

# Adverse Outcomes of Febrile Neutropaenia and Validation of a Risk Score in Oncology Patients on Chemotherapy at the Red Cross War Memorial Children's Hospital: A Three Year Retrospective Study.

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**Background:** Febrile neutropaenia (FN) is the commonest acute complication of cancer treatment in children. Outpatient management of individuals at low risk has been reported to reduce cost of care, improve health quality of life, and risk of nosocomial infection.

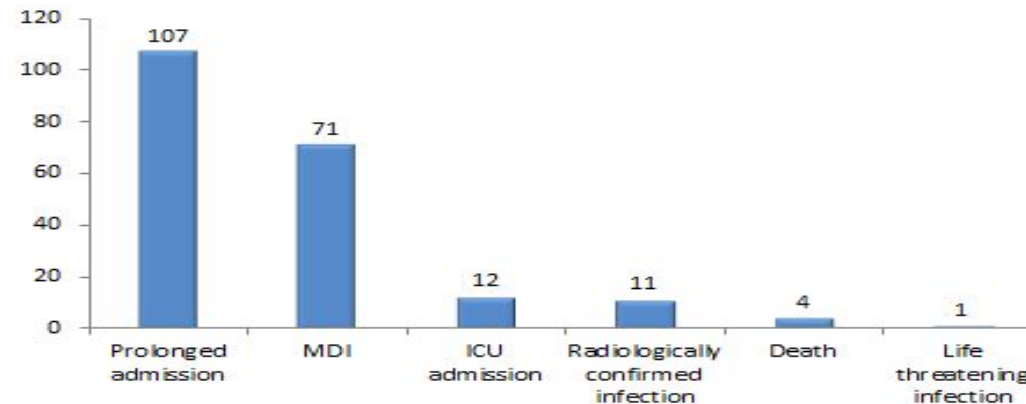
**AIM:** To identify adverse outcomes as well as validate a tool for risk stratification based on adverse outcomes in a cohort of children treated for cancer at Red Cross War Memorial Children's Hospital

**METHODS:** A retrospective cohort study from 1<sup>st</sup> January 2017 to 31<sup>st</sup> December 2019. The study population comprised children with confirmed cancer diagnoses on chemotherapy. Risk factors for adverse outcomes were identified and the Swiss Paediatric Oncology Group (SPOG) FN risk index assessed for predictive value in this cohort. Ethical approval was obtained from Faculty of Health Sciences, Human Research Ethics Committee (HREC REF: 351/2020)

**RESULTS :** In all, 256 new cases of cancer were seen within the study period and 179 patients had chemotherapy.

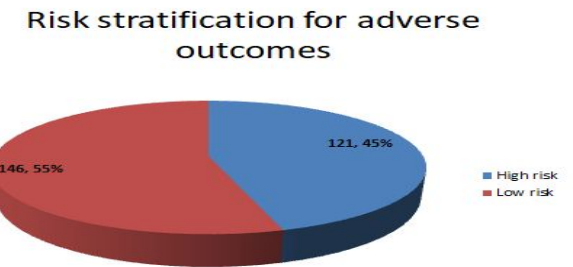
# A lower cut-off of 7.5 using the SPOG FN risk index best predicts adverse outcomes in our cohort.

## Adverse outcomes in subjects with febrile neutropaenia



A total of 267 FN episodes occurred amongst patients that had chemotherapy. Independent predictors of adverse outcomes were AML ( $p = 0.001$ ), CVAD in situ ( $p = 0.019$ ) and severe neutropaenia ( $p = 0.005$ ).

Validation of the tool using the traditional cut-off of 9 for adverse outcomes demonstrated a sensitivity and specificity of 52.3% and 62.0% respectively. Using a lower cut-off of 7.5, a higher negative



## CONCLUSIONS

Febrile neutropenia is a common complication in children with cancer treated with chemotherapy.

Intensive chemotherapy and patients with haematologic malignancies are at higher risk of FN.

Adverse outcomes from treatment are likely in children with AML, severe neutropaenia and with CVADs in-situ.

Patients with scores above 7.5 using clinical