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**Influenza Vaccine Immunogenicity in Children During and After Therapy for Acute Lymphoblastic Leukemia**

**[The effectiveness of giving influenza vaccine to children with acute lymphoblastic leukemia who are receiving chemotherapy will be evaluated by giving them vaccine and checking to see whether or not they show evidence of protection against influenza.]**

Acute lymphoblastic leukemia (ALL) is the most common type of pediatric cancer. In most cases, treatment of ALL involves 2 ½ years of treatment with chemotherapy. An intensive phase of chemotherapy called “consolidation” lasts approximately 6 months, followed by 2 years of less intensive chemotherapy called “maintenance.” During the 2 ½ years of treatment and more some months beyond, the child’s immune system is suppressed, putting them at greater risk of complications from infections.

Influenza is a highly contagious infection that is common during the winter months. Vaccines are commercially available that confer protection against some strains of influenza. However, there is no clear evidence that children who are receiving chemotherapy for cancer respond normally to influenza vaccine. Studies of children with cancer were done in the 1970’s and 1980’s that did not show clear benefit from influenza vaccine. Chemotherapy treatment for ALL has changed significantly in the past 2 decades. Currently, many pediatric oncologists give influenza vaccine each year to their patients with ALL; many others do not routinely give it, stating there is no clear evidence that it is beneficial.

The goal of this study is to measure the response of children with ALL to influenza vaccine. Children will be studied during the consolidation and maintenance phases as well as during the 1<sup>st</sup> 6 months following the end of treatment. We will measure their response to the vaccine using a blood test and comparing the results to values that are known to be associated with protection against influenza. We hope to determine how effective influenza vaccine is when given at the 3 periods of treatment.