



# Effective Health Care

## Prophylactic Cranial Irradiation for T-Cell Acute Lymphoblastic Leukemia Nomination Summary Document

### Results of Topic Selection Process & Next Steps

- Prophylactic cranial irradiation for T-cell acute lymphoblastic leukemia was found to be addressed by an in-process Cochrane Collaboration review titled *Treatment including intrathecal chemotherapy with and without cranial irradiation for prevention of central nervous system relapse of childhood acute lymphoblastic leukemia* and the work of the Children's Oncology Group. Given that the existing ongoing work covers this nomination, no further activity will be undertaken on this topic.
- Wang X, Liu R, Yang K, Ma B, Tian J, Wang J, Luo H. *Treatment including intrathecal chemotherapy with and without cranial irradiation for prevention of central nervous system relapse of childhood acute lymphoblastic leukemia* (Protocol). Cochrane Database of Systematic Reviews 2010, Issue 12. Art. No.: CD008861. DOI: 10.1002/14651858.CD008861.  
[http://www2.cochrane.org/reviews/en/protocol\\_C242C50182E26AA2011CFD5284657D41.html](http://www2.cochrane.org/reviews/en/protocol_C242C50182E26AA2011CFD5284657D41.html)

### Topic Description

**Nominator:** Individual

**Nomination Summary:** The nominator questions whether there are differences in survival outcomes among patients with T-cell acute lymphoblastic leukemia (ALL) who do receive prophylactic cranial irradiation versus those who do not receive prophylactic cranial irradiation.

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**Population(s):** Males and females aged 0-30 with T-cell immunophenotype ALL

**Intervention(s):** Central nervous system (CNS)-directed therapy including prophylactic cranial irradiation in conjunction with intrathecal chemotherapy

**Comparator(s):** CNS-directed therapy including intrathecal chemotherapy without cranial irradiation

**Outcome(s):** Overall survival, event-free survival, secondary malignancies, endocrine disorders, and learning disabilities

**Key Questions from Nominator:**

1. For children and young adults with T-cell immunophenotype acute lymphoblastic leukemia, does the administration of prophylactic cranial irradiation improve event free and overall survival?

## Considerations

- The topic meets Effective Health Care (EHC) Program appropriateness and importance criteria. (For more information, see <http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/>.)
- Topic was found to be addressed by an in-process Cochrane Collaboration review titled *Treatment including intrathecal chemotherapy with and without cranial irradiation for prevention of central nervous system relapse of childhood acute lymphoblastic leukemia*. The objectives of this review include:
  - To evaluate the efficacy of intrathecal chemotherapy (IT-CT), single agent, with cranial radiotherapy (CRT) compared to the efficacy of IT-CT, single or multiple agent, without CRT and without additional intravenous (IV) chemotherapy in the prevention of CNS relapse of childhood ALL.
  - To evaluate the efficacy of IT-CT, single agent, with CRT compared to the efficacy of IT-CT, single or multiple agent, without CRT and with additional intravenous (IV) chemotherapy and/or corticosteroids in the prevention of CNS relapse of childhood ALL.
  - To evaluate the adverse effects of IT-CT with or without cranial radiotherapy in children with ALL.
- Treatment of most pediatric ALL patients is dictated by pediatric oncology cooperative protocols (e.g., the Children's Oncology Group (COG) cooperative hospitals treat 90 percent of children with cancer in the United States according to their protocols), and the majority of children and adolescents with ALL are treated on clinical trials. COG has a registry of all the outcomes of patients treated under their protocols. The ongoing collection and analysis of data from this group also has significant overlap with this nomination.