



October 6th + 7th, 2021 | Virtual Conference

17TH ANNUAL CHILD HEALTH RESEARCH DAYS

# Nutrition for a Changing World

The Science of Nourishing the Next Generation

## CHRD 2021: Abstract & Poster Submission Form

### Submitter Name

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### Research Category:

- Basic Science
- Clinical
- Community Health / Policy

### What was your role in the project?

- Design
- Perform Experiments
- Analyze Data
- Write Abstract

### Presenter Status:

- Undergraduate Students
- Masters Student
- PhD Student
- Post-Doctoral Fellows
- Residents
- Non-Trainee

**Title**

The relationship between fetal renal size and function in early childhood within the NextGen birth cohort.

**Background**

The global prevalence of youth-onset type 2 diabetes has increased significantly over the last 20 years, with Canadian First Nations youth having the greatest burden of disease compared to other ethnic groups. Youth-onset type 2 diabetes targets the kidneys earlier in the disease. Interest is increasing regarding the potential of the disease starting in utero.

**Objective**

To determine the relationship between mid-gestation fetal renal size and albuminuria in early childhood.

**Methods**

This was a retrospective cohort study of First Nations children from the NextGen birth cohort. Children born since 2005 and exposed to maternal T2D in utero with stored urine albumin-creatinine ratios (ACR) between ages 1-6 years were eligible for inclusion. Post-processing measurement of fetal renal width and thickness was performed by two blinded and independent observers in a standardized fashion, and data linked to other fetal biometry, family demographics, birth information, and medical history in the NextGen database. Descriptive and inferential statistics were used to analyze results and compare outcomes between groups (normal versus abnormal ACRs).

**Results**

Of 104 children with stored ACRs, 71 had available fetal ultrasounds and 60 with exposure to maternal T2D for inclusion in the final analysis. Median fetal renal width and thickness were 10.8 mm [IQR 9.2-12.3] and 11.2 [IQR 9.8- 12.5] respectively. 9.6% of children had significant albuminuria by age 6. There was no obvious relationship between fetal renal size and ACRs in early childhood ( $p=0.356$ ), although these findings were limited by a small sample size.

**Conclusion**

While there was no obvious relationship between fetal renal size and albuminuria in early childhood, ~1 in 10 children at high-risk for future T2D and renal disease had abnormal ACRs already by age 6 years. Ongoing work is urgently needed to identify early predictors of childhood renal disease and develop effective prevention strategies to improve outcomes.

## Authors

- For each author, please click "[+] Add Item" and provide the author's information

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