Overall management of Central Nervous System Cancers from diagnosis through recurrence is described in the full NCCN Guidelines® for Central Nervous System Cancers. Visit NCCN.org to view the complete library of NCCN Guidelines.
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### GLIOBLASTOMA PATHOLOGY

#### MGMT<sup>n</sup> PROMOTOR STATUS

- **Good performance status (KPS ≥60)**
  - Methylated
    - Standard brain RT<sup>k</sup> + concurrent temozolomide and adjuvant temozolomide + alternating electric field therapy<sup>m,p,q,r</sup>
    or
    - Standard brain RT<sup>k</sup> + concurrent temozolomide and adjuvant temozolomide (category 1)<sup>m,p,q</sup>
- **Poor performance status (KPS <60)**
  - Unmethylated or indeterminate
    - Standard brain RT<sup>k</sup> + concurrent temozolomide<sup>s</sup> and adjuvant temozolomide<sup>s</sup> + alternating electric field therapy<sup>m,p,q,r</sup>
    or
    - Standard brain RT<sup>k</sup> + concurrent temozolomide<sup>s</sup> and adjuvant temozolomide (category 1)<sup>m,p,q,s</sup>
    or
    - Standard brain RT alone<sup>k</sup>

#### ADJUVANT TREATMENT

- **Age ≤70 y**
  - Glioblastoma ± carmustine wafer<sup>o</sup>
    - Standard or hypofractionated brain RT<sup>k</sup> or Temozolomide<sup>t</sup> or Palliative/Best supportive care

- **Age >70 y**
  - See GLIO-4

**FOLLOW-UP**

- MRI 2–6 wk after RT, then every 2–4 mo for 2–3 y, then less frequently
  - See Recurrence (GLIO-5)

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**Note:** All recommendations are category 2A unless otherwise indicated.

**Clinical Trials:** NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

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ADJUVANT TREATMENT FOLLOW-UP

MRI 2–6 wk after RT, then every 2–4 mo for 2–3 y, then less frequently

See Recurrence (GLIO-5)

GLIOBLASTOMA

GLIO-4

PATHOLOGY

MGMT PROMOTOR STATUS

ADJUVANT TREATMENT

Methylated

Temozolomide
or Hypofractionated brain RT alone (category 1)
or Hypofractionated brain RT + concurrent and adjuvant temozolomide
or Standard RT + concurrent temozolomide and adjuvant temozolomide + alternating electric field therapy
or Standard RT + concurrent temozolomide and adjuvant temozolomide

Unmethylated or indeterminate

Hypofractionated brain RT alone (category 1)
or Standard RT + concurrent temozolomide and adjuvant temozolomide + alternating electric field therapy
or Standard RT + concurrent temozolomide and adjuvant temozolomide

Poor performance status (KPS <60)

Hypofractionated brain RT alone
or Temozolomide
or Palliative/Best supportive care

Good performance status (KPS ≥60)

Age >70 y (Glioblastoma ± carmustine (BCNU) wafer)

See Principles of Brain and Spinal Cord Tumor Systemic Therapy (BRAIN-D).

MGMT = O6-methylguanine-DNA methyltransferase.

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**Central Nervous System Cancers**

**NCCN Guidelines**

**Version 1.2016**

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### Recurrence

**Diffuse or multiple**

- Recurrent disease for:
  - Anaplastic oligodendroglioma
  - Anaplastic oligoastrocytoma
  - Anaplastic astrocytoma
  - Anaplastic gliomas
  - Glioblastoma

**Resectable**

- Resection + carmustine (BCNU) wafer

**Resection without carmustine (BCNU) wafer**

**Brain MRI**

**Unresectable**

- Consider MR spectroscopy, MR perfusion, or brain PET to rule out radiation necrosis.

### Treatment

**Palliative/Best supportive care if poor performance status**

- Systemic chemotherapy

**Surgery for symptomatic, large lesion**

- Consider alternating electric field therapy for glioblastoma (category 2B)

**Palliative/Best supportive care**

- See NCCN Guidelines for Palliative Care

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