



## MASSACHUSETTS

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# Medical Policy Adrenal-to-Brain Transplantation

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### Policy Number: 627

BCBSA Reference Number: 7.01.43A

NCD/LCD: NA

### Related Policies

- Deep brain stimulation for Parkinson’s tremor, [#473](#)

### Policy

#### Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO Blue<sup>SM</sup> and Medicare PPO Blue<sup>SM</sup> Members

Adrenal-to-brain transplantation with autograft or fetal allograft is [INVESTIGATIONAL](#).

### Prior Authorization Information

Pre-service approval is required for all inpatient services for all products.

See below for situations where prior authorization may be required or may not be required for outpatient services.

Yes indicates that prior authorization is required.

No indicates that prior authorization is not required.

N/A indicates that this service is primarily performed in an inpatient setting.

#### Outpatient

<b>Commercial Managed Care (HMO and POS)</b>	This is not a covered service.
<b>Commercial PPO and Indemnity</b>	This is not a covered service.
<b>Medicare HMO Blue<sup>SM</sup></b>	This is not a covered service.
<b>Medicare PPO Blue<sup>SM</sup></b>	This is not a covered service.

### CPT Codes / HCPCS Codes / ICD Codes

*Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.*

*Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.*

## CPT Codes

There is no specific CPT code for this service.

## HCPCS Codes

HCPCS codes:	Code Description
S2103	Adrenal tissue transplant to brain

## Description

Parkinson's disease is a degenerative disease that includes symptoms of resting tremor, rigidity, and bradykinesia. The condition usually appears after age 40 years and progresses slowly over many years. Drug treatment with levodopa can usually restore smooth motor function for up to 5–10 years after onset of Parkinson's disease by permitting surviving dopaminergic cells to bypass a rate-limiting enzyme, tyrosine hydroxylase, and thus produce enough dopamine to maintain adequate motor function. Eventually, more dopaminergic cells die, leading to progressive disability.

The transplantation of adrenal medullary tissue to the corpus striatum is intended to ameliorate the motor and postural dysfunctions of Parkinson's disease. Striatal dopamine is depleted in Parkinson's disease patients. The rationale for the procedure is that adrenal tissue may restore dopamine activity in the corpus striatum. Adrenal-to-brain transplantation can involve either autografts or fetal allografts.

Autotransplantation entails simultaneous adrenalectomy and craniotomy with subsequent implantation of adrenal medullary tissue. Adrenal tissue is usually implanted in fragments into the caudate nucleus at the margin of the lateral ventricle, such that the tissue is exposed to cerebrospinal fluid (CSF). Tissue fragments can be anchored in place with surgical staples or with Gelfoam®. Besides the caudate nucleus, the putamen has also been used as an implantation site. Open microsurgical insertion of the tissue has been used in addition to stereotactic localization and implantation using a cannula.

Allografting involves harvesting adrenal tissue from an aborted fetus. The surgical techniques are the same as autotransplantation, with the exception of the adrenalectomy.

## Summary

The medical literature regarding adrenal-to-brain transplantation for the treatment of Parkinson's disease is limited to the description of uncontrolled, short-term studies with small sample sizes or case studies. Although some of these studies did report finding significant clinical improvements, unreasonably high morbidity and mortality rates are frequent. A few pathologic reports on adrenal-to-brain recipients demonstrated very few to no surviving transplanted cells after 6 months to a year following surgery. Due to the lack of long term outcomes data for large controlled randomized trials and reports of high rates of complications and death in the existing literature, the American Academy of Neurology concluded that adrenal-to-brain transplantation for the treatment of Parkinson's disease should be considered unacceptable for safety reasons. For these reasons, the procedure is considered investigational.

## Policy History

Date	Action
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
1/2012	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
1/2011	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
1/2010	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
1/2009	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.

1/2008	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
1/2007	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.

## Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

## References

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4. Fink JS, Schumacher JM, Ellias SL, et al. Porcine xenografts in Parkinson's disease and Huntington's disease patients: Preliminary results. *Cell Transplantation.* 2000; 9(2):272-278.
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9. Lindvall O, Kokaia Z. Stem cells for the treatment of neurological disorders. *Nature.* 2006; 441(7097):1094-1096.
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11. Schumacher JM, Ellias SL, Palmer EP, et al. Transplantation of embryonic porcine mesencephalic tissue in patients with PD. *Neurology.* 2000; 54(5):1042-1050.
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