

**The Hospital for Sick Children
Technology Assessment at SickKids (TASK)**

EXECUTIVE SUMMARY

**THE ECONOMIC EVALUATION OF EARLY INTERVENTION WITH ANTI-TUMOR
NECROSIS FACTOR- α TREATMENTS IN PEDIATRIC CROHN'S DISEASE**

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Report No. 2019-01

Date: February 26, 2019

Available at: <https://lab.research.sickkids.ca/task/reports-theses/>

Acknowledgements

This research was generously supported by the Hospital for Sick Children Restracom Doctoral Scholarship, the University of Toronto, Institute of Health Policy, Management and Evaluation Graduate Fellowship, Eugene Vayda Award, Dr. Robert Duff Barron Graduate Scholarship in Public Health Policy Award, Doctoral Completion Award, the IHPME Travel Award, the Canadian Federation of University Women (CFUW) Dr. Alice B. Wilson Award, the Canadian Institutes of Health Research (CIHR) operating grant (#137137) to W. Ungar, the Ontario Ministry of Health Drug Innovation Fund Grant No. 2010-001, the CIHR Travel Award, and the Genome Canada Conference Travel Award.

Thanks to the RISK Cohort Study in Crohn's Disease Consortium for the use of the RISK-PROKIIDS dataset. Thanks to Dr. Mary-Ellen Hogan, Mr. Austin Nam, Dr. Petros Pechlivanoglou, Dr. Peter Austin, Dr. Jan Barnsley and Dr. Eleanor Pullenayegum for their help and suggestions in tackling this project. Thanks also to Dr. David Naimark, Dr. Lusine Abrahamyan, Dr. Beate Sander, Dr. Walter Wodchis, Dr. Wannudee Isaranuwachai, Dr. Murray Krahn, Dr. Myla Moretti, and Ms. Kate Tsiplova for their insight.

Executive Summary

Background

Crohn's disease is a chronic disorder in which sections of the gastrointestinal tract become inflamed and ulcerated through an abnormal immune response. Costly anti-tumor necrosis factor- α (anti-TNF- α) treatments are indicated only after other treatments have not worked. However, anti-TNF- α treatments have been proposed as first line therapy due to their effectiveness.

Objective

The primary objective was to assess the incremental cost-effectiveness of early intervention with anti-TNF- α treatment vs. conventional step-up strategy at improving the number of steroid-free remission weeks gained from public healthcare payer and societal perspectives.

Methods

A two-dimensional probabilistic microsimulation Markov model with seven health states was constructed for children with moderate to severe Crohn's disease. Newly-diagnosed children with Crohn's disease aged 4-17 years who received anti-TNF- α treatment and other concomitant treatments, such as steroids and immunomodulators, within the first three months of diagnosis were compared to children with newly-diagnosed Crohn's disease who received standard care of steroids and/or immunomodulators with the possibility of anti-TNF- α treatment only after three months of diagnosis. The outcome measure was weeks in steroid-free remission. The time horizon was three years. A scenario analysis examined variation in costs of anti-TNF- α treatment. A North American multi-centre, observational study of children with Crohn's disease provided input into clinical outcomes and health care resource use. To reduce selection bias, propensity score analysis was used.

Results

From a public healthcare payer perspective, early intervention with anti-TNF- α treatment was more costly with an incremental cost of \$31,112 (95% CI: 2,939, 91,715) and more effective with 11.3 more weeks in steroid-free remission (95% CI: 10.6, 11.6) compared to standard care, resulting in an incremental cost per steroid-free remission week gained of \$2,756. From a societal perspective, the incremental cost per steroid-free remission week gained for early anti-TNF- α treatment was \$2,968.

Conclusion

While unknown, if a willingness-to-pay threshold was assumed to be \$2,500 per week in steroid-free remission, early intervention with anti-TNF- α would not be cost-effective. However, there is considerable uncertainty in the incremental cost-effectiveness ratio and many patients escalate to anti-TNF- α eventually. Therefore, restrictive policies on anti-TNF- α treatment access for pediatric Crohn's patients may want to be re-visited by decision makers.