## Medical Necessity Guideline

### Medical Necessity Guideline (MNG) Title: Electric Tumor Treatment Field Therapy

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>MNG #: 003</td>
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<tr>
<td>☒ SCO ☒ One Care</td>
</tr>
<tr>
<td>Prior Authorization Needed? ☒ Yes ☐ No</td>
</tr>
<tr>
<td>Clinical: ☒</td>
</tr>
<tr>
<td>Operational: ☐</td>
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<tr>
<td>Informational: ☐</td>
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<tr>
<td>Medicare Benefit: ☐ Yes  ☐ No</td>
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<tr>
<td>Approval Date: 1/10/2019;</td>
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<tr>
<td>Effective Date: 4/01/2019</td>
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<tr>
<td>Last Revised Date: 1/25/2019;</td>
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<tr>
<td>Next Annual Review Date: 1/10/2020;</td>
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<td>Retire Date:</td>
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### OVERVIEW:

Electric tumor treatment field (TTF) therapy (also known as tumor-treating fields, TTFs, ETTFs) is based on the principle that low intensity, intermediate frequency electric fields (100 to 300 kHz) have an anti-mitotic effect which acts during late metaphase and anaphase, with specific frequencies affecting specific cell types (Rulseh et al, 2012).

Alternating electrical fields within the human body that disrupt the rapid cell division exhibited by cancer cells, with the alternating electrical fields applied to the brain through transducer arrays placed on the scalp. TTF harness electric fields to arrest the proliferation of tumor cells and to destroy them. The TTF technology takes advantage of the special characteristics and geometrical shape of dividing cells, which make them susceptible to the effects of the alternating electric TTFields. These special fields alter the tumor cell polarity at an intermediate frequency (on the order of 100-300 kHz). The frequency used for a particular treatment is specific to the cell type being treated (e.g., 200kHz for GBM). In contrast, the TTFields have not been shown to have an effect on cells that are not undergoing division. Since most normal adult brain cells proliferate very slowly, if at all, they are hypothesized to be little affected by the TTFields (Novocure, 2018).

Currently, the only cancer cell type for which TTF has been shown to be safe and effective is glioblastoma multiforme. Glioblastoma multiforme (GBM) is the most prevalent primary malignant brain tumor in adults, accounting for 54% of all gliomas. GBM is the most lethal brain tumor with only a third of patients surviving for one year and less than 5% living beyond 5 years. Unfortunately most glioblastomas recur (National Comprehensive Cancer Network [NCCN], 2018). It develops from star-shaped glial cells (astrocytes and oligodendrocytes) that support the health of the nerve cells within the brain.

The mainstay of treatment for GBM is surgery, followed by radiation and chemotherapy. The primary objective of surgery is to remove as much of the tumor as possible without injuring the surrounding healthy brain tissue needed for normal neurological function (such as motor skills, the ability to speak and walk, etc.). However, GBMs are surrounded by a zone of migrating, infiltrating tumor cells that invade surrounding tissues, making it impossible to ever remove the tumor entirely. Surgery provides the ability to reduce the amount of solid tumor tissue within the brain, remove those cells in the center of the tumor that may be resistant to radiation and/or chemotherapy and reduce intracranial pressure (American Association of Neurological Surgeons [AANS], 2018).
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DEFINITIONS:

- **Karnofsky Performance Status (KPS)** - A standard way of measuring the ability of cancer patients to perform ordinary tasks. KPS scores range from 0 to 100; a higher score means a person is better able to carry out daily activities. For example, a KPS of 60 means a person requires occasional assistance, but is able to care for most of their personal needs. KPS may be used to determine a patient’s prognosis, to measure changes in a patient’s ability to function, or to decide if a patient could be included in a clinical trial (National Cancer Institute [NCI], 2018).

- **Supratentorial**: The upper portion of the brain comprised of the cerebrum and the diencephalon (NCI, 2018).

- **Temozolomide**: An oral alkylating chemotherapy drug used in the treatment of some brain cancers. It is a first-line treatment for glioblastoma (NCI, 2018).

DECISION GUIDELINES:

**Clinical Coverage Criteria:**
The use of U.S. Food and Drug Administration (FDA) approved devices to generate electric tumor treatment fields (TTF) to treat newly diagnosed histologically-confirmed Supratentorial glioblastoma (known also as glioblastoma multiforme [GBM] or World Health Organization [WHO] grade IV astrocytoma) is proven and medically necessary when used according to FDA labeled indications, contraindications, warnings and precautions, and when ALL of the following criteria are met:

- Initial treatment with radiation therapy has been completed; and
- Individual is receiving Temozolomide; and
- Individual has a Karnofsky Performance Status (KPS) score of ≥60; and
- Individual or caregiver has been trained and is willing and able to apply the device daily; and
- Individual is willing to wear the device at least 18 hours daily.

**Recurrent GBM**
The use of FDA approved devices to generate electric TTF is proven and medically necessary following radiologically-confirmed recurrence of GBM in the supratentorial region of the brain after initial chemotherapy and when ALL of the following criteria are met:

- The device is used as a monotherapy
- Individual has a KPS score of ≥60; and
- Individual or caregiver has been trained and is willing and able to apply the device daily; and
- Individual is willing to wear the device at least 18 hours daily.

When all of the above criteria are met for either newly diagnosed or recurrent GBM, an initial 3 months of electric TTF therapy will be approved.

Subsequent approval(s) for continuation of electric TTF is based on:

- MRI scan has been performed ≤2-4 months prior to request and documents no evidence of disease progression.
- KPS score of ≥60; and
- Documentation that the individual has been wearing the device at least 18 hours daily.
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LIMITATIONS/EXCLUSIONS:
The use of devices to generate electric tumor treatment fields (TTF) is considered investigational, unproven, and not medically necessary when the criteria above are not met and for all other indications.

The FDA has not approved the use of electric TTF devices for indications other than GBM. Further studies are needed to determine the safety and long-term efficacy of electric TTF therapy for other types of cancer.

Computer software used for therapeutic radiology clinical treatment planning in conjunction with electric tumor treatment field (TTF) therapy is unproven and not medically necessary.

There is insufficient evidence to establish the efficacy of these products in the long-term outcomes of patients receiving electric TTF therapy.

AUTHORIZATION:
The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not signify whether the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Coverage Determination Guidelines may apply. This Medical Necessity Guideline is subject to all applicable laws and regulations, Plan Policies and Guidelines, including requirements for prior authorization and other requirements in Provider’s agreement with the Plan (including complying with Plan’s Provider Manual specifications).

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
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<tr>
<td>77299</td>
<td>Unlisted procedure, therapeutic radiology clinical treatment planning.</td>
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<table>
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<tr>
<th>HCPCS Code</th>
<th>Description</th>
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<tr>
<td>E0766</td>
<td>Electrical stimulation device used for cancer treatment, includes all accessories, any type.</td>
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RELATED REFERENCES:


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ATTACHMENTS:

EXHIBIT A:
EXHIBIT B

REVISION LOG:

<table>
<thead>
<tr>
<th>REVISION DATE</th>
<th>DESCRIPTION</th>
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APPROVALS:

Thomas A. Amoroso, MD  
CCA Senior Clinical Lead [Print]  
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Signature

Date

1/10/2018