

# Pacific Biomedical Network Meeting

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5<sup>TH</sup> PACIFIC BIOMEDICAL NETWORK (PBN) MEETING,  
29<sup>th</sup> – 31<sup>st</sup> May 2023, Nadi, Fiji

## Agenda Item N°3.2

### The Fiji Oxygen Project

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#### 1. BACKGROUND

The Fiji Oxygen Project (FiO2) has made significant strides since its inception in 2014 as a project conceived between the Fiji Ministry of Health, the University of Auckland, Azimut 360, and Cure Kids. With funding from MFAT, DFAT and Rotary, the Project has worked towards establishing sustainable access to oxygen in healthcare facilities throughout Fiji. The primary objective of the project is effective management of hypoxemia in children and adults afflicted with pneumonia and other respiratory ailments. To achieve this, the initiative has complemented existing supply methods with innovative oxygen supply and delivery technologies, such as the installation of oxygen concentrators, pulse oximeters and solar systems in facilities facing unreliable power sources, ensuring more reliable availability of oxygen. The project encompasses biomedical capacity building activities aimed at strengthening the workforce. Over time, the Project has experienced growth, currently involving the collaboration of more than 20 local and international personnel, who collectively contribute to its day-to-day operations.

#### 2. PROGRESS AND ACHIEVEMENTS

Since the first pilot exercise in 2016 at Nausori Health Center, the FiO2 biomedical team have achieved the following milestones:

##### 2.1 Oxygen Equipment and Solar System

- Distributed and installed **254** oxygen concentrators (OCs), over **100** pulse oximeters, and other oxygen-related equipment, covering 44% of health facilities across Fiji. There are 50 new oxygen concentrators in stock awaiting distribution to increase our coverage of facilities with full oxygen availability.
- Continual technical assessment of health facilities to identify those that need immediate assistance with the provision of solar power.
- Development of a pathway and support for domiciliary oxygen therapy.

## 2.2 Trainings/Capacity Building and Oxygen Biomedical Team Setting

- Provided training to over 1400 clinical staff members, enabling them to utilize and maintain oxygen concentrators to treat a total of over 50,000 patients.
- Attained online and in-house service training for over 20 biomedical technicians, equipping them with the skills and knowledge necessary for proper servicing and maintenance of oxygen concentrators.
- Attained theoretical/hands-on training for biomedical engineers, biomedical technicians and electricians on detailed technical health facility assessments and solar system sizing, installation, verification, operation and maintenance.
- Facilitated the installation of 12 solar systems in health facilities that previously faced challenges with stable power supply, to ensure a continuous power source, allowing clinicians' continuous ability to utilize oxygen concentrators and other essential medical equipment. These include the electrification and or repair of solar systems of some staff quarters to guarantee minimum power supply (to reduce staff turnover and so improve health care).
- Established the Project Team - Between 2016 and 2020, the FiO2 project was assigned a limited number of sites within its scope, which required a project team comprising one on-site biomedical engineer, one to two consultant engineers from Azimut 360 depending on project requirements, and a nurse coordinator. However, in response to the effects of the COVID-19 pandemic, the team expanded to now twenty personnel, both local and international. This growth has resulted in a notable transformation of the technical team, which now consists of four biomedical technicians, two biomedical engineers, and one international consultant.

## 2.3 Research and Policy development

- Collection of routine maintenance data and training data - will assist in preparation of a technical paper to describe experiences with oxygen and the sustainability of oxygen concentrators and other supply methods in Fiji.
- The formation of the Oxygen Policy – Currently undergoing its consultation phase, the Goal of the Oxygen Policy is *“To reduce mortality and morbidity from hypoxic illnesses in Fiji by improving access to appropriate oxygen therapy. The vision is that no Fijian should die because of lack of medical oxygen treatment.”*

## 3. CHALLENGES

### 3.1 Accessibility and Logistics

A significant challenge faced by the Project team pertained to logistics in terms of transport, particularly in accessing health facilities located in remote areas. This impacted the objective of doing rounds of maintenance and audits plan per two quarters in our annual operation plan.

### 3.2 Workshop Space & Storage of Equipment

The provision of suitable workspace for the biomedical division poses a considerable challenge that requires improvement. Some divisions have chosen to develop a comprehensive plan to establish dedicated workshop areas. Currently, this initiative is still in

progress, pending approval from the Divisional Heads for the implementation of the workshop space.

### **3.3 Biomedical Capacity Building Needs**

The biomedical team currently engaged in the Oxygen Project has encountered some issues concerning their training requirements. To accurately identify the essential training needs, a comprehensive analysis of the teams' curriculum vitae (CV) was conducted, revealing the following areas of training necessity: Inventory & Data Management, Biomedical Devices Operations and Maintenance and Computer Literacy.

### **3.4 Equipment management and tracking**

Effective distribution of respiratory treatment equipment to health facilities in Fiji is vital both for the COVID-19 response and for Universal Health Coverage (UHC) outside a pandemic surge. The problem is that current asset tracking systems do not give enough reliable information on the location of equipment to support effective (re)distribution. Similar challenges apply to other vital equipment. The consequences of this are that equipment is lacking in some facilities and sitting unused in others, leaving patients and populations at risk. The need is for a means of tracking the location of key equipment so that distribution is transparent, and redistribution can be actioned when needed.

## **4. FUTURE DIRECTIONS**

Moving forward, the sustained operations of the FiO2 project will require a collaborative effort encompassing the following strategic measures:

**Integration of project personnel into MHMS:** A pivotal step towards establishing the Fiji Oxygen Program involves integrating the Project personnel into the Ministry of Health and Medical Services (MHMS) workforce, ensuring that they have the required training for their continued involvement and commitment to be part of the MHMS biomedical engineering team.

**Adoption and operationalization of the National Oxygen Policy:** With a National Oxygen Policy in place the biomedical team will have the mandate and support in place to continue adherence to the vision that no person should die due to lack of oxygen in Fiji.

**FiO2 Steering Committee oversight:** It is critical the ongoing work related to improved access to oxygen continues to be led and directed by the FiO2 Steering Committee, chaired by Dr Luke Nasedra and Dr Eric Rafai (MHMS)

**Research outputs and dissemination:** The research and technical teams are working together on producing research outputs which will assist in decision making. These include a technical report to analyze procurement, maintenance and repair data collected for oxygen equipment to understand most effective and efficient equipment, alongside a narrative experience study using qualitative interviews and community conversations with health and project staff of experiences with oxygen during COVID-19 in order to extract proposed solutions for improved access to oxygen in the Fijian health system from healthcare professionals, including synthesising feedback on the National Oxygen Policy.

By diligently adhering to these strategic components, the FiO2 project aims to secure the long-term sustainability of medical oxygen provision and usage throughout Fiji's healthcare system.