

1. What is the research project about?

The skin of babies does not usually act as a very good barrier to allergens, like dust and foods. These allergens may be able to get through the skin and cause a child to become sensitive to these substances. Eventually allergies like eczema, asthma and hay fever may develop in some children. Allergies are a significant health problem in Australia. We think that by actively building up a baby's skin barrier, we might reduce their risk of developing these allergies.

In this world-first study, we aim to see if using an emollient cream called EpiCeram™ on the skin of babies will prevent them from developing eczema and food allergy. If we can achieve this, it might reduce the risk of these children developing other allergies later on in life, such as asthma.

EpiCeram™ is a unique product that contains the major building blocks of human skin. EpiCeram™ may help restore skin barrier function in children with eczema. Normal moisturisers can help manage eczema, but they do not help restore the skin's barrier function. Steroid creams (such as cortisone) can lessen the skin inflammation caused by eczema, but also reduce the skin barrier, which is not helpful.

EpiCeram™ is very effective in treating eczema: it has a similar effect on the symptoms of eczema as a moderate strength steroid cream, without the unwanted side effects.

Medications and drugs have to be approved for use in Australia by the government. The EpiCeram™ cream used in this project has not yet been approved for general use by the Therapeutic Goods Administration (TGA). The use of this cream is considered experimental in Australia. The Food and Drug Administration in the United States of America has approved EpiCeram™ to *treat* eczema in babies; however, it has not yet been studied as a way of *preventing* babies developing eczema.

In our previous study of 80 infants, we found trends towards EpiCeram™ reducing risk of eczema and sensitisation to foods. We will now undertake a larger study to see if EpiCeram™ helps to prevent eczema and food allergy. A total of 760 newborn babies will take part in this project.

2. Who is funding this research project?

This project is fully funded by the National Health and Medical Research Council. Primus Pharmaceuticals, the company who makes EpiCeram™ cream, are supplying the cream free of charge, but will play no other role in this research.

3. Why is my child being asked to take part?

We are asking you because you expressed an interest in this project, you are either pregnant or have a newborn child, and you, your partner, or one of your older children, have an allergic condition. If you have reacted to any of the ingredients of EpiCeram™ cream in the past, we will not be able to enrol your child in this study.

4. What does participation in this research involve?

Study length

This study will be for one year (from the birth of your child until they turn one year old).

Randomisation

We will randomly put your baby into one of two groups. These will be the "cream group" and the "no cream group". This will be done by chance, similar to tossing a coin, so your baby will have an equal chance of being in either group.

Study treatment

If your baby is in the “cream group”:

- We will ask you to apply about 6 grams (a heaped teaspoon) of cream all over your baby’s skin, including the face and hands. This needs to be done twice per day until they are six months old. We will show you how to do this. It is best if you rub the cream into your baby’s skin at a regular time each day, particularly following his or her bath.
- We will ask you to record cream usage and any unusual signs/symptoms in the weekly online diary card we send you. This needs to be completed weekly for the 12-month study period.
- Please regularly check your baby’s skin for any possible reactions to EpiCeram™. If your child develops a rash, reddening or other changes in skin colour, swelling, dryness, itching, flaking (scaling) or the skin becoming tender to touch, please contact us so that we can organise a time for one of our doctors to examine your baby’s skin.

If your baby is in the “no cream group”:

- We will ask you to follow your normal daily routine in caring for your baby’s skin. If this includes the use of creams, oils (such as moisturiser or sunscreen), please make sure you record this information in the diary card provided.
- Record any unusual signs/symptoms in the weekly online diary card we send you. This needs to be completed weekly for the 12-month study period.
- Please regularly check your baby’s skin for any possible rashes. If your child develops a rash that concerns you, please contact us so that we can organise a time for one of our doctors to examine your baby’s skin.

Visits and Procedures

- **Appointment 1 (0-3 weeks):**

When your child is between one day old to three weeks of age, we will organise an appointment either at The Royal Children’s Hospital or on the maternity ward where you delivered your child. The appointment will take up to one hour in total. We will:

- Ask you and your partner to complete a questionnaire about your allergy symptoms that you or your older children experience, and about your home. This will take about 10 minutes.
- Ask you to complete a questionnaire about your baby’s birth. This should take about 10 minutes.
- Examine your baby’s skin to find out how well your baby’s skin acts as a barrier by placing a small device on your baby’s forearm and forehead three times each for around 10 seconds. This test is painless and non-invasive.
- Examine your baby’s palm lines.
- Give you an information pamphlet on how to prevent allergic disease in children, as endorsed by the Australasian Society of Clinical Immunology and Allergy (ASCI).
- Randomly assign your baby to the “cream” or “no cream” group.

Optional aspects of the study at appointment 1:

- Perform a heel prick test, like the new born screening test, to collect a small amount of your baby’s blood.
- Take a sample of your baby’s skin cells and skin oils by placing small sticky discs on their skin and reapplying. The cells and oils will be analysed to see if they predict development of eczema. These tests are painless and non-invasive.

- **Appointment 2 (6 weeks):**

6 weeks after the first appointment we will ask you to come to The Royal Children's Hospital for a 45-minute long appointment. We will:

- Examine your baby's skin to find out:
 - How well your baby's skin acts as a *barrier* (in the same way as during Appointment 1). We will also examine it for early signs of eczema and also check your baby's palm lines as per Visit 1.
- Ask you to complete a questionnaire on the skin treatments you may have used for your baby and how you have been feeling and coping with day to day life.
- Give you more cream if you are in the "cream group" and supply you with a pre-paid, addressed satchel to send back all used and unused tubes of cream at the 6-month timepoint.

Optional aspects of the study at appointment 2:

- If you are breastfeeding we will ask for a sample of approximately 10-20ml of your breast milk.
- Heel prick test as per Visit 1.
- Take a sample of your baby's skin cells and oils the same way as the previous visit
- Take a sample of your child's mouth microbiome (bugs or bacteria). The composition and diversity bugs in and on the human body are thought to possibly influence the risk of allergy. Taking this sample requires gentle swabbing around the mouth and takes around 2 minutes to perform and is also painless. The bugs will be analysed to see if they predict development of eczema and food allergy.
- We will ask you if you are willing to give permission for us to obtain information about your child's health care from the Department of Human Services and the Victorian Department of Human Services. We will provide more details about this at the time. This will entail a separate hard copy consent form.

- **6-month contact:**

When your baby is 6 months old we will contact you by phone or email. We will:

- Ask you to complete a questionnaire on the skin treatments you may have used for your baby.
- If your baby is in the cream group, we will ask you to return all the cream tubes (used and unused) to us via the supplied prep-paid and addressed post satchel.
- Provide you with the ASCIA guidelines regarding the recommended introduction of solid foods.

- **Appointment 3 (12 months):**

When your child is 12 months old we will ask you to come to The Royal Children's Hospital for the last 60-minute long appointment. During this follow-up appointment, we will:

- Examine your baby's skin using the same assessments described above for Visit 2.
- Ask you to complete a questionnaire on the treatments you may have used for your baby, and how much these treatments have cost you, and how you have been feeling and coping with day to day life.
- Do a skin prick test on your baby. This is an allergy scratch test to find out if your baby has a sensitivity to common substances (allergens) such as dust, cat hair, rye grass, and foods (milk, egg and peanut).

The test is done by placing drops of each substance on your baby's back and then gently pricking the outer layer of skin. If your baby has a sensitivity to the allergen an itchy bump will appear, much like a mild mosquito bite. We will measure any reactions to the substances after 15 minutes.

Please avoid giving your baby any medications that contain antihistamines (commonly used in cold or allergy treatments) for 72 hours before you come to the appointment, as these can interfere with the skin prick test. Please tell us if you have used an antihistamine within the three days prior to the test. The histamine used as a control prick and the allergens in this project have not yet been approved by the Therapeutic Goods Administration (TGA) in Australia. Therefore, their use is considered experimental here. The Department of Allergy at the RCH routinely uses allergens and histamine on children suspected to have allergic diseases. The allergens have been approved for use in Europe and are widely used there.

Children who are sensitised to certain foods during the skin prick testing will be offered an appointment to attend the allergy clinic at the Royal Children's Hospital where they will undergo a food challenge to determine if they are allergic to those foods. This will be conducted under the supervision of a Doctor who has been specifically trained to manage oral food challenges and you will be provided with detailed instructions prior to your appointment. This will be at no cost to you. These results will be recorded for the study.

Optional aspects of the study at appointment 3

- Finger prick test as per Visit 1, except the sample will be collected from the fingertip instead of the heel.
- Take a sample of your baby's mouth microbiome the same way as at appointment 2.
- Cheek swab sample. We'd like to collect a cheek swab sample from your child. We plan to use the sample to extract genetic material to study known and yet to be discovered genes involved in the development of allergy and lung disease, as well as for measuring proteins that are associated with allergies.

Your responsibilities

If you enrol your child into this study, you will be asked to attend an initial appointment when your baby is one day to three weeks of age (at either the maternity ward where you gave birth or at the Royal Children's Hospital), to attend two appointments at the Royal Children's Hospital (when your child is six weeks and 12 months of age) and to complete a weekly online diary card for the duration of the study. If your child is allocated to the cream group, you will be responsible for applying the cream twice per day until they are six months of age.

STUDY VISITS AND PROCEDURES

Procedures	Appointments and Surveys			
	SCREENING/Visit 1	Visit 2	Survey	Visit 3
Age (days/months)	One day – three weeks	6 weeks	6 months	12 months
Allergy questionnaire	✓			
Baby's birth questionnaire	✓			
Skin assessment	✓	✓		✓
Randomisation	✓			
Study cream dispensing	✓	✓		
Participant survey	✓	✓	✓	✓
Diary card		✓	✓	✓
Skin prick test				✓
Food challenge				✓
Optional Procedures				
Breast milk sample		✓		
Skin sample	✓	✓		✓
Heel/Finger prick test	✓	✓		✓
Cheek swab sample				✓
Oral microbiome sample		✓		✓

Other treatment

If you wish to do so, you may use any other creams, oils (such as moisturiser or sunscreen) on your baby's skin, except as noted in the 'before all appointments' section. Please make sure you record this information in the online diary card and if you are in the "cream" group, also continue applying the study cream daily.

Informing your GP

Please feel free to inform your GP that you are involved in this project, and that he or she may contact us to discuss your involvement on the contact details on page 9.

After the study ends

We would like to keep in contact with you at the end of the study. Please let us know on the consent form if you are happy for us to do so. We are not able to offer you any supply of the study cream after your child turns six-months of age as it is not yet approved for use within Australia and is only available for use during the six-month study period.

Withdrawal of study treatment

You may elect to stop applying the study cream at any time. If this occurs, we would ask you to let us know and to return all of the unused cream. Even if you decide to stop using the cream, we would still like to have you attend the follow-up appointments, if you are willing to do so.

5. Can my child stop taking part in the project?

Your child can stop taking part in the project at any time. You just need to tell us so. You do not need to tell us the reason why. If your child leaves the project we will use any information that we have already collected unless you tell us not to. If you would like us to delete the information we collect about your child, please contact us via email (pebbles-study@unimelb.edu.au) or phone (1800 875 127). However, once the data have been analysed and published, we will not be able to remove your child's information from these results.

6. What are the possible benefits for my child and other people in the future?

There may be no direct benefit to you or your baby. We will provide the best available advice on how to minimise the risk that your baby will develop allergic disease, as endorsed by the Australasian Society of Clinical Immunology and Allergy.

These strategies might reduce the risk that your baby develops eczema, hay fever and asthma. If your baby is in the "cream group" the use of the cream may further reduce the risk of eczema and food allergies. We hope that our research will benefit other people in the future by providing a new cream for the prevention of eczema.

7. What are the possible risks, side-effects, discomforts and/or inconveniences?

There is a small risk that your baby's skin will not be able to tolerate the cream and a rash will develop. We believe this is unlikely as the cream contains the major building blocks of human skin, and this did not happen to any child in our previous study. If a reaction happens, we will ask you to come to The Royal Children's Hospital so that one of the study dermatologists can examine your baby's skin and establish the best way to manage this rash. This will be at no cost to you.

There are also no major risks associated with the heel or finger prick test. There is a slight risk of bruising and infection, but this is quite rare. This test is performed on almost all newborns and may cause slight discomfort. The skin prick test is not painful but it may cause discomfort, as it can cause a bump that is

itchy for about the first 15 minutes. These bumps go down within an hour or two. We will tell you how to manage the itch if your baby is distressed. Skin prick tests are very safe, but there is a small risk (about 1 in 10,000) of a serious allergic reaction. If this occurs the reaction will be treated immediately with the appropriate medicines.

The food challenge will only be performed on children who exhibit signs of sensitivity to a certain food. If your child does require a food challenge, this will occur at a separate appointment at the Royal Children's Hospital and you will be provided with detailed instructions beforehand. This challenge will be closely supervised by a Doctor who has been specifically trained to manage oral food challenges. There is a risk of allergic reaction with oral food challenges. The reaction may be mild (rash, facial swelling, vomiting, diarrhoea, tummy pain) or severe (involving breathing problems or low blood pressure or collapse). If this does occur your child will be treated immediately with the appropriate medication. This visit will be at no cost to you. Very rarely patients may die as a result of an allergic reaction.

There are no major risks associated with the cheek swab test. The genetic analysis to be undertaken in this study is for medical research and is not the same as a clinical genetic test. We will not be giving any results or information from the genetic analysis. The genetic analysis does not involve information that is relevant to your child's future health.

There are also no risks involved with the oral microbiome test; it is painless and involves a gentle swabbing around the mouth.

All the other tests involved in this project cause no pain and have no known risks or side-effects. The study may involve unforeseen risks. If any new information about risks and/or side effects becomes known during the project, we will tell you what they are.

The cost associated with travel may also be an inconvenience. When you arrive at our clinic we will provide you with a voucher to pay for your parking as you exit the car park. The time taken to complete a survey and bring your baby to The Royal Children's Hospital for up to three appointments (depending upon where you have your initial appointment) may also be inconveniences.

This project needs you to follow a set of strategies to help prevent the development of eczema. This may take a small amount of additional time in the care of your baby each day which could be an inconvenience.

8. What will be done to make sure my family's information is confidential?

In this study we will collect and use personal and health information about your child for research purposes. We can disclose this information only with your permission, except as required by law. We will store your child's information securely at the University of Melbourne (UoM). We will store the electronic information on secure databases. We will store the physical information in a locked filing cabinet.

We will manage your child's information like any other health data collected by your child's doctors. The following people may access your child's information as part of this research project. The:

- research team involved with this project
- RCH Human Research Ethics Committee
- Therapeutic Goods Administration.

If other people want to access your child's information, they must be given permission by us. Your child's information will be identifiable by researchers at the UoM. This means that your child's name and other personal details will stay on the information while it is used at the UoM. However, we will de-identify your child's information before we send it to the research team in other Australian hospitals or to the Therapeutic Goods Administration.

Skin oil and cells, breast milk, blood spots, oral microbiome and cheek swab samples will be stored securely at the Murdoch Children's Research Institute Biobank Facility, Royal Children's Hospital.

We would like you to consider allowing us to store and use your breast milk and your child's blood spot, cheek swab and oral microbiome samples and skin oil and cell samples and data for future allergy-related research. Any future research project will be approved by an Ethics Committee. The samples will be kept indefinitely if you give your permission. If you consent to us using these samples and data for future research, it is likely that we will send these samples and data to other states and overseas to be analysed in the laboratories of our collaborators. Our collaborators will make sure that this information is kept as confidential as possible. Any samples and data that we send will be labelled with your child's code number only. It will not be possible for the testing laboratories to identify you or your child from their sample. Any samples and data sent overseas are not protected by Australian laws and regulations. Please tick the box on the consent form if you agree to allow this or not.

As the participants in this project are under 18 years old, information will be kept at least until the youngest participant turns 25 years old.

You have the right to access and correct the information we collect and store about your child. This is in accordance with relevant Australian and/or Victorian privacy and other relevant laws. Please contact us if you would like to access this information.

We will present these results at scientific conferences and publish them in scientific journals. The results will not identify any individuals and will show only group information.

9. Will we be informed of the results when the research project is finished?

At the end of the project we will send you a summary of the project results. The summary will be about the whole group of children who took part in the project.

In the meantime, we will send you an annual project newsletter to know how things are progressing.

10. What happens if my child is injured during the project?

If you suffer any injury or complication as a result of this research project, contact the study team as soon as possible. The study team will help to arrange appropriate medical treatment for you. If you are eligible for Medicare, you can get medical treatment to treat the injury or complication as a public patient in any Australian public hospital at no cost to you.

11. Will my child be able to claim compensation if injured?

In the unlikely event that your child suffers an injury as a result of taking part in this project, hospital care and treatment will be provided by the public health service at no cost to you.

If you would like more information about the project, please contact the Study Coordinator:

Name: Shaie O'Brien
Contact telephone: 1800 875 127
Email: pebbles-study@unimelb.edu.au

If you have any concerns and/or complaints about the project, the way it is being conducted or your rights as a research participant, and would like to speak to someone independent of the project, please contact:

Director
Research Development & Ethics
The Royal Children's Hospital Melbourne
Telephone: (03) 9345 5044.

