

GRANTEE HIGHLIGHT

## Addis Ababa University

### Implementation and evaluation of antimicrobial stewardship program in the pediatric oncology unit at a tertiary care hospital in Ethiopia



Pediatric Febrile Neutropenia is an oncological emergency condition that requires broad-spectrum antibacterial drugs to lower the risk of death and serious complications. In low- and middle-income countries, because of health inequities such as delayed diagnosis, lack of training in pediatric cancer management and support, limited access to curative care, cultural barriers, treatment abandonment, poor adherence to treatment, poverty, financial inequities, and fragmented healthcare delivery system, pediatric patients with cancer often experience unfavorable outcomes. Studies confirm that inappropriate antibiotic use is widespread, and antimicrobial resistance (AMR) is of great concern. Hence, an antimicrobial stewardship (AMS) program is warranted for this population.

An AMS is established at the inpatient ward of Tikur Anbessa Specialized Hospital, which does not include the pediatric oncology unit. Introducing customized AMS and clinical decision support tools in the pediatric oncology unit will enable a more comprehensive approach to improve appropriate antimicrobial use and tackle resistance.

This is a quasi-experimental study involving intervention and post-intervention assessment. All pediatric patients with cancer will be

eligible for the study. The intervention phase involves validation and use of a Multinational Association of Supportive Care of Cancer (MASCC) risk-index score, AMS team establishment and febrile neutropenia guideline preparation. It also includes preparation of frequently prescribed antibiotics administration and dosing guidelines, and other customized decision support tools, including targeted training, and clinical pharmacy service. Compliance with guidelines will be assessed regularly. Finally, days of therapy, antibiotic use pattern, rate of inappropriate antimicrobial use, and clinical outcome (rate of mortality) in the post-intervention phase are computed to determine the effectiveness of the intervention.

As of March 2024 the following steps have been completed:

1. Data collection on quantitative and qualitative measures (pre-intervention) for a total of 360 patients
2. Preparation of an audit-feedback antimicrobials stewardship tool to conduct interventional research activities
3. Data collection for the interventional study is in process.
4. Dissemination of intervention tools including febrile neutropenia guidelines
5. The AMS team conducts a weekly antimicrobial stewardship pharmacist-lead intervention using an audit-feedback tool. (AMS team includes pediatric ID specialist, oncologist, hematologist, clinical pharmacist, ward doctors, nurses.)

When the project is completed, findings will be submitted for publication at a reputable international journal. Also, prepared guidelines will be shared across the nation with the collaboration of Ethiopia Ministry of Health. This work is of paramount importance for our hospital pediatric cancer patients and at large for our community and hospitals.



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In addition to Alemseged Beyene, the co-investigators include Prof. Ephrem Engidawork, Gobezie Temesgen, Melaku Tieku, Getachew Alemkere, and Daniel Hailu.



Introducing this program will have paramount importance to the national resource pool and experience required to improve appropriate antimicrobial use and tackle resistance.

