

# MIS BAIR UPDATE

September 2023

We are excited to be sending you this update on the MIS BAIR trial!

## Where we're at

In 2022, it was great to see MIS BAIR kids completing their 5-year visits!

## Recruitment Fact

Over 400 MIS BAIR kids attended 5-year visits and with many also receiving a dental examination or cardiac examination!



## Please help us ensure our data is complete

We will shortly be inviting some MIS BAIR families to complete a brief (**one-minute**) follow-up survey to help us fill in important gaps in our 5-year dataset.

We understand that completing all the study surveys and visits was challenging, particularly during COVID, and therefore we may not have collected all the data about your child that we need to complete the analysis.

Knowing that a child did not have eczema, allergy, infections, or asthma is very important for determining the study outcome (as important as knowing that they did!).

We greatly appreciate your time to complete the survey and enable us to add this vital information to our dataset.

## Our Team

### Profile: Christie Noble



Dr Christie is a paediatric doctor from the UK. She has taken a break from her training programme in London to work on her PhD with our lab team in Melbourne.

As part of her PhD, she will be using blood samples from both MIS BAIR and the BRACE trial to look at how immune responses change with age and to investigate whether children and adults respond differently to BCG.

## Stay connected!

Check out our [MIS BAIR website](#) for study updates and results, as well as our contact details if you would like to get in touch with us.

# MIS BAIR PUBLICATIONS



## BCG reduces eczema in high-risk infants

- By 1 year of age, eczema was slightly lower in the BCG group (32%) than the control group (37%), but the difference was small
- When we looked specifically at babies with two parents who had a history of allergies, such as eczema or asthma, the effect of the BCG vaccine was more noticeable
- In this high-risk group, eczema was significantly less common in the BCG group (35%) than the control group (47%). This means that in the BCG group the risk of eczema was reduced by one-quarter

[Pittet et al. Allergy](#)



## BCG does not lower the risk of lower respiratory tract infection in the first year in babies born in Australia

- By 1 year of age, the incidence of lower respiratory tract infection was slightly lower in the BCG group (55%) than the control group (58%), but the difference was small
- This means that in high-income settings like Australia, there is not strong evidence to support BCG vaccination in babies to prevent lower respiratory tract infections in the first year of life.

[Messina et al. J Inf Dis](#)



## MIS BAIR Results Update

The team at MCRI have been busy analysing the MIS BAIR samples and survey data collected over the first year of life. Here is a summary of some of our key MIS BAIR findings to date.



## BCG induces long-lasting changes in immune cells

- We found that the BCG vaccine causes lasting changes in monocytes, which are an important type of immune cell
- This involves changes to the structure of DNA and the molecules that control the activity of genes related to how the body responds to viral infections. These changes are long lasting, even beyond 12 months after BCG vaccination in newborns
- This finding supports previous research that the BCG vaccine can provide general protection against certain viral infections in babies, adults, and the elderly

[Bannister et al. Science Advances](#)



## The early-life gut microbiome is linked to eczema in infants

- The early-life gut microbiome (the bugs that live our gut) play a large role in shaping and regulating the immune system
- We studied the connection between the newborn gut microbiome and the presence of eczema in MIS BAIR infants in the first year of life
- To do this, we studied poo samples collected at 1 week of age and looked at which bacteria were more or less common in those infants that were diagnosed with eczema by 1 year of age
- We found that the newborn gut microbiome differed in infants who developed eczema in the first year of life compared to those who did not

[Leo et al. Front. Microbiomes](#)



## MIS BAIR Publications

### What's next?

MIS BAIR will soon be publishing the 1-year allergy outcomes. Stay tuned!

