

Primary Brain Lesion-Diffuse Glioma – Adult (Greater than or equal to 18 years old)

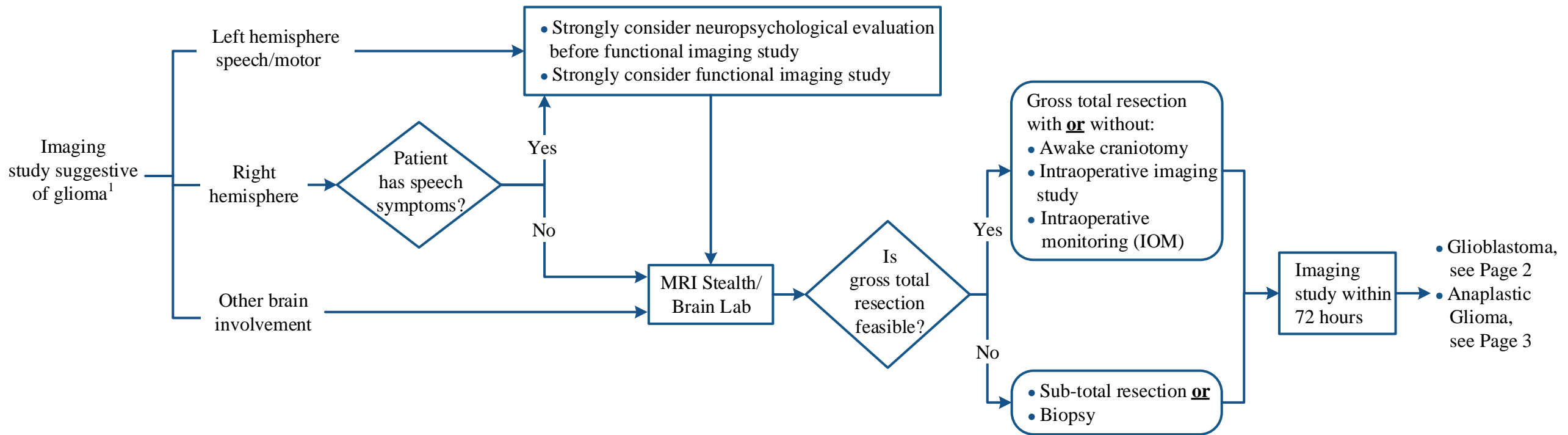
This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson's specific patient population; MD Anderson's services and structure; and MD Anderson's clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. This algorithm should not be used to treat pregnant women.

NOTE: Consider Clinical Trials as treatment options for eligible patients.

RADIOLOGICAL PRESENTATION

PRESURGICAL PLANNING

TREATMENT



¹ Biopsy first if MRI suggestive of CNS lymphoma or non-tumor diagnosis

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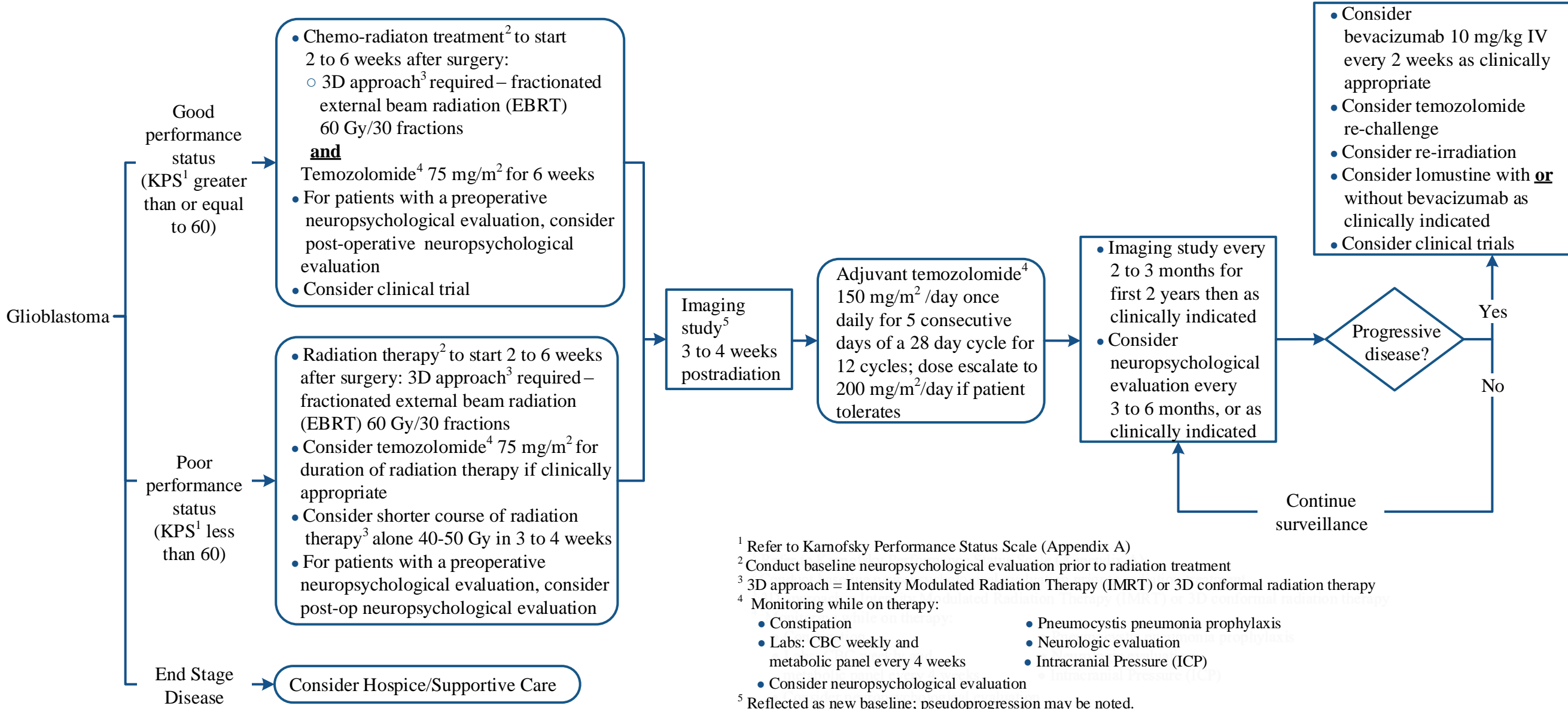
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PATHOLOGY

TREATMENT

SURVEILLANCE

RECURRENCE



¹ Refer to Karnofsky Performance Status Scale (Appendix A)

² Conduct baseline neuropsychological evaluation prior to radiation treatment

³ 3D approach = Intensity Modulated Radiation Therapy (IMRT) or 3D conformal radiation therapy

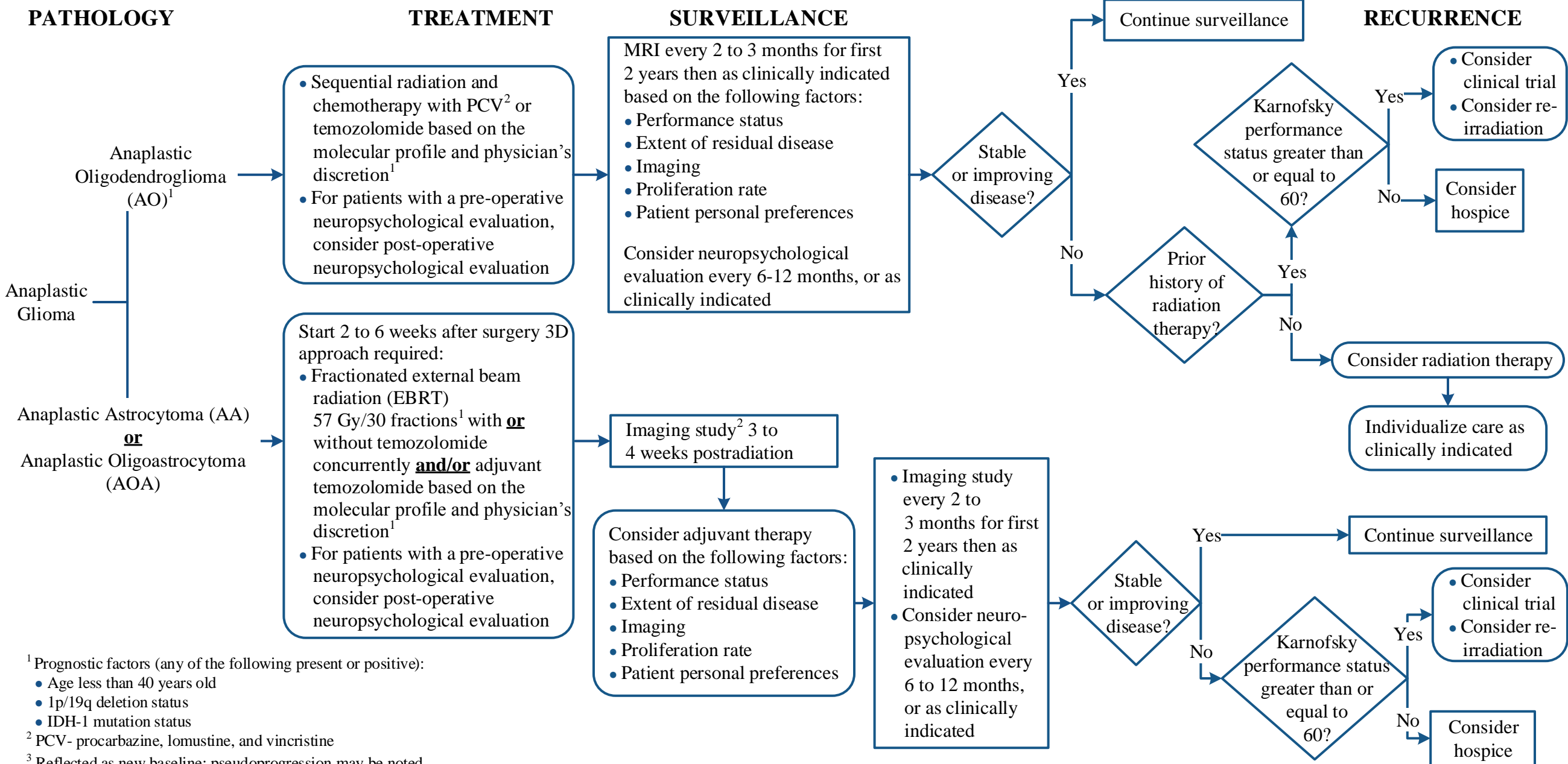
⁴ Monitoring while on therapy:

- Constipation
- Labs: CBC weekly and metabolic panel every 4 weeks
- Consider neuropsychological evaluation
- Pneumocystis pneumonia prophylaxis
- Neurologic evaluation
- Intracranial Pressure (ICP)

⁵ Reflected as new baseline; pseudoprogression may be noted.

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¹ Prognostic factors (any of the following present or positive):

- Age less than 40 years old
- 1p/19q deletion status
- IDH-1 mutation status

² PCV- procarbazine, lomustine, and vincristine

³ Reflected as new baseline; pseudoprogression may be noted.

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Appendix A: Karnofsky Performance Status Scale Definitions

Able to carry on normal activity and to work; no special care needed.	100	Normal; no complaints; no evidence of disease.
	90	Able to carry on normal activity; minor signs or symptoms of disease.
	80	Normal activity with effort; some signs of disease.
Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed	70	Cares for self; unable to carry on normal activity or to do active work.
	60	Requires occasional assistance, but is able to care for most of his personal needs.
	50	Requires considerable assistance and frequent medical care.
Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly	40	Disabled; requires special care and assistance.
	30	Severely disabled; hospital admission is indicated although death not imminent.
	20	Very sick; hospital admission necessary; active supportive treatment necessary.
	10	Moribund; fatal processes progressing rapidly.
	0	Dead

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SUGGESTED READINGS

- Cairncross, G., Wang, M., Shaw, E., Jenkins, R., Brachman, D., Buckner, J., ... & Mehta, M. (2012). Phase III trial of chemoradiotherapy for anaplastic oligodendroglioma: long-term results of RTOG 9402. *Journal of clinical oncology*, 31(3), 337-343.
- Chinot, O. L., Wick, W., Mason, W., Henriksson, R., Saran, F., Nishikawa, R., ... & Brandes, A. A. (2014). Bevacizumab plus radiotherapy–temozolomide for newly diagnosed glioblastoma. *New England Journal of Medicine*, 370(8), 709-722.
- Fine, H. A., Dear, K. B., Loeffler, J. S., Mc Black, P. L., & Canellos, G. P. (1993). Meta-analysis of radiation therapy with and without adjuvant chemotherapy for malignant gliomas in adults. *Cancer*, 71(8), 2585-2597.
- Friedman, H. S., Prados, M. D., Wen, P. Y., Mikkelsen, T., Schiff, D., Abrey, L. E., ... & Vredenburgh, J. (2009). Bevacizumab alone and in combination with irinotecan in recurrent glioblastoma. *Journal of clinical oncology*, 27(28), 4733-4740.
- Gilbert, M. R., Dignam, J. J., Armstrong, T. S., Wefel, J. S., Blumenthal, D. T., Vogelbaum, M. A., ... & Jeraj, R. (2014). A randomized trial of bevacizumab for newly diagnosed glioblastoma. *New England Journal of Medicine*, 370(8), 699-708.
- Harsh, G. R., Levin, V. A., Gutin, P. H., Seager, M., Silver, P., & Wilson, C. B. (1987). Reoperation for recurrent glioblastoma and anaplastic astrocytoma. *Neurosurgery*, 21(5), 615-621.
- Hentschel SJ, Sawaya R; (2003). Optimizing outcomes with maximal surgical resection of malignant gliomas. *Cancer Control* 10:109-114.
- Laws, E. R., Parney, I. F., Huang, W., Anderson, F., Morris, A. M., Asher, A., ... & Berger, M. S. (2003). Survival following surgery and prognostic factors for recently diagnosed malignant glioma: data from the Glioma Outcomes Project. *Journal of neurosurgery*, 99(3), 467-473.
- National Comprehensive Cancer Network. Central Nervous System Cancers (Version 1.2016). https://www.nccn.org/professionals/physician_gls/pdf/cns.pdf. Accessed July 11, 2017.
- Roa, W., Brasher, P. M. A., Bauman, G., Anthes, M., Bruera, E., Chan, A., ... & Husain, S. (2004). Abbreviated course of radiation therapy in older patients with glioblastoma multiforme: a prospective randomized clinical trial. *Journal of clinical oncology*, 22(9), 1583-1588.
- Souhami, L., Seiferheld, W., Brachman, D., Podgorsak, E. B., Werner-Wasik, M., Lustig, R., ... & Zamorano, L. (2004). Randomized comparison of stereotactic radiosurgery followed by conventional radiotherapy with carmustine to conventional radiotherapy with carmustine for patients with glioblastoma multiforme: report of Radiation Therapy Oncology Group 93-05 protocol. *International Journal of Radiation Oncology* Biology* Physics*, 60(3), 853-860.
- Stewart, L., & Burdett, S. (2002). Chemotherapy for high-grade glioma. The Cochrane Library.
- Stupp, R., Mason, W. P., Van Den Bent, M. J., Weller, M., Fisher, B., Taphoorn, M. J., ... & Curschmann, J. (2005). Radiotherapy plus concomitant and adjuvant temozolomide for glioblastoma. *New England Journal of Medicine*, 352(10), 987-996.
- van den Bent, M. J., Brandes, A. A., Taphoorn, M. J., Kros, J. M., Kouwenhoven, M. C., Delattre, J. Y., ... & Sipsos, L. (2012). Adjuvant procarbazine, lomustine, and vincristine chemotherapy in newly diagnosed anaplastic oligodendroglioma: long-term follow-up of EORTC brain tumor group study 26951. *Journal of clinical oncology*, 31(3), 344-350.

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DEVELOPMENT CREDITS

This practice algorithm is based on majority expert opinion of the Primary Brain Lesion Work Group Faculty at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

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