

# CHRD 2024: Abstract Submission Form

**Presenter Name**  
Douglas Houlbrook

**Presenter Status**  
Non-Trainee

**Role in the project**  
Design  
Perform Experiments  
Write Abstract

**Research Category**  
Clinical

## **Title**

Pulse wave velocity is not associated with asthma, lung function or methacholine challenge in children

## **Background**

Previous asthma diagnosis has been demonstrated to be a risk factor for adult cardiovascular disease (CVD), measured using pulse wave velocity (PWV). Childhood and adolescent characteristics have been increasingly recognized as possible predictors of chronic diseases. We examined associations between asthma and PWV in the late childhood and early teen years.

## **Objective**

We planned to determine if asthma and PWV are associated in children as they are in adults.

## **Methods**

Children born in 1995 in Manitoba were enrolled in a nested case-control birth cohort study, The Study of Asthma, Genes and the Environment (SAGE). At age 12-13 years, participants underwent a clinical assessment to evaluate for asthma, spirometry, methacholine challenge (MCH), and PWV. We used Wilcoxon rank sum to examine PWV for children with and without clinical asthma, with PC20 above and below 4 mg/mL and 1 mg/mL cut points, and with FEV1 above and below a cut point of 80%.

## **Results**

Of the 288 children with MCH and PWV data, 132 females (46%), and 156 males (54%) completed all measures. Median PWV (m/s, interquartile range) was 7.60 (6.80-8.10). After adjustment for the presence of overweight or obesity and reported sex, PWV was not associated with asthma (odds ratio (OR) 0.97, 95% confidence interval (CI) 0.77-1.22), PC20 above versus at or below 4 mg/mL (OR 1.08, 95% CI 0.87-1.34), or FEV1 at or above versus below 80% (OR 0.79, 95% CI 0.60-1.02). PWV was comparable for children with (7.55, 6.70-8.05) and without (7.60, 6.85-8.10) asthma ( $p=0.61$ ), with PC20 above (7.60, 6.84-8.10) versus at or below (7.57, 6.74-8.10) 4 mg/mL ( $p=0.97$ ), and with FEV1 at or above (7.47, 6.75-8.06) versus below (7.78, 7.15-8.15) 80% ( $p=0.066$ ). PWV was higher for females with a PC20 above (7.50, 6.75-8.10) versus at or below (7.03, 6.24-7.57) 1 mg/mL, although the association was not significant ( $p=0.051$ ).

## **Conclusion**

We found no relationship between asthma diagnosis, FEV1, or PC20 and PWV at age 12-13 years, although examination of additional adjusted models and asthma at other ages, and further evaluation of gender are warranted.

**Do you have a table/figure to upload?**

No

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