The ECHO Project
(Echocardiogram)

He Manawa Ora
Healthy Hearts Study
Ko wai matau?

TE KAOKAO O TAKAPAU … We are a Health & Disability Service based in Taneatua (Eastern Bay of Plenty)

In 1992, a Hui-a-Iwi set up the Tuhoe Matauranga Trust to develop education resources and initiatives for Ngai Tuhoe.

We provide services not only people with a disability but others from infancy to old age.

Te Kaokao O Takapau is community based and whanau focused.

We work from a base in Taneatua but go into homes, Kohanga Reo, Kura, Marae and other Community Centres.

Our Aim: To provide health and disability services to meet the cultural & health needs of whanau in the Eastern Bay of Plenty.
Kei hea matau e mahi ana?

TANEATUA

ROHE POTAE O TUHOE

Ruatahuna Maungapohatu

Waiohau Waimana Ruatoki
What was the ECHO PROJECT?

He Manawa Ora
Healthy Hearts Study

- A Collaborative project where Te Kaokao o Takapau coordinated and managed 300 children for an Echo Screening Project.

- Nine schools from Te Rohe Potae o Tuhoe were involved.

- The Healthy Heart Study was carried out on children, mainly 9 – 12 year olds to check for undiagnosed RHD (Rheumatic Heart Disease).

- The Healthy Hearts Study (Echocardiography or the ECHO PROJECT) took place in April and May 2010.
What is an ECHO SCAN?

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Healthy Hearts Study

Echocardiograms observe heart contractility, valve shape.

Echocardiograms detect physiological trivial and significant valve leaks some audible, some only detected on cardiac ultrasound.

Since 2006 echocardiogram has been used as one of the first line assessment tools in the diagnosis of Acute Rheumatic Fever (ARF).

Echocardiogram has had a profound impact on the diagnosis and follow-up of children and young people with rheumatic fever picking up both major and minor specific changes.
Echo cardiograms

Echocardiographs showing the four chambers and flow through valves
Why did we become involved?

In 2009 Hopaea presented with silent RHD (Rheumatic Heart Disease) without fever, arthritis, chorea or acute carditis.
Hopaea ... July 2009
In hospital waiting for open heart surgery to either REPLACE (worst case scenario) or REPAIR two leaking valves
Hopaea with her māmā Hana, waiting to be admitted into Starship

- No sore throat
- No arthiritis
- No rash
- No nodules or chorea
- Heart and Liver Large
- Heart beat in arm pit
- In heart failure
- Silent rheumatic heart disease 2 valves leaking
- Surgery on 2 Valves 2 weeks later
October 2009

₽ Hopaea in Starship Hospital ICU after successful surgery

₽ Surgery repairs two valves
Hopaea’s ZIPPER

- Enalapril (Medication) for muscle
- Heart size normal
- Kua hiakai ano ia (Appetite back)
- Kei te piki te ora (Energy levels high)
- Kei te hikoi haere (Moving around)
- He manawa kaha ano. (Heart strong)
September 2009
X-ray showing Hopaea’s enlarged heart

October 2009
X-ray of Hopaea’s heart after surgery at Starship Hospital
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July 2009
Hopaea at Whakatane Hospital
(Before surgery)

October 2009
Hopaea performing at the National Kapa Haka competition
(8 weeks after surgery)

May 2010
Hopaea’s 12th birthday
More reasons why we became involved …

Acute rheumatic fever and rheumatic heart disease are serious problems in **Maori & Pacific populations** (especially children) in the Bay of Plenty.

**90% of all cases** in the Bay of Plenty are **Maori**.

The annual incidence of acute rheumatic fever in the Bay of Plenty District Health Board is **nearly three times** the NZ rate.

Maori and Pacific children in the Bay of Plenty presenting with sore throats are at high risk of group.

Parts of the Eastern Bay of Plenty, particularly Opotiki, Kawerau, Murupara and Whakatane have among the **world’s highest** recently documented rates of **acute rheumatic fever in children aged five -14 years**.
More reasons why we became involved...

Rheumatic heart disease (RHD) is well known to Ngai Tuhoe[1] and Ngati Manawa.

Maori are affected 7x the Pakeha rate)[2]

Rheumatic fever licks the joints and bites the heart. It follows a Group A Streptococcal GAS throat infection 2 weeks later with fever, transient arthritis and heart valve changes which for 60% stay.

Maori and Pacific children living in relatively deprived areas are at highest risk

Rheumatic heart disease (RHD) kills 45 New Zealanders each year causing more deaths than from Cervical Cancer.

Put another way ...

☠️ A child from **Ruatahuna & Murupara** has a **1 in 39** chance of developing Acute Rheumatic Fever during their childhood (between 5-14yrs)

☠️ A child in **Opotiki** has a **1 in 70** chance of developing Acute Rheumatic Fever during their childhood

☠️ A child in **Whakatane and Kawerau** has a **1 in 90** chance of developing Acute Rheumatic Fever during their childhood

☠️ Nationwide, a **NZ European** child has a **1/10,000** chance
In a Bay of Plenty & Lakes District Health Board Audit these were the notifications of Acute Rheumatic Fever from 1999-2007

<table>
<thead>
<tr>
<th>Area</th>
<th>Total no. of cases</th>
<th>No. of Māori cases</th>
<th>No. of non-Māori cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opotiki</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Kawerau</td>
<td>11</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Whakatane</td>
<td>41</td>
<td>38</td>
<td>3</td>
</tr>
<tr>
<td>Rotorua</td>
<td>42</td>
<td>36</td>
<td>6</td>
</tr>
<tr>
<td>Tauranga</td>
<td>20</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Taupo</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Western Bay</td>
<td>14</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Lakes DHB</td>
<td>49</td>
<td>43</td>
<td>6</td>
</tr>
<tr>
<td>BOP DHB</td>
<td>98</td>
<td>87</td>
<td>11</td>
</tr>
</tbody>
</table>
What is Acute Rheumatic fever (ARF)

- Immune response to Group A Streptococcus (GAS) infection

- Latent period ≈ it can sit in your body un-noticed for 3 weeks

- Acute Rheumatic Fever causes inflammation of the heart, joints, brain and skin

- The disease mostly affects children 5-14 years

- Once you have the disease it can reoccur until you are aged 45 years
Acute Rheumatic fever (ARF)

- Which strains? Which people?
- 50–60% children with rheumatic fever get clinically apparent heart disease
- 10–20% children with rheumatic fever get permanent serious heart damage
- Streptococcal sore throats are very infectious with up to 50% risk in siblings in a household.
- A streptococcal infection which, if left untreated, can lead to acute rheumatic fever and chronic rheumatic heart disease.
Anatomy

- Sore throat
- Rash, Marginatum
- Chorea moves!
- Valves, Nodules
Echo cardiograms

*Dr Nigel Wilson*

To date, many cases of rheumatic heart disease have been diagnosed with a stethoscope, but these pick up the worst cases only. There is no other heart disease where you wouldn't use an echo.
### Cost comparisons from Dr N Wilson
**Current vs Rheumatic Heart Disease screening**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cost (per person screened)</th>
<th>Cost (per case diagnosed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical cancer 1</td>
<td>$69</td>
<td>$7000</td>
</tr>
<tr>
<td>Breast cancer 2</td>
<td>$224</td>
<td>$37,965</td>
</tr>
<tr>
<td>Newborn hearing</td>
<td>$25</td>
<td>$8,868</td>
</tr>
<tr>
<td>Rheumatic Heart Disease South Auckland</td>
<td>$230</td>
<td>$3200 approx</td>
</tr>
<tr>
<td>Rheumatic Heart Disease East Coast</td>
<td>$60</td>
<td>$1500</td>
</tr>
</tbody>
</table>
Can Rheumatic Heart Disease be prevented?

Heart YES

It can be prevented by appropriate sore throat management.

Sore throats can break a heart!

Nau mai, haere mai ki a matau hoa mahi …
He Manawa Ora
Healthy Hearts Study

ECHO PROJECT
THE ECHO PROJECT

Whole Community Approach & Involvement

300 Children, their schools & communities participated

Te Kura Kaupapa Maori o Waiohau (Waiohau)
Te Kura Mana Motuhake o Tawhiuau (Murupara)
Murupara Primary (Murupara)
Te Wharekura o Ruatoki (Ruatoki)
Te Wharekura o Huiarau (Ruatahuna)
Taneatua School (Taneatua)
Te Kura o Matahi (Matahi)
Waimana School (Waimana)

He mihi nui ki nga whanau, ki nga kura, ki nga tamariki o enei hapori
A Whanau Ora Approach … Working collaboratively

Dr Nigel Wilson
as part of his Research Fellowship & the Starship Hospital

Local & Auckland Echocardiographers

Dr John Malcolm
with the Paediatric Team & Disability Support services

Te Kaokao o Takapau Health & Disability Service

Nurses from Murupara, Opotiki, Whakatane and Ruatahuna

The Dream Team

Primary Health Organisation
How did we implement the ECHO PROJECT

OUR EASY STEP BY STEP GUIDE ...

1. Check it out
2. Invite ‘em
3. Bring ‘em on board
4. Pick ‘em up
5. Kai time - Feed ‘em
6. Trap ‘em
7. Hook ‘em
8. Adopt, adapt or lose the crap
9. Go for it!
10. Pat or Smack?
STEP 1: CHECK IT OUT

❤️ IDENTIFY THE NEED
❤️ To reduce acute rheumatic fever rates in Maori and Pacific young people (5-14 years) to European levels by 2020

❤️ IDENTIFY THE TARGET GROUP
❤️ Children in the Eastern Bay of Plenty between the ages of 9-12 years of age

❤️ IDENTIFY THE BEST PEOPLE TO WORK WITH
❤️ Starship Heart Specialist Dr Nigel Wilson; Whakatane Paediatrician John Malcolm; Te Ao Hou PHO, Te Kaokao o Takapau; Schools in Ngai Tuhoe rohe, Toi te Ora Public Health and BOPDHB, communities from each of the areas

❤️ HAVE A PLAN
❤️ Set up two clinics to take echo scans of 300 children from throughout Te Rohe Potae o Tuhoe
STEP 2: INVITE ‘EM IN

KANOHI KI TE KANOHI (Face 2 Face)
This works best in our communities, rope in people that are known in their community. Constantly turn up on their doorstep till they agree to come just to get rid of you

INFORM THEM
Give them information about the Project. Walk them through. Answer questions. Know your stuff!

BRIBE, BEG, BORROW, BULLY
Groveling sometimes works, so does kai, threaten to tell their Nanny or just use the next tactic …

GUILT WORKS
Your Nanny / Koro / Papa / Aunty / Best friend told me to come and see you
STEP 3: **BRING ‘EM ON BOARD**

❤️ It’s no good starting if they aren’t on board the same WAKA.

❤️ You have to let them see the benefits

❤️ They have to WANT to be part of the project and see their ROLE in it.
STEP 4: PICK ‘EM UP

In our community transport is a problem ..

💖 We want ‘em?
💖 We go get ‘em!
STEP 5: FEED ‘EM

Manaaki Tangata

FOOD is always a draw card
STEP 6: TRAP ‘EM

If they are eating they are in ONE PLACE
You have a CAPTIVE audience
STEP 7:  HOOK ‘EM IN!

Sell the concept.
It has to be something they think ...

❤️ they WANT
❤️ they NEED
❤️ they can OWN
❤️ Something that will get them somewhere/something ...
STEP 8: ADOPT, ADAPT, LOSE THE CRAP

Stay REAL
Keep it SIMPLE
Be PRACTICAL
ADOPT what WORKS
ADAPT what you know could work to fit the project
LOSE what is too IMPRACTICAL
There is no need to go overboard
Don’t promise what you can’t deliver
They will KNOW when you’re all “plaque”

Promise them this

Deliver this
STEP 9: GO FOR IT! RUN WITH IT!

- HEAR what your people are saying
- SEE what they are doing
- SPEAK to your people

Teach them about COMPROMISES

hear  see  speak
STEP 10: PAT THE BACK OR SMACK THE HAND?

❤️ Time to take stock
❤️ Work out what worked well (WHAT ROCKED?)
❤️ Work out what didn’t (WHAT SUCKED?)
❤️ How can we make it better?
❤️ Pat yourself on the back for a job WELL DONE
❤️ ACKNOWLEDGE EVERYONE INVOLVED
A Collaborative project where Te Kaokao o Takapau coordinated and managed 300 children for an Echo Screening Project.

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A Healthy Heart Study was carried out on Eastern BOP children, mainly 9 – 12 year olds (school years 6, 7, 8), to check for undiagnosed RHD (Rheumatic Heart Disease).

The Healthy Hearts Study (Echocardiography or the ECHO PROJECT) took place in April and May 2010.
Te Kaokao o Takapau

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