Reference number(s)
4827-A

STANDARD MEDICARE PART B MANAGEMENT

PHOTOFRIN (porfimer sodium)

POLICY

I. INDICATIONS

The indications below including FDA-approved indications and compendial uses are considered a covered benefit provided that all the approval criteria are met and the member has no exclusions to the prescribed therapy.

A. FDA-Approved Indications

1. Esophageal Cancer
   Indicated for the palliation of patients with completely obstructing esophageal cancer, or of patients with partially obstructing esophageal cancer who, in the opinion of their healthcare provider, cannot be satisfactorily treated with Nd:YAG laser therapy.
2. Endobronchial Cancer
   i. Indicated for the treatment of microinvasive endobronchial non-small-cell lung cancer (NSCLC) in patients for whom surgery and radiotherapy are not indicated.
   ii. Indicated for the reduction of obstruction and palliation of symptoms in patients with completely or partially obstructing endobronchial NSCLC.
3. High-Grade Dysplasia in Barrett's Esophagus
   Indicated for the ablation of high-grade dysplasia in Barrett's esophagus patients who do not undergo esophagectomy.

B. Compendial Uses

1. Squamous cell skin cancer
2. Basal cell skin cancer
3. Cholangiocarcinoma
4. Kaposi's sarcoma
5. Malignant tumor of oral cavity
6. Diagnosis of non-small cell lung cancer
7. Primary malignant neoplasm of urinary system
8. Rectal cancer

All other indications will be assessed on an individual basis. Submissions for indications other than those enumerated in this policy should be accompanied by supporting evidence from Medicare approved compendia.

II. CRITERIA FOR INITIAL APPROVAL

A. Esophageal cancer

Authorization of 3 months may be granted when used as a component of photodynamic therapy for the palliation of members with esophageal cancer when either of the following criteria are met:
1. The member has completely obstructing esophageal cancer
2. The member has partially obstructed esophageal cancer and cannot be satisfactorily treated with Nd: YAG laser therapy

B. Endobronchial cancer
Authorization of 3 months may be granted when used as a component of photodynamic therapy for endobronchial cancer when either of the following criteria are met:
1. Both of the following are met:
   i. Photofrin will be used for treatment of microinvasive endobronchial non-small-cell lung cancer (NSCLC)
   ii. Surgery and radiotherapy are not indicated
2. Both of the following are met:
   i. The member has completely or partially obstructed endobronchial NSCLC
   ii. Photofrin will be used for the reduction of obstruction and palliation of symptoms

C. High-grade dysplasia in Barrett's esophagus
Authorization of 9 months may be granted when used as a component of photodynamic therapy for the ablation of high-grade dysplasia in Barrett's esophagus if the member does not undergo esophagectomy.

D. Squamous cell skin cancer
Authorization of 3 months may be granted for the treatment of squamous cell skin cancer when used as photodynamic treatment in either of the following settings:
1. Actinic keratoses
2. Cutaneous squamous cell carcinoma in situ (Bowen's disease)

E. Basal cell skin cancer
Authorization of 3 months may be granted as a component of photodynamic therapy for primary, recurrent, or superficial basal cell carcinoma.

F. Cholangiocarcinoma
Authorization of 3 months may be granted as a component of photodynamic therapy for the treatment of unresectable cholangiocarcinoma in members who have received double stenting when both of the following are met:
1. Member has a proximal tumor that is more than 3 cm in diameter that is Bismuth type II through IV
2. The tumor is stage III or IV

G. Kaposi's sarcoma
Authorization of 3 months may be granted as a component of photodynamic therapy as palliative treatment for cutaneous Kaposi sarcoma lesions.

H. Malignant tumor of oral cavity
Authorization of 3 months may be granted as a component of photodynamic therapy for the treatment of early invasive squamous cell carcinoma of the oral cavity that is accompanied by widespread premalignant disease (e.g., leukoplakia or erythroplakia).

I. Diagnosis of non-small cell lung cancer
Authorization of 1 month may be granted for the detection, localization, and diagnosis of non-small cell lung cancer when used in conjunction with fluorescence bronchoscopy.

J. Primary malignant neoplasm of urinary system
Authorization of 3 months may be granted as a component of photodynamic therapy for the treatment of carcinoma of the bladder and urethra, including refractory disease.

K. Rectal cancer
Authorization of 3 months may be granted as a component of photodynamic therapy for the treatment of advanced rectal cancer.

III. CONTINUATION OF THERAPY

All members (including new members) requesting authorization for continuation of therapy must be currently receiving therapy with the requested agent.

A. High-grade dysplasia in Barrett's esophagus
Authorization for 9 months may be granted when all of the following criteria are met:
1. The member is currently receiving therapy with Photofrin.
2. The member is receiving benefit from therapy.

B. Diagnosis of non-small cell lung cancer
All members (including new members) requesting authorization for continuation of therapy must meet all initial authorization criteria.

C. All other diagnoses
Authorization for 3 months may be granted when all of the following criteria are met:
1. The member is currently receiving therapy with Photofrin.
2. Photofrin is being used to treat an indication enumerated in Section II.
3. The member is receiving benefit from therapy. Benefit is defined as:
    i. No evidence of unacceptable toxicity or
    ii. No evidence of disease progression while on the current regimen.

IV. SUMMARY OF EVIDENCE

The contents of this policy were created after examining the following resources:
1. The prescribing information for Photofrin.
2. The available compendium
    a. National Comprehensive Cancer Network (NCCN) Drugs and Biologics Compendium
    b. Micromedex DrugDex
    c. American Hospital Formulary Service- Drug Information (AHFS-DI)
    d. Lexi-Drugs
    e. Clinical Pharmacology
3. NCCN Guideline: Squamous cell skin cancer
4. NCCN Guideline: Basal cell skin cancer

After reviewing the information in the above resources, the FDA-approved indications listed in the prescribing information for Photofrin are covered in addition to the following:
1. Squamous cell skin cancer
2. Basal cell skin cancer

3. Cholangiocarcinoma
4. Kaposi's sarcoma
5. Malignant tumor of oral cavity
6. Diagnosis of non-small cell lung cancer
7. Primary malignant neoplasm of urinary system
8. Rectal cancer

V. EXPLANATION OF RATIONALE

Support for FDA-approved indications can be found in the manufacturer's prescribing information.

Support for using Photofrin to treat squamous cell skin cancer and basal cell skin cancer can be found in the NCCN Drugs and Biologics Compendium. Use of information in the NCCN Drugs and Biologics Compendium for off-label use of drugs and biologicals in an anti-cancer chemotherapeutic regimen is supported by the Medicare Benefit Policy Manual, Chapter 15, section 50.4.5 (Off-Label Use of Drugs and Biologicals in an Anti-Cancer Chemotherapeutic Regimen).

Support for using Photofrin to treat squamous cell skin cancer, basal cell skin cancer, cholangiocarcinoma, Kaposi's sarcoma, malignant tumor of oral cavity, primary malignant neoplasm of urinary system, and rectal cancer can be found in the Micromedex DrugDex database. Use of information in the DrugDex database for off-label use of drugs and biologicals in an anti-cancer chemotherapeutic regimen is supported by the Medicare Benefit Policy Manual, Chapter 15, section 50.4.5 (Off-Label Use of Drugs and Biologicals in an Anti-Cancer Chemotherapeutic Regimen).

Support for using Photofrin for the diagnosis of non-small cell lung cancer in an article published by Lam and colleagues. Low-dose Photofrin used in conjunction with fluorescence bronchoscopy appears effective for detecting early lung cancer without significant toxicity. Fluorescence bronchoscopy after administration of porfimer (or hematoporphyrin derivative) has been employed extensively for detection and localization of roentgenographically occult early lung cancers. Photofrin acts as a fluorescent tumor marker when excited by violet light (405 nanometer wavelength), emitting fluorescence that can be detected by special imaging devices; tumors exhibit more intense fluorescence than surrounding normal tissues. However, with currently recommended Photofrin doses of 2 mg/kg, prolonged photosensitivity reactions have precluded its more widespread use for this purpose. Studies have indicated that low-dose porfimer (0.25 mg/kg intravenously) given 24 hours prior to fluorescence bronchoscopy, using a fluorescence bronchoscope and ratio fluorometer probe, can be used effectively for early diagnosis of lung cancer. Excitation light of wavelength 405 nm was delivered by krypton ion laser. Carcinoma in situ was detected in 4 patients with this low dose, without apparent skin phototoxicity (30 Joules/centimeter(2)) visible light. Study results also suggest that high doses of porfimer may actually reduce sensitivity in lesion detection, as drug accumulation may occur to a greater extent in normal tissues than in tumor tissues.

VI. REFERENCES

1. Photofrin [package insert]. Bannockburn, IL: Pinnacle Biologics, Inc.; December 2019.
2. The NCCN Drugs & Biologics Compendium® © 2022 National Comprehensive Cancer Network, Inc. Available at: http://www.nccn.org. Accessed February 6, 2023.
3. IBM Micromedex® DRUGDEX ® (electronic version). IBM Watson Health, Greenwood Village, Colorado, USA. Available at https://www.micromedexsolutions.com. (Accessed: February 6, 2023).
4. Lam S, Palcic B, McLean D, et al: Detection of early lung cancer using low dose photofrin II. Chest 1990; 97:333-337.