



Caring for hearts of the Pacific

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Our vision is to extend lifesaving cardiac care to children born in our neighbouring countries of the Pacific.

**Mission Report for Paediatric Cardiac Surgical Mission
Wednesday, 22nd February – 6th March 2023
at Sri Sathya Sai Sanjeevani Children's Hospital
Suva, Fiji**

The Hearts4Kids Trust is a New Zealand volunteer medical team who provide free-of-charge lifesaving services to Paediatric patients born with congenital heart disease. There are limited children's heart surgery facilities in the Pacific Islands. Our aim is to treat children with congenital and rheumatic heart disease who would not otherwise have access to surgery, due either to being too unwell to travel to an overseas facility or without the resources to be transferred. This was the sixth time our Hearts4Kids Paediatric Cardiac Surgical team have visited Fiji since 2014.

Preparation for the mission

At the prior request of the Fijian Paediatricians we arranged our surgical trip early for 2023 to spread the volunteer cover for the Paediatric Cardiac Services provided to Fiji over the year - with the Indian team scheduled visit in December 2022 and a team from the United States scheduled for April 2023. With dates set for our visit to be in February/March 2023, arrangements quickly got underway, there is always a lot to organize. Once again financial sponsorship was sought, and requests made for medical equipment and supplies by donation, reduced cost, loan or purchase. We were very appreciative that companies and organisations responded so promptly. There was not enough time to arrange large fundraising events, however, teams worked hard and various activities were undertaken. In December most of the equipment and supplies necessary for the mission were itemized, boxed, packed on pallets, and made ready for shipping by container to Fiji. The container left the warehouse on 3rd February and arrived safely in Suva on 13th February. This year a team of 38 volunteers were on the mission, with some staying for a shorter period of time and others coming up to replace them.

Hearts4Kids Paediatric Cardiac Team

| Designation | Numbers |
|---------------------------------------------|----------------|
| Paediatric Cardiac Surgeon | 1 |
| Paediatric Cardiologist | 2 |
| Cardiac Surgical Registrar | 1 |
| Anaesthetist | 2 |
| Anaesthetic Registrar | 1 |
| Intensivists | 1 |
| Perfusionists | 1 |
| Anaesthetic Technicians | 2 |
| Theatre Nurses | 4 |
| PICU Nurses | 10 |
| Ward Nurses | 8 |
| Clinic Nurse – Admissions/Pre-op/Discharges | 1 |
| Mission Co-ordinator | 1 |
| Support Volunteers | 3 |
| Total | 38 |

Pre-operative Phase

Triage clinics were held in early February in Suva and Lautoka by Dr John Wright, Consultant Paediatric Cardiologist, to identify potential patients for the Hearts4Kids visit. A total of 23 children were reviewed carefully and data collected for discussion with the surgeon and anaesthesia team. From that data some were excluded, others were held for later visiting teams, but many were considered good surgical candidates and they were invited to the Preoperative Clinic on 22nd/23rd February.

Arrival in Fiji - 21st & 22nd February 2023

Drs John Wright and Kirsten Finucane held a clinic at Sanjeevani Hospital with Dr Maryanne Koraai, Consultant, Colonial CWM Hospital in Suva, and echocardiographer Gunesh and around 10 patients were reviewed each day. One or two could not come due to intercurrent illness, one family came but refused surgery for a pacemaker, and another two children with Tetralogy were found and added to the group to be done. We chose a total of 15 with one standby case, and worked out a tentative operating list for the next two days. Bloods were taken and relatives arranged to donate 2 units of blood for each child.

On 22nd February while the clinics were underway the team unpacked the container of supplies and set up ready for operating the next day.

Operative (24th – 28th February 2023) and Early Post-operative Phase

13 operations - 11 open heart and 2 thoracotomies, were performed over the 5 days, with the theatre team working from 7am until 10pm each day.

The children's ages ranged from 4 months to 12 years, with 5 males, 2 had been premature and 2 with probable mild syndromes.

Diagnoses included 5 with Tetralogy of Fallot, 4 with ventricular septal defects including one with additional severe mitral regurgitation and another with LV noncompaction. There were also two with large patent ductus one of whom had a mild coarctation and mild aortic stenosis. There was one with a primum atrial septal defect, and one with rheumatic mitral valve regurgitation.

Many of these children had been in and out of hospital with chest infections, heart failure or low oxygen levels, and the 4 older tetralogy children had all had spells and limited exercise tolerance for years, one of whom (age 10) could barely walk across a room and had to be carried into school each day, yet still excelled at her classes.

The operations went without complications except for the mitral valve surgery where the 12-year-old's left ventricle had severe impairment at the end of the 2.5 hour bypass run, and although the mitral repair looked technically good we had to reopen the sternum after closure due to a low output state, increase the inotropes to improve blood pressure, and leave the chest open for 24 hours. It was closed uneventfully the next day in PICU and the boy made steady progress from then on, and we hope will make a full recovery over the next weeks and months.

Some of those who had Tetralogy repairs required chest tubes for drainage for up to 7 days, but all drains could be removed prior to the team's final day in Suva.

There are two small infants with good repairs but with valve/arch lesions that will probably require surgery in future years.

Two young men aged 15 and 20 had their surgery cancelled after the initial plan to do them because we discovered an equipment issue that was unsolvable in a short time (lack of the appropriate sized internal defibrillator paddles). We are making plans as to how these operations can go ahead in the next few months, either during an adult team operative visit or with transfer to New Zealand and funding through ROMAC.

Summary of Procedures

| Bypass procedures (##) | |
|------------------------------------|-----------|
| Tetralogy of Fallot repair | 5 |
| Ventricular septal defect | 4 |
| Atrial septal defect | 1 |
| Rheumatic mitral valve repair | 1 |
| Non-Bypass (#) | |
| Patent ductus division or ligation | 2 |
| Total | 13 |

Of the 13 patients, 3 were referred from Lautoka, 1 from Lambasa, and 9 from Suva (one of these being from the Solomon Islands).

Domiciles of Patients

| | |
|-------------------|---|
| Central - Suva | 8 |
| Northern - Labasa | 2 |
| Western - Lautoka | 2 |
| Eastern - Levuka | 0 |
| Solomon Islands | 1 |

Quality Initiatives

Debrief: On the day after operating finished (1st March 2023) there was a full team debrief, with minutes taken, where we discussed pre, peri and post-operative issues that arose and suggestions for future improvements. In all, the team were very positive about the building and the facilities, and the provision of food and transport for the team members. In summary most team members were keen to return, albeit at a different time of year and with a wish to find better sponsorship to reduce the need for individual fundraising.

Feedback: Following that meeting the senior members met with the Sanjeevani team to give feedback and also to get feedback on the visit. Many good points were made and there is definitely room for improvement on our side with regards to education of local nurses and being receptive to current policies that have been set up to work across all visiting teams.

Teaching and Education: This is one area that we were not able to do as well as we would have liked to due to the lack of time initially, familiarising ourselves with a new place and protocols, and also handling an unusually complex set of patients. Very few had much leeway to be used as teaching cases, although there are probably ways in which we could improve our involvement of the local staff, even to perform part of the care of the patient rather than just to observe. There were only one or two pen-drives handed out and no certificates of care or formal teaching sessions that we have usually done, due to the extra load of patients in the PICU. Ward nurses were borrowed to help nurse these infants.

Audit: Sue Brett and Kirsten Finucane demonstrated to the Sanjeevani leadership team and to Dr Maryanne Koraii how the World Database can be used to collect data, organise it and produce yearly reports of the outcomes with a comparison to the overall World database figures. This type of audit is mandatory for most western institutions and joining the World Society will give free access to insert data for Sanjeevani. Kirsten will look further into how the process could be started, check that other surgeons agree, and then help set up the practical steps to achieving this.

Clinics: Dr John Wright made visits to Lautoka and Lambasa, and Dr Jascha Kehr to CWM, Suva, during the team stay. The aim was two-fold - to do clinics for new patients (24) and to follow-up patients who had surgery in previous years. The purpose of the follow-ups was to develop an accurate record of long-term outcomes. There were difficulties persuading well patients to travel long distances into the hospitals, and difficulties in finding the medical notes, particularly in Lambasa where flooding had damaged the storage area for Medical Records. Face to face follow-up occurred for 20 patients and notes review of a further 15, so we now have data on nearly 50% of the 78 children done by our team in the five visits from 2014- 2019.

Post-operative Phase

By 6th March all children had recovered well enough to be discharged, although some were having a daily clinic check, physiotherapy and dietary input was ongoing.

Dr Maryanne Koraii (CWM), Helen Bailey (Sanjeevani Nurse Manager) and the local team were closely involved in the Final Rounds and checks to ensure continuity of care, and the paediatric team also gained bedside teaching from the specific cases and their particular issues.

* * * *

This was the sixth visit to Fiji since 2014 and the Hearts4Kids Paediatric Cardiac Surgical team has now performed heart surgery on 91 patients (babies, children and young adults with congenital heart defects). Outreach Clinics have also improved the lives of many children and their families in villages across Fiji.

Acknowledgements

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- Spectrumed
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- Starship Children's Hospital
- Stryker
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- USL Medical

Thanks to all our sponsors, for donations large and small

– we couldn't do this without you!