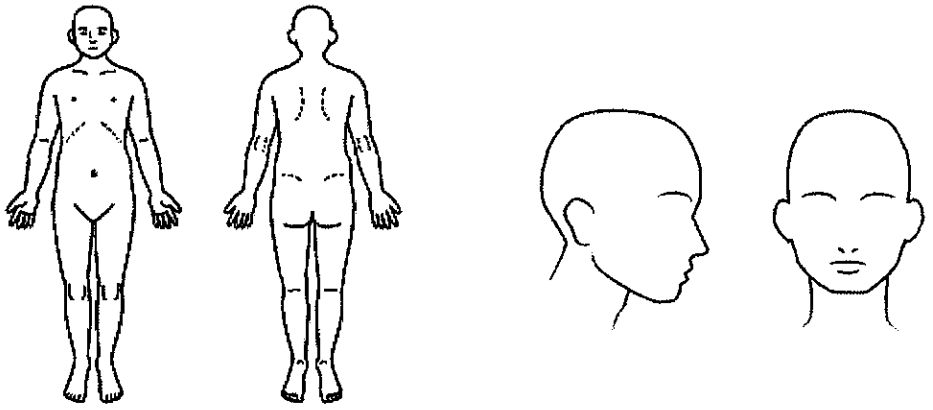
ATTACHED RECORDS

□ Patient Data Sheet □ Clinical Abstract □ Discharge Summary

CHIEF COMPLAINT: _____

Date of Injury: _____ Place of Injury: _____
Time of Injury: _____ (AM / PM) Manner of Injury: _____

TRAUMA DIAGRAM:(mark and label injuries)



SUBSTANCE USE HISTORY

	Date of Last Use:	Frequency of Use:	Brand/Source:
□ E-cigarette			
□ Vape pen/mod/tank			
□ Dripping (coil-cotton) mod			
□ Dabbing (dab rig)			

CBD/THC-containing? □ Yes □ No Tobacco Smoker: □ Never □ Previous □ Current
Nicotine-containing? □ Yes □ No

PATIENT STATUS Admitted: □ No □ Yes ___/___/_____ (MM DD YYYY) Discharged: □ No □ Yes ___/___/_____ (MM DD YYYY) ICU: □ No □ Yes ___/___/_____ (MM DD YYYY) Deceased: □ No □ Yes ___/___/_____ (MM DD YYYY)
PHOTOS (FOR THE GRAPHIC HEALTH WARNING POOL) - (send full quality photos to tpc.doh.gov.ph)
FINAL DIAGNOSIS:
OTHER COMMENTS / FINDINGS:

Reported by:

_____

PRINTED NAME AND SIGNATURE OF REPORTER