

Predicting the Risk of Infection in Children Receiving Chemotherapy for Acute Myeloid Leukemia

IRB# 2007-018

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Synopsis:

The primary goal is to determine the relationship between the rate of invasive bacterial infection and SNPs in genes involved in immunity for children with primary AML.

The secondary goal is, in children with primary AML, to:

- (1) To determine whether Gram positive and Gram negative infections are associated with SNPs of genes involved in immunity;
- (2) To determine the relationship between invasive fungal infection and SNPs of genes involved in immunity;
- (3) To determine the relationship between infection-related mortality and SNPs of genes involved in immunity; and
- (4) To develop predictive models of infection outcomes using SNPs in genes involved in immunity and clinical covariates.

To achieve our objectives we propose a prospective, population-based cohort study that will include children diagnosed with primary AML.

Demographic information will be collected including self-report ethnicity of the child using a modified Statistics Canada classification. Ethnicity of the parents (for sensitivity analysis) also will be collected. Then, 10 mL of blood in acid citrate dextrose preservative will be obtained either through a central venous line or in the absence of a central line, during phlebotomy for clinical care purposes. In addition, the institutional clinical research assistant or a nurse will obtain two buccal swabs (similar to a cotton swab).

If DNA extraction is unsuccessful, one further attempt will be made to obtain a second sample of both the blood and buccal samples within 90 days of the initial attempt.