Rehabilitation Resources for Micronesia
November 2016 – April 2018
Final Report

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WHO Collaborating Centre in Health Workforce Development in Rehabilitation and Long Term Care

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Executive Summary

Purpose / Specific Objective of the Activity

The overall purpose of this Activity of the WHO Collaborating Centre in Health Workforce Development in Rehabilitation and Long Term Care (WHOCC – HWDRLTC) for Western Pacific Region Office of the World Health Organisation (WPRO) was to develop a comprehensive package of training materials and accompanying resources for strengthening rehabilitation in two countries in Micronesia, Federated States of Micronesia and Marshall Islands. A draft report of this Activity was submitted to Mr Darryl Barratt, Disabilities and Rehabilitation//Blindness Prevention in November 2017. This is the Final Report for this Activity.

Key Questions

Phase 1

1. What is the existing health workforce in FSM and Marshall Islands and the likely potential and capacity to deliver basic rehabilitation services for the prioritised impairment conditions?
2. What rehabilitation services could the current health workforce in FSM, and Marshall Islands deliver considering:
    i. scope of practice, knowledge and experience
    ii. workload and priorities
    iii. capacity within the system for training and support
    iv. likely capacity given context-appropriate training and resources
    v. ability to work with and transfer knowledge to carers?

Phase 2

1. What types of training materials for basic rehabilitation services are needed to suit current health workforce capacity and upskilling of this workforce and carers?
2. Which training and resources format or combinations of formats are most likely to be acceptable, effective and efficient in the two country contexts?
3. What is the utility and acceptability of the train-the-trainer model to ensure as broader reach as possible of information, knowledge and skills including to carers and people with disabilities?

Phase 3

1. Development of training and resources that meet points 1 and 2 above.

Work Activities

The work consisted of three phases following the decision agreed with WPRO Technical Lead Disabilities and Rehabilitation to focus the in-country data collection on one country only being the Federated States of Micronesia (FSM).

Phase 1: Scoping of current health systems in FSM and Marshall Islands including an analysis of their capacity to deliver basic rehabilitation services for prioritized health conditions. This phase involved desk review, mapping and in-country data collection.

Phase 2: Scoping existing rehabilitation materials for adaptation as required for prioritized conditions in the Micronesian context. This phase involved desk review and consultations with providers of rehabilitation in low resource Pacific (and other) locations.

Phase 3: Design of context-relevant training materials for basic rehabilitation skills for identified priority health conditions that could be delivered at a later date for health workers, families and caregivers across the continuum of care from acute, ward-based care to out-patient service, community health (dispensary) and public health outreach programs at the community level.

Sequence of work

Phase 1a: Desk Review – health system in FSM and Marshall Islands

The first stage of the project involved a desk review of the health systems in Federated States of Micronesia and Marshall Islands which was submitted to Technical Lead, Disabilities and Rehabilitation at WPRO in March, 2017. The review was conducted using a targeted search of websites and identified country reports on the health systems published by the Ministries of Health in FSM and the Marshall Islands and WPRO. After discussion it was decided to focus and undertake Phase 2 in one country only. The key findings from the desk review report in relation to FSM are summarised below:

- Each of the four states of FSM – Pohnpei, Chuuk, Kosrae and Yap – are responsible for their own health system. The health system in each state is organised around a state hospital and network of dispensaries (a total of 92 across FSM) which are located in municipalities. These dispensaries provide primary care for basic injuries and common illnesses with complex cases referred to the state hospital.
- The health workforce is mostly made up of doctors, nurses, and public health staff. Rehabiltiation personnel have not been included in formal workforce analysis to date. Previous WPRO reports suggest there is physiotherapy available in Kolonia, Pohnpei at the State Hospital and at Genesis Private Hospital.
- The dispensaries are staffed by a primary health worker, however material could not be located on qualifications and training, conditions seen and dispensary caseload.
- Capacity of the workforce to provide basic rehabilitation could not be determined from the findings of the desk review.

Phase 1b: Field Visit

The island of Pohnpei hosts the FSM capital, Palikir. A field visit to Pohnpei was completed in July 2017. This was arranged by the WPRO Technical Lead, Disabilities and Rehabilitation in consultation with Dr. Eunyong Ko, World Health Organisation (WHO) Acting Country Liaison Officer Northern Micronesia; Mr Stuard Penias, Youth and Disability Program Coordinator from the Department of Health and Social Affairs (DHSA), FSN National Government; and, Mr. Johnny Hadley, Chief of Administration and Planning and Interim State Disability Coordinator, Department of Health Services, Pohnpei State Government.

During the visit, consultations with public health personnel, rehabilitation personnel and people with disabilities were held. Two meetings were held with Mr Kapilly Capelle, Director of Health Services in Pohnpei and one-off meetings with the Australian Ambassador, Mr George Fraser and his staff, Ms Joanne Cummings, Deputy Chief of Mission at the US embassy, AVI and JICA. Visits were made to two dispensaries, to meet the health assistants, view the facilities and to understand the purpose and capacity of each dispensary. The report of this field trip was submitted to the WPRO Technical Lead Disabilities and Rehabilitation on 16th August 2017 (see Appendix 1).

Situational analysis of rehabilitation capacity in the health workforce

The limited rehabilitation services in Pohnpei are located in the urban capital of Kolonia (population approx. 6000). Rehabilitation capacity consists of a physical therapist on contract who works 2 days

per week at the Kolonia Community Health Centre (KCHC) and 3 days at the State Hospital, a traditional therapist with chiropractic skills at KCHC, and a massage therapist at the State Hospital (not available during the visit). Apart from a new home visits service provided on Saturdays by the physical therapist and traditional therapist at KCHC, there are no rehabilitation services available in communities outside of Kolonia. There is strong infrastructure foundation in the dispensaries which could be utilised to improve the reach of rehabilitation to the local community level. The Department of Health Services public health program runs clinics in Kolonia and outreach services to some but not all the dispensaries.

There is potential to link the state hospital, public health program and the dispensaries through a train-the-trainer model in basic rehabilitation focusing in the first instance on one condition only, which is stroke as a priority concern for FSM. Public health personnel could be trained with written materials, illustrations, videos, and case studies that include essential daily living techniques, basic exercises, simple equipment and household adaptations, counselling and emotional support as well as screening and identification of co-morbid conditions. The public health staff in turn could train the dispensary personnel, who could share the relevant knowledge and materials with families and caregivers at the community level.

At the State Hospital, doctors and nurses could also be trained in positioning and handling and activities of daily living techniques appropriate to in-patient care. Modelling these techniques in front of family and caregivers who are with the patient in the hospital ward would also provide the opportunity to instruct family members in how best to support the person with stroke on their return home. This would also increase consistency of basic rehabilitation information between hospital ward, public health programs, health dispensary staff and ultimately, the person with stroke, their family members and carers.

This model may also be applicable in other Pacific countries where health services remain primarily at tertiary level (state hospitals, national referral hospitals) and at primary level through public health or community nurses and dispensaries. The model requires a train-the-trainer approach, a suite of resources in suitable formats, consistency of approach between hospital and community setting, and a motivated health workforce with the time and capacity required to incorporate basic rehabilitation techniques into their daily work.

Training materials most appropriate for FSM setting

Three priority conditions were identified in FSM: stroke, diabetes and inactivity associated with ageing. There is increasing incidence of cardiovascular disease and stroke, including in younger adults, and there appears to be a widely held perception that a stroke is equivalent to “a death sentence”. The common theme across the conditions is impaired functioning in daily life with resulting dependence on family members for daily activities and support. The recommended focus for the development of a pilot set of materials is stroke, as a priority health condition in FSM and more broadly across Micronesia. In consultations with key stakeholders, a preference was expressed for materials that reflect the local context, for example by featuring photos of local people in familiar settings, although it was also suggested it would be difficult to get affected individuals and their families to participate in developing the training materials.

Phase 2a: Desk review to identify existing stroke rehabilitation resources

Phase 2 desk review was carried out concurrently with Phase 1 with the assistance of a WHOCC-HWRLTC intern, Ms Annie Bygrave, a graduate student in the University of Sydney, Master in

International Public Health Program. Initially the search focused on locating relevant materials for managing NCD conditions such as stroke, cardio-vascular disease and diabetes in low resource settings that have few or no rehabilitation professionals. Few materials met these criteria. The search was widened to identify materials that could be easily adapted and which did not require specialist equipment or referral to rehabilitation specialists of other specialist professionals. The focus was on images, text and activities which could be adapted to local context if found to be effective in basic rehabilitation training using the proposed ToT model.

Phase 2b: Consultation with rehabilitation providers in the Pacific or low resource settings

To identify likely relevant materials, consultations were carried out with rehabilitation providers with relevant experience in low resource settings with little or no rehabilitation capacity including: educators from the College of Allied Medical Professions, University of Philippines; rehabilitation providers and educators in Fiji and Solomon Islands; INGO personnel with experience in CBR; experts publishing in the international literature about developing rehabilitation materials for individuals and their families/carers after stroke.

Phase 3: Suite of Rehabilitation Resources

Materials identified from the Phase 2a: Desk Review and Phase 2b: Consultations included basic information about stroke written for those with limited prior knowledge (e.g. resources intended for people who had experienced a stroke, their families and carers, or primary health workers); images including photos and sketches of positions, techniques, equipment; and videos including daily living activities, exercises or transfer techniques. A draft suite of modules was collated on the purpose and focus of rehabilitation for stroke, the functioning difficulties encountered, and the five primary focus areas of rehabilitation after stroke.

Finalisation of the draft modules was completed in January, 2018. Ms Cheryl Ann Xavier, an experienced physiotherapist with training expertise in the Pacific context, was then given a brief to design and produce a modular course on rehabilitation after stroke using the materials provided and others if required and to do so to pilot stage. This course was to include materials suitable for the Northern Pacific context using a train-the-trainer model.

The modular pilot *Course on Rehabilitation after Stroke* was completed in mid-April 2018. The Course can be delivered as a complete program or individual modules can be taught depending on the needs of participants. Course delivery could be in block mode, a series of sessions or one-off sessions on specific modules relevant to participant needs.

The modules involve didactic material, individual participant reflective activities, group activities and skill demonstration and participant skill practice in small groups. The emphasis throughout is on firstly, active learning and practice in a supervised context with an experienced instructor familiar with all skills and techniques to be taught, and secondly, available graphic, visual and on-line resources for ongoing skill and knowledge development.

The *Course on Rehabilitation after Stroke* has three components in six modules. These components are session plans, presentations, and handouts.

1. *Session Plans*. These provide a structured format for the instructor with sections on aim of the session, rationale, objectives, key learning points, resources required, what to do before the session

begins, and a brief session outline with suggested time periods. The second part of the structured format for each session is titled procedure. This is organised according to the session outline and explains what the instructor is to do; the resources required; and, suggested time allocation for each session component.

2. *Presentations*. The presentations are Powerpoint slides with the relevant points for each session component, graphic and visual illustrations (which mirror those provided in Participant Handouts), and links through to internet-based videos as appropriate. The relevant video clips are inserted within the Powerpoint slides.

3. *Participant Handouts.* The Participant Handouts provide take home resources for the participants which include text and illustrations of key points mirroring those included in the Powerpoint presentations.

The six modules of the *Course on Rehabilitation after Stroke* are:

Module 1: Introduction to Course
Module 2: Introduction to Stroke
Module 3: Positioning and Upper Limb Movement after Stroke
Module 4: Moving Around after Stroke
Module 5: Dealing with Emotional Well-being after Stroke
Module 6: Managing Activities of Daily Living after Stroke

The *Course on Rehabilitation after Stroke* is ready for piloting with recommended trials in at least two Pacific countries which incorporate a structured feedback and evaluation plan. It is antitipcated that following the outcome of these two trials, the *Course on Rehabilitation after Stroke* would be ready and available for wider use in the region.

Detailed Report

Phase 1a: Desk Review – health system in FSM and Marshall Islands

In 2012 the WHO Collaborating Centre for Health Workforce Development in Rehabilitation and Long Term Care (WHOCC – HWDRLTC) completed a situational analysis of the rehabilitation health workforce in the 14 members states of the Pacific Islands Forum Secretariat[1]. This included both member states in this project – the Federated States of Micronesia (FSM) and the Republic of the Marshall Islands (MI). The findings in the report about the rehabilitation personnel, the strengths and the challenges for building rehabilitation workforce in the region were a useful foundation for this current project. As detailed below the desk review for this project was unable to locate more recent analysis of rehabilitation workforce for these two countries.

Search Method

A targeted search for publications on the health systems and health workforce situation in the Federated States of Micronesia (FSM) and the Republic of Marshall Islands (RMI) was conducted. This involved hand searching the websites of government agencies and international organisations involved in health planning and development as well as publication repositories relevant to health and rehabilitation development. The documents located and a brief summary of the most up to date findings for each country are presented below the search table.

Table 1. Websites and databases used for desk review of health systems in FSM and Marshall Islands

Websites/databases searched	Method	Search terms/comments
Google	Key word search	Federated states micronesia health system health system marshall islands
Department of Health and Social Affairs Federated States of Micronesia	Hand searching	-
WHO WPRO/IRIS/HIIP	Hand searching and key word search	Federated states of Micronesia Marshall Islands
Secretariat of Pacific Community	Hand search	-
Pacific Health Dialog (journal)	Hand search last 5 years	Went back to 2005. Many of the PDFs wouldn't download. Abstracts not available on website so difficult to see how relevant papers are
HRH Hub UNSW	Hand search	-

[1] Llewellyn, G., Gargett, A., Short, S. *The Pacific Rehabilitation Health Workforce*. WHO Discussion Paper Series Paper No. 1. Report toWHO Western Pacific Regional Office, October 2012.

Federated States of Micronesia

Government Reports

The Department of Health and Social Affairs website describes basic information on the structure of the department and its programs. Many of the pages on the website were 'under construction', with the most recent news item dated 8 September 2012 at the time of the Desk Review. Department publications are available for download, of which the most recent was the *Health Progress Report:2008 - 2011*[2]. This publication documents progress against 14 health indicators agreed between the US Government and the FSM Government in the amended compact of free association 2003. The performance appraisals against each indicator were made using the government health data collected between 2008 and 2010. The report does not include information on health system structure or available workforce.

An earlier report published in 2005 titled *Comprehensive Assessment of Primary Care Systems*[3] includes more detailed information on the structure of health services and available workforce. The report documents an evaluation of primary health care which involved a survey of the dispensaries. The background information section includes an overview of the health system which is described as 'mirroring' the government structure with national, state and municipal levels. The national government is responsible for policy while the four states are responsible for delivery of services. Given this data is now 10 years old the findings of this report have limited value for understanding the current state of play in the FSM health system.

WHO Publications

The relevant country specific publication located on the Western Pacific Regional Office of WHO website was the Country Cooperation Strategy[4]. This outlines priority areas for WHO's country level support and technical assistance. These include development of policies, strategies and action plans, improved capacity for communicable diseases, environmental health; and health workforce development.

Country profiles are available for each country on the Health Information and Intelligence Platform (http://hiip.wpro.who.int/portal/default.aspx). This data is sourced from the Country Health Information Profiles (CHIPs)[5] most recently published in 2011. The data from CHIPs is referenced in reports produced by the Human Resources for Health Hub UNSW[6]and the World Bank[7]. It appeared therefore that CHIPs 2011 data was the most recent publicly available information on health workforce and health services in FSM.

This publicly available WHO information was supplemented by notes written by the WHO country liason officer for the Northern Micronesia Region (Federated States of Micronesia, the Republic of Marshall Islands and the Republic of Palau).

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[2] FSM Department of Health and Social Affairs (2012). *Health Progress Report 2008-2011.* Palikir

[3] Federated States of Micronesia Department of Health, Education & Social Affairs (2005). *Comprehensive Assessment of Primary Care Systems.* Palikir.

[4] World Health Organization (2012) *WHO Country Cooperation Strategy for Federated States of Micronesia 2013-2017.*Manila.

[5] World Health Organization (2011) *Western Pacific Country Health Information Profiles: 2011 Revision.* Manila.

[6] Human Resources for Health Knowledge Hub (2009). *Mapping of Human Resources for Health Profiles from 15 Pacific Island Countries.* University of New South Wales, Sydney.

[7] World Bank (2016). *Federated States of Micronesia: Public Expenditure Analysis – Getting Ready for 2024.* Washington.

Health system and workforce

Health service structure

There are four states in FSM (Chuuk, Kosrae, Pohnpei and Yap), each of which is responsible for managing its health care system. Each state has a general hospital and dispensaries available in the municipalities and outer lying islands. These dispensaries (n=92) provide primary health care for common illness and injuries and more complex cases are referred to the hospital. The *Comprehensive Assessment of Primary Care Systems*[2] provides an overview of the situation and services of each of the dispensaries. The report does not include detailed information on each of dispensaries and staffing, however the report indicates that the majority of dispensaries are serviced by health assistants only. A small number reported they have midwives on staff. Table 2. below from CHIPs gives an overview of the health facilities available in the country.

Table 2: Health facilities in FSM and Marshall Islands *Source: World Health Organization (2011). Western Pacific Country Health Information Profiles*[3].

Facility Type	FSM Total	Kosrae	Pohnpei	Chuuk	Yap
I. Total health facilities in country	**122**	**6**	**19**	**71**	**26**
Hospitals	5	1	2	1	1
Community health centres	5	0	1	0	4
Dispensaries	92	0	9	64	19
Aid posts	6	5	0	0	1
Health clinics	6	0	3	3	0
Pharmacies	6	0	2	3	1
Dental clinics	2	0	2	0	0

Facility Type	FSM Total	Kosrae	Pohnpei	Chuuk	Yap
II. Government-owned health facilities	**107**	**6**	**11**	**65**	**25**
Hospitals	4	1	1	1	1
Licensed beds	326	35	116	125	50
Operating beds	312	45	92	125	42
Occupancy rate	65.5	83	62	58	59
Health centres (CHC)	5	0	1	0	4
Dispensaries	92	0	9	64	19
Aid posts	6	5	0	0	1
III. Privately-owned health facilities	**15**	**0**	**8**	**6**	**1**
Hospital	1	0	1	0	0
Licensed beds	36	0	36	0	0
Operating beds	36	0	36	0	0
Private health clinics	6	0	3	0	0
Private pharmacies	6	0	2	3	1
Private dental clinics	2	0	2	3	0

Health workforce

The HIIP profile states that per 1 000 population (the total FSM population in 2010 was 102,600) there are: 0.58 doctors, 0.12 dentists, 0.13 pharmacists, and 0.19 midwives.

The HRH Hub@UNSW completed a mapping of health workforce of FSM in 2009[5]. At that time there were 64 doctors, 264 nurses, 393 public health workers, 16 midwives, 14 dentists, 16 pharmaceutical technicians and 93 'other health workers' (no specific questions were asked about rehabilitation personnel, however the term 'other health workers' includes dieticians and nutritionists,

occupational therapists, operators of medical and dentistry equipment, optometrists and opticians, physiotherapists, podiatrists, psychologists, respiratory therapists, speech pathologists, medical trainees and interns).

Table 3: Health workforce in FSM 2009. *Source: HRH Hub UNSW (2009) Mapping human resources for health profile from 15 Pacific Island Countries[5].*

	Number			
Occupation	**male**	**female**	**total**	**non-nationals**
Physicians	-	-	64	-
Nursing Personnel	-	-	264	-
Midwifery Personnel	-	-	16	-
Dentists	-	-	14	-
Dental technicians/assistants	-	-	26	-
Pharmacists	-	-	0	-
Pharmaceutical technicians/assistants	-	-	16	-
Laboratory scientists	-	-	0	-
Laboratory technicians/assistants	-	-	33	-
Radiographers	-	-	16	-
Environmental Health Workers	-	-	40	-
Public Health Workers	-	-	393	-
Community health workers	-	-	31	-
Medical Assistants	-	-	8	-
Personal Care Workers	-	-	0	-
Other health workers	-	-	93	-
Health management workers	-	-	43	-
TOTAL	-	-	**1057**	-

The participants in the 2012 regional analysis[1] of health workforce completed by the WHOCC – HWDRLTC were unable to provide data on the rehabilitation professionals in FSM. A report in 2012 by Walji & Palmer[8] on disability services available in the region stated that physiotherapy services were available at the two hospitals in Pohnpei (state and private) and that there were no outreach rehabilitation services to the outer islands.

Republic of Marshall Islands

Government Publications

An official website for the Ministry of Health in the Marshall Islands could not be located, however a facebook page was located which appeared to be regularly updated. This accessed on 13 February 2017 and the most recent post available was 9 February 2017. Many of the posts were relevant to

[8] Walji, F. & Palmer, M. (2012) *Improving access to and provision of disability services and facilities for people with disabilities in the Pacific: Disability service mapping in the Pacific.* AusAID & CBM Australia – Nossal Institute Partnership for Disability Inclusive Development, Melbourne, Australia.

workforce training initiatives and health promotion activities. Examples include cardiac resuscitation equipment training, zika virus response and antibiotic resistance week activities.

The most recent government publication located through google searches was the Global AIDS Progress Report HIV Aids report submitted to UNAIDs in 2014[9]. This includes a brief description of the health system in Marshall Islands, with two major hospitals located in Majuro and Ebeye and primary care clinics spread across outer islands. There were no further details on workforce.

WHO Publications

The WPRO website contained three resources about the health system and workforce in the Republic of Marshall Islands, of which the first two were WPRO publications. These were the Country Health Information Profile (2011 version)[4] and the country profile on the Health Information and Intelligence Platform (HIIP). The health system and workforce data included in the HIIP country profile was sourced from the Ministry of Health , Marshall Islands in 2010.

WHO WPRO and HRH Hub at UNSW completed a Human Resources for Health country profile of the Marshall Islands[10] published in 2014, which can be downloaded from the WHO IRIS repository. The health workforce data in this report comes from two key Marshall Islands Ministry of Health reports dated 2011[11] and 2012[12].

The CHIPs profile includes a brief description of the health system structure. The HRH profile includes a more detailed analysis of workforce issues including supply and trends, distribution, education, financing and governance. The information below is taken from the CHIPs profile, HRH UNSW Country Profile and the situational analysis of rehabilitation workforce the WHOCC – HWDRLTC completed in 2012[1].

Health System

The Marshall Islands overs 181 square kilometres and includes 29 atolls and five major islands. There are two major urban centres – Majuro and Ebeye - on the two main islands. Majuro hospital has 1010 beds and Ebeye 45 beds. The total population in 2010 was 54,440. The HRH Hub country profile (2014)[10] states there are 58 health centres on the outer islands. These centres are staffed by one health assistant and focus on primary health care activities and work alongside community health centres.

According to this report the majority of health services are government funded, with the private health system consisting of one doctor, one dentist and one pharmacist. The public sector workers are presented in table below. This analysis included physiotherapists (3), physiotherapy technicians and assistants (2) and medical and dental prosthetic technicians (1).

[9] Republic of Marshall Islands Ministry of Health (2014). *Global AIDS Progress Report 2014 – Republic of the Marshall Islands.* Majuro.

[10] Human Resources for Health Knowledge Hub & World Health Organization (2014). *Human Resources for Health Country Profiles – Marshall Islands.* Geneva.

[11] Republic of the Marshall Islands Ministry of Health (2011b). *Human Resources for Health (HRH) Task Force. Report to the Cabinet & Strategy for Action 2011–2023.* Majuro, Republic of the Marshall Islands Ministry of Health.

[12] Republic of the Marshall Islands Office of the President (2012). *17 New MOH Posts Approved by Cabinet* [Online]. Majuro, Republic of the Marshall Islands Office of the President. Available: http:// www.rmigovernment.org/news_detail.jsp?docid=435 [Accessed 18 April 2012].

Table 4: Health workforce in Marshall Islands 2012 *Source: HRH Hub UNSW (2014) Human resources for health country profiles -Marshall Islands*[10]

Table 6. Distribution of public sector health workers by urban/rural areas in January 2012

Health professional category/cadre	Total	Urban (Pop. 38 408)		Rural (Pop. 14 750)	
		%	Health workers/1000 population	%	Health workers/1000 population
Generalist medical practitioners	9	100	0.23	0.0	0.00
Specialist medical practitioners	15	100	0.39	0.0	0.00
Medical assistants	2	100	0.05	0.0	0.00
Health assistants	52	13.5	0.18	86.5	3.05
Advanced practice nurses	20	100	0.52	0.0	0.00
Graduate/registered/professional nurses	116	100	3.02	0.0	0.00
Vocational/enrolled/practical nurses	19	100	0.49	0.0	0.00
Midwives	12	100	0.31	0.0	0.00
Nurse aides/nurse assistants	20	100	0.52	0.0	0.00
Dentists	4	100	0.10	0.0	0.00
Dental technicians and assistants	21	100	0.55	0.0	0.00
Pharmacists	4	100	0.10	0.0	0.00
Pharmaceutical technicians and assistants	3	100	0.08	0.0	0.00
Medical and pathology laboratory technicians	19	100	0.49	0.0	0.00
Medical imaging and therapeutic equipment technicians	9	100	0.23	0.0	0.00
Physiotherapists	3	100	0.08	0.0	0.00
Physiotherapy technicians and assistants	2	100	0.05	0.0	0.00
Medical and dental prosthetic technicians	1	100	0.03	0.0	0.00
Biomedical engineers	3	100	0.08	0.0	0.00
Health professionals not elsewhere classified	10	100	0.26	0.0	0.00
Health service managers	9	100	0.23	0.0	0.00
Health management personnel not elsewhere classified	2	100	0.05	0.0	0.00
Clerical support workers	64	100	1.67	0.0	0.00
Domestic and ancillary support workers	93	100	2.42	0.0	0.00
Total	**512**	**91.2**	**12.16**	**8.8**	**3.05**

The rehabilitation health workforce data included in the WHOCC – HWDRLTC 2012 report[1] was provided by the Ministry of Health. At that time there were rehabilitation units at the hospitals in Majuro and Ebeye staffed by physiotherapists, physiotherapy technicians and prosthetic technicians. It was reported that the specialist rehabilitation staff (physiotherapists or surgeons) were often expatriates employed on short term contracts and the local staff had received on the job training from these international professionals.

Phase 1b: Field Visit

Refer to Appendix 1: *Federated States of Micronesia - Rehabilitation Resources Project Pohnpei Field Visit Report*

Phase 2a: Desk review to identify existing materials – clinical guidelines and rehabilitation resources

Clinical Guidelines for Stroke

A targeted hand search for clinical guidelines and pathways for stroke was performed on the following key websites: World Stroke Organisation (http://www.world-stroke.org/); WHO website on stroke (http://www.who.int/topics/cerebrovascular_accident/en/); Stroke Foundation Australia (https://strokefoundation.org.au/); American Heart Association/American Stroke Association (http://www.strokeassociation.org/STROKEORG/); Stroke Association – UK (https://www.stroke.org.uk/); World Confederation Physical Therapy (https://www.wcpt.org/).

Table 5: Websites searched and clinical guidelines documens retrieved.

Website	Documents
World Stroke Organisation http://www.world-stroke.org/	*Global stroke guidelines and action plan: A road map for quality stroke care* (2016) – WSO
	Inventory of International Stroke-Related Best Practice Guidelines (2012) – WSO
	Taking action for optimal community and long term stroke care: A resource for health providers (2016) - Heart & Stroke Foundation Canada
	Post – stroke checklist: Improving life after stroke (2012) – WSO
WHO Stroke/Cerebrovascular accident website http://www.who.int/topics/cerebrovascular_accident/en/	No clinical guidelines located
WHO WPRO IRIS http://iris.wpro.who.int/ - search terms stroke guidelines	No clinical guidelines located
Stroke Foundation (Australia) – InformMe https://informme.org.au/	*Clinical Guidelines for Stroke Management 2017* (2017) - Stroke Foundation
Stroke Association (UK) - https://www.stroke.org.uk/	*National Clinical Guideline for Stroke* (2016) – Intercollegiate Stroke Working Party. Downloaded from Royal College of Physicians https://www.strokeaudit.org/Guideline/Full-Guideline.aspx
American Heart Association/American Stroke Association	*Guidelines for Adult Stroke Rehabilitation and Recovery* (2016).- AHA/ASA Guideline

The World Stroke Organisation (WSO) collated an inventory of national stroke guidelines that are publicly available in 2012[13]. In 2014 they published the *Global Stroke Services Guidelines and Action Plan* in the International Journal of Stroke[14].The guidelines and action plan were developed by

[13] World Stroke Organization (2012). *Inventory of International Stroke-Related Best Practice Guidelines.*Geneva.
[14] Lindsay, P., Furie, K. L., Davis, S. M., Donnan, G. A., & Norrving, B. (2014). World Stroke Organization global stroke services guidelines and action plan. *International Journal Of Stroke: Official Journal Of The International Stroke Society*, *9 Suppl A100*4-13. doi:10.1111/ijs.12371

reviewing existing stroke care clinical guidelines for quality and evidence basis and by consulting with WSO members. Member views from low and middle income countries and regions with challenges in delivering stroke care were particularly considered in the development recommendations for service delivery. A framework for delivery of stroke care at three levels was developed: minimal health care services; essential stroke services; and, advanced stroke services. There is also a checklist for each level for health planners and providers to assess the level of health facilities and services in a health system. These checklists include items such as the qualifications of health professional staff available, medication available and health services available. Access to general rehabilitation services is noted as Level 2, essential stroke services. Access to specialist rehabilitation therapists is noted at Level 3, advanced stroke services.

The guidelines include a set of recommended core care interventions suitable for each level of service availability. For example, the recommendation that all patients with stroke should have their swallowing assessed is applicable to all three levels of service availability; recommended electrocardiograms applies to level 2 (essential stroke services) and 3 (advanced stroke services) and recommended carotid revascularization is only applicable for level 3 (advanced stroke services).

In 2016 WSO published the *Global Stroke Guidelines and Action Plan: A road map for quality stroke care. Road map implementation guide* (http://www.world-stroke.org/2016-12-19-10-55-24/roadmap-to-delivering-quality-stroke-care) which is a framework for 'implementation, monitoring and evaluation of stroke services globally' (p.6) [15]. It is intended for health authorities and stroke service providers to assess current services and develop an implementation plan. The Road Map has six modules relevant to the continuum of stroke care: Stroke System Development; Pre-hospital emergency care; Acute Inpatient Stroke Care; Secondary Stroke Prevention; Stroke Rehabilitation; and, Community Reintegration and Long Term Recovery. Each module has checklists for self-assessment of Stroke Services and Availability; Core Stroke Care Recommendations; and, Key Stroke Quality Indicators. The checklists indicate the applicability of each item to the level of service availability (minimal, essential and advanced).

In terms of evidence based information and guidance for the practical management of stroke the Australian Stroke Foundation: *EnableMe* (https://enableme.org.au/) and *InformMe* (https://informme.org.au/) websites offer a useful platform.

EnableMe is a website for stroke survivors which includes information, tips and techniques for stroke recovery. It includes links to resources including information on activities of daily living, exercise and exercise programs, swallowing and speech/communication, cognitive functioning. There is also a section for families and carers, an online community where members are encouraged to share strategies and experiences, and, an online goal setting tool.

The accompanying *InformMe* website is intended for health care professionals working in stroke care and includes evidence-based guidelines and e-learning resources and tools. The information on this site is most useful for those with a working knowledge of stroke care. The platform offers a model for sharing knowledge and skills relevant to stroke care to a wide range of professionals grouped by topic and stage of stroke care.

[15] Lindsay, M.P., Norrving, B., Furie, K. L., Donnan, G., Langhorne, P.& Davis, S. (2016). *Global Stroke Guidelines and Action Plan: A Road Map for Quality Stroke Care.* World Stroke Organization, Geneva. Downloaded from http://www.world-stroke.org/2016-12-19-10-55-24/roadmap-to-delivering-quality-stroke-care

Systematic studies on teaching basic rehabilitation skills

Systematic studies on teaching caregivers, family members and stroke survivors are beginning to appear in the scientific literature. Three recent studies are briefly described.

Vloothius and colleagues from Amsterdam, Netherlands completed a systematic review of caregiver mediated exercise[16]. The purpose of the review was to determine if caregiver mediated exercises improve functional ability and health-related quality of life in people with stroke, and to examine the burden on caregivers. Nine randomized controlled trials were included for analysis in the review. These studies were undertaken in high resource countries. The results showed improvement in some physical functioning outcome measures and quality of life, however no significant improvement in activities of daily living. However there were only a small number of studies with varying methodological quality; findings of the review need to be treated with caution. In most of the studies, the caregiver mediated exercise programs occurred alongside other rehabilitation interventions making it difficult to differentiate treatment effects.

The *Family-led rehabilitation after stroke in India* (ATTEND)[17] project is a partnership between The George Institute, Sydney Australia and The George Institute India (Hyderabad, Telangana, India). For this research 1250 patients were recruited from 14 hospitals in India and randomly assigned to either the intervention group (family rehabilitation) or the control group (standard care). In the family rehabilitation group, during the inpatient stay after stroke family members were trained in basic evidence-based rehabilitation methods (1hour per day over 3 days). After discharge they also received up to 6 home visits by the study coordinator to monitor progress. This occurred alongside the standard rehabilitation intervention available. All hospitals included physiotherapy in hospital whereas outpatient care/home visit follow up varied from site to site. The results found no significant difference between the family intervention group and the control group. The authors suggest that reasons for these results could be related to the intensity and frequency of the intervention and family dynamics influencing the extent to which the role of overseeing an exercise program was taken on by family carers.

A doctoral project in India[18] developed a smart phone enabled website with advice, information and recommended activities for people to use in their homes after stroke. The program includes videos organised around topics which were identified through a needs assessement of stroke survivors. The website can is freely available online here https://www.careforstroke.com/# , noting that the videos are in Tamil only. The assessment of needs involved interviews with stroke survivors and their caregivers. Information about stroke and rehabilitation was the most important need identified, followed by financial support. Rehabilitation services were also identified as a significant need. The program was field tested and evaluated in the community, with participants reporting the videos as relevant, useful and easy to understand.

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[16] Vloothuis JDM, Mulder M, Veerbeek JM, Konijenbelt M, Visser-Meily JM, Ket JC, Kwakkel G, van Wegen EE (2016). Caregiver-mediated exercises for improving outcomes after stroke. *Cochrane Database Systematic Review* 12:CD011058.

[17] The ATTEND Collaborative Group (2017) Family-led rehabilitation after stroke in India (ATTEND): a randomised controlled trial. *Lancet* 390: p588-59

[18] Sureshkumar K, Murthy GVS, Goenka S, Kuper H (2016). Development and evaluation of a Smartphone-enabled, caregiver-supported educational intervention for management of physical disabilities following a stroke in India: protocol for a formative research study. *BMJ Innovations* 1; p117-126.

Training materials for nursing staff, family caregivers and stroke survivors

This desk review was carried out with the assistance of WHO CC intern, Ms. Annie Bygrave, a graduate student in the University of Sydney, Master in International Public Health Program between July and October 2017.

This report documents the search methods used, findings of the search and the resources identified which were included in the development of the suite of resources (Phase 3).

The purpose of the review was to identify:

1. Existing training materials that are available and the intended audience, in particular whether the materials are suitable for hospital nursing and medical staff, primary health care, health promotion workers, or families and caregivers.
2. The format of existing training materials and their mode of delivery (e.g. face to face, manuals, online)
3. The basic rehabilitation techniques to reduce the risk of further morbidity and to enhance functioning and quality of life after stroke.

The findings of the review on clinical guidelines for stroke management (see above) completed by WHO CC Research Associate, Ms. Alexandra Lewis-Gargett in April 2017 informed the search method and inclusion criteria. The clinical guidelines review identified expectations about best practice care for stroke however these provided limited information about specific rehabilitation techniques to reduce disability and improving functioning after stroke.

A targeted search hand search of key websites for training materials was completed. Initially the search covered websites of agencies and organizations involved in disability and rehabilitation in the international development context, international peak bodies for rehabilitation stakeholders and stroke. Materials were selected based on the following criteria.

Context and intended audience: materials that were developed for low and middle income contexts and relevant for a user with limited or no prior knowledge of stroke (primary health care staff, health promotion workers, families, caregeivers) or specialist knowledge in stroke rehabilitation (nursing and medical staff).
Content: training materials that included information on one or more to the following 6 topics based on the findings of the rehabilitation professional expertise of the WHOCC.

1. **Independence training in activities of daily life** e.g. eating, bathing, dressing, toileting and walking
2. **Transfer and techniques** safe handling and transfer techniques for patient
3. **Therapeutic exercises** body movement prescribed to improve the patients' impairment, musculoskeletal function or maintain a state of wellbeing
4. **Gait and mobility training and how to use mobility devices** ability to stand and walk
5. **Swallowing and communication** swallowing is the safe delivery of food into the stomach. Communication involves speech, comprehension, reading and writing.
6. **Mood and emotional wellbeing**

The initial stage produced few relevant materials. In the second stage, the search was widened to include national level stroke associations and rehabilitation services from Australia, New Zealand, US and UK. The aim was to source materials that could easily be adapted and which did not require specialist equipment or referral to rehabilitation specialists of other specialist professionals (as these are not usually present in low resource settings). The focus was on images, text and activities which

could be adapted to local context. Google and YouTube platforms were also searched to identify relevant materials and this was particularly useful for activities of daily living. Materials identified in these searches were included if they were produced by a registered health provider (e.g. hospital, rehabilitation service), stroke association or carers association.

Table 6: Websites searched in desk review of training materials.

Stage 1 – low – middle income setting
AskSource
World Stroke Organization
World Health Organization
Handicap International
Australian Disability and Development Consortium
WaterAID
World Congress Physical Therapists
World Congress of Occupational Therapists
International Society of Prosthetics and Orthotics
Phase 2
Enable Me (National Stroke Foundation Australia)
InformMe (National Stroke Foundation Australia)
National Institutes of Health (US Department of Health and Human Services)
National Stroke Association (US)
National Stroke Foundation (NZ)
Stroke Association (UK)
Smart Strokers
Royal Rehab (The Rehabilitation and Disability Support Network Australia)

Low – middle income resources

Only two materials specifically about stroke and developed for the low income context were identified. These are *Promoting independence following a stroke: A guide for therapists and professionals working in primary healthcare*[19] and *The HELP guide for community based rehabilitation workers: A training manual*[20]. Both resources include basic information relevant to contexts with limited access to rehabilitation professionals, health services and specialist equipment such as FSM. However both publications rely on users being health professionals or CBR workers with some prior knowledge of stroke and rehabilitation.

The WHO & AIFO materials were intended for rehabilitation staff working in low income settings. This includes detailed information about stroke, and hands on therapy techniques with the aim of guinding decision-making for individual circumstances rather than broad based technique and skill training. The level of detail and information in this resource was considered too complex for the intended audience in low resource setting with no or limited rehabilitation professionals available.

The HELP Guide was developed as a training material for CBR workers in South Africa. The resource has information about 11 health conditions, and includes sections on community health and body

[19] World Health Organization & AIFO (1999). Promoting independence following a stroke : A guide for therapists and professionals working in primary health care. Geneva.
[20] Loveday, M. (2006). The HELP guide for community based rehabilitation workers: A training manual. Global-HELP Publications (Originally published by SACLA Health Project 1990).

structure and function. The one chapter on stroke is intended to be taught in context with the rest of the material in the guide; and does not function as a stand alone chapter for training.

Both materials are over 15 years old (the HELP Guide was originally published in 1990 and repuplished by Global HELP in 2006). We were unable to locate more recent freely available resources on stroke for settings with limited access to rehabilitation resources.

Both of these materials included sections that were relevant and useful. However overall neither resource fulfilled the needs identified in relation to a resource for health professionals, families and caregivers in a low resource setting with limited PT service only. Therefore, the decision was made to create a suite of resources from a range of freely available stroke resources and that would be suitable for the FSM and like contexts.

Freely available stroke resources

The websites of national peak stroke organisations proved a good source of materials intended for people after stroke, their families and carers, as well as health professionals. Some particularly useful features and resources identified are highlighted here:

- Stroke Foundation Australia EnableMe Website https://enableme.org.au/ : this website is intended for people who have had a stroke and their family and carers. It serves as a platform for accessing freely available online resources. These have been organised nto 4 key themes and presented in plain language. The interface is easy to use with large 'buttons' that link through to freely available resources.
- Stroke Foundation New Zealand
    - Videos – Pacific Stories https://www.stroke.org.nz/LAS-videos : These videos feature the experience of Pacific Islander people living in New Zealand who have had a stroke. The videos offer an example of materials that could be replicated in Pacific Islands context and raise cultural/social perspectives that may be relevant – e.g. the importance of traditional belief systems in recovery.
    - Life After Stroke https://www.stroke.org.nz/LifeAfterStrokePDF : This book is a comprehensive information guide intended for people with a stroke, their families and caregivers. The information is presented in plain language, clearly organised around topics with basic information explaining stroke and recovery, and regaining daily life routines after stroke.
    - Exercise After Stroke https://www.stroke.org.nz/exercise-after-stroke-booklet – accessed through the Stroke Foundation NZ website, authored by Margot Andrew, Margaret Hoessley & Kate Hedges (2017). This book features simple exercises for everyday activities and improving strength and control. These are accompanied by easily understood illustrations.

The websites of hospitals and rehabilitation centres also offered well developed practical resources. In particular, videos demonstrating transfers, exercise and activities of daily living were found through these websites.

The identified materials were collated around the content areas in a handover brief to the contractor who completed Phase 3 (see p.21 in this report).

Phase 2b: Consultation with rehabilitation providers in the Pacific or low resource settings

Consultations were carried out with experienced rehabilitation providers with specific expertise relevant to low resource settings with little or no rehabilitation capacity.

Table 7: Rehabilitation providers consulted in Phase 2b

Name/Position/Organisation	Advice/Information
Ms. Penafrancia Ching – College of Allied Medical Professions, University of Philippines peching@up.edu.ph Dr. Ferdiliza Dandah Garcia – College of Allied Medical Profssions, University of Philippines pswp2015@gmail.com	Students at CAMP are taught to develop individualised programs for clients, with involves hand drawn images or photos to illustrate exercises. US therapy equipment companies have resources for purchase which include books with handouts to photocopy, exercise cards, softward programs. Not aware of any stroke resources produced for low resource settings with no rehabilitation professionals.
Mr. Barney McClade – Regional Advisor for Community Based Inclusive Development, CBM Philippines barney.mcglade@cbm.org	Referred to manuals with images used by CBR workers in 1990s. Two more generally available resources: *Disabled Village Children* and *Where there is no Doctor* and *Occupational Therapy Without Borders* (Kronenberg, Algado & Pollard, 2005), however these are not stroke specific.
Ms. Goretti Pala, CBR Course Coordinator, Solomon Islands National University goretipala@gmail.com	Students in CBR program are taught basic skills and demonstrate these as needed. No standard resources or handouts used in practice at the hospitals or CBR program.
Ms. Elsie Talaofiri, Solomon Islands Ministry of Health and Medical Services – CBR Program etaloafiri@moh.gov.sb	CBR Program staff provide individualised programs. No specific Solomon Islands materials. Draw on internet materials from the internet, or resources from international volunteer rehabilitation therapists.
Dr. Pratima Singh, Acting Medical Superintendent, Fiji Ministry of Health and Head, National Rehabilitation Hospital, Fiji pratima.gajraj@gmail.com	Not aware of any locally developed materials or resources used for stroke care/management in Fiji. Service providers draw on their undergrad training or resources available on the web.
Sureshkumar Kamalakannan, Assistant Professor – Public Health Foundation of India suresh.kumar@iiphh.org	Developed smart phone enabled website with videos and basic rehabilitation information for Indian context Content freely available via the app however all videos are in Tamil. https://www.careforstroke.com/
Lisa Harvey, The George Institute for Public Health. lisa.harvey@sydney.edu.au	Materials produced for ATTEND trial[17] delivered by physiotherapists. Not regarded as appropriate for use by/with people with limited or no rehabilitation training.

Phase 3: Suite of Rehabilitation Resources

Materials identified from the Phase 2a: Desk Review and Phase 2b: Consultations included basic information about stroke written for those with limited prior knowledge (e.g. resources intended for people who had experienced a stroke, their families and carers, or primary health workers); images including photos and sketches of positions, techniques, equipment; and videos including daily living activities, exercises or transfer techniques. A draft suite of modules was collated to introduce health workers to the purpose and focus of rehabilitation for stroke and the motor, sensory, communication, mental health, and relationship difficulties encountered after strok. Five focus areas of rehabilitation after stroke were covered: emotional well-being and social relationships; positioning and upper limb movement; moving around including transfers and walking; communication, language and speaking; and, activities of daily living.

Finalisation of the draft modules was completed in January, 2018 followed by engagement of a consultant, Ms Cheryl Ann Xavier (Tchai), an experienced physiotherapist with training expertise in the Pacific context. Her brief was to design a modular course on rehabilitation after stroke using the materials provided and others as appropriate. This course was to be produced to pilot stage and to include materials suitable for the Northern Pacific context using a train-the-trainer model. The course materials for Micronesia were finalised by Tchai following a draft-review-feedback process from February to early April 2018.

The final materials ready for piloting have been designed as a modular *Course on Rehabilitation after Stroke*. The Course can be delivered as a complete program or individual modules can be taught depending on the needs of participants. The modules can be taught separately and in any order relevant to the needs of participants. Course delivery can be scheduled appropriate to the context such that participants may come together in a block mode, or over a series of sessions to cover all modules over time, or if appropriate engage in one-off sessions addressing one or two modules relevant to participant needs. The materials are designed to ensure adequate resources available to participants so that they, in turn, can use the modules in their work in hospital, primary care, or home of community settings with other health workers and also families and caregivers.

The modules involve didactic material, individual participant reflective activities, group activities and skill demonstration and participant skill practice in small groups. The modules have embedded video clips from publically available videos to assist with learning particular skills and techniques that are needed to provide rehabilitation after stroke for stroke survivors. The emphasis throughout is on firstly, active learning and practice in a supervised context with an experienced instructor familiar with all skills and techniques to be taught, and secondly, available graphic, visual and on-line resources for ongoing skill and knowledge development.

The *Course on Rehabilitation after Stroke* has three components in six modules. These components are session plans, presentations, and handouts.

1. *Session Plans*. These provide a structured format for the instructor with sections on aim of the session, rationale, objectives, key learning points, resources required, what to do before the session begins, and a brief session outline with suggested time periods. The second part of the structured format for each session is titled procedure. This is organised according to the session outline and explains what the instructor is to do; the resources required; and, suggested time allocation for each session component.

2. *Presentations*. The presentations are Powerpoint slides with the relevant points for each session component, graphic and visual illustrations (which mirror those provided in Participant Handouts), and links through to internet-based videos as appropriate. The relevant video clips are inserted within the Powerpoint slides (as not all of the internet-based video may be needed at one time). The Presentations begin with an introduction to the session and conclude with a summary of the key learning points.

3. *Participant Handouts.* The Participant Handouts provide take home resources for the participants which include text and illustrations of key points mirroring those included in the Powerpoint presentations. This means that each participant has a hard copy of the information about the skills and techniques that they need to learn and practice.

The six modules of the *Course on Rehabilitation after Stroke* are:

Module 1: Introduction to Course
Module 2: Introduction to Stroke
Module 3: Positioning and Upper Limb Movement after Stroke
Module 4: Moving Around after Stroke
Module 5: Dealing with Emotional Well-being after Stroke
Module 6: Managing Activities of Daily Living after Stroke

The *Course on Rehabilitation after Stroke* is ready for piloting with recommended trials in at least two Pacific countries which incorporate structured feedback and evaluation plans. It is antitipcated that following the outcome of these two trials, the *Course on Rehabilitation after Stroke* would be ready and available for wider use in the region. Currently the *Course* is designed for delivery in face-to-face mode. It is recommended that during the trials thought be given to adaptation of this *Course* for inclusion in on-line programs such as those offered by the College of Micronesia. Consideration could also be given to including this *Course* as a component of the diploma and bachelor courses available in the Pacific for health personnel.

Appendix 1

Federated States of Micronesia-Rehabilitation Resources Project Pohnpei Field Visit Report

16th August 2017

Professor Gwynnyth Llewellyn

Ms Alexandra Lewis-Gargett

Professor Stephanie Short

1. Background

Global trends in health and the increasing incidence of non-communicable diseases (NCD's), other chronic conditions, and ageing evident in FSM require a major scaling up of rehabilitation services.

Investment in rehabilitation allows people with a health condition such as intra-cerebral haemorrhage or diabetic mellitus to achieve and maintain optimal functioning by improving their health, increasing their participation in the workforce, and improving their quality of life.

Rehabilitation also contributes to preventing and reducing functional decline among older people reducing the risk of falls and emergency hospital visits and admissions and keeping people independent for longer.

Rehabilitation has benefits for the user and his/ her family and for the health and other sectors (such as social, education and labour). This is because rehabilitation can reduce care costs for the family, for health services and for society more broadly.

Rehabilitation provides interventions to decrease the impact of an acute condition for example paralysis after an intra-cerebral haemorrhage by improving mobility and arm and hand function. Rehabilitation also provides interventions to prevent secondary conditions over the short and longer term for example, skin breakdown or reduced mobility or ability to care for oneself once at home. Rehabilitation works best along a continuum of care. This means providing rehabilitation in the medical and surgical ward, in the out-patient department, as outreach to community health centres and in people's homes.

When all staff in the curative and public health system are well-informed about the place of rehabilitation and its benefits, then the community understands that frequently occurring disabling conditions such as stroke, diabetes, road accidents, and the functional decline in ageing are not a 'death sentence', rather that rehabilitation interventions provide hope for the future and produce a positive impact on people's quality of life.

1.1 Purpose of the project and TOR

The overall purpose of the Federated States of Micronesia - Rehabilitation Resources Project is:

To develop training resources to strengthen rehabilitation in the health service within the current and short-term health workforce in Federated States of Micronesia

The Project Terms of Reference are to:

- provide a methodology to develop training materials based on an integral approach that will strengthen rehabilitation within health services;
- produce a training package, a pathways document, personnel leaflets, checklists and patients' handouts, drawing on previous WHO work undertaken in the Micronesian region in 2015 and 2016;
- focus the materials on the current health workforce, including the limited rehabilitation staff that are available, but likely focused on nursing staff, community workers and care-givers; and
- the material produced will focus on the Micronesian context but should be transferable to other Pacific Island countries.

This work is being carried out by the WHO Collaborating Centre in Health Workforce Development in Rehabilitation and Long Term Care (WHO CC) at the University of Sydney under the guidance of Professor Stephanie Short, Professor Gwynnyth Llewellyn and Ms Alexandra Lewis-Gargett. The work is being conducted during 2017 and will be completed in the first quarter of 2018.

The work consists of three phases as follows:

Phase 1: Scoping of current health systems in FSM including an analysis of their capacity to deliver basic rehabilitation services for prioritized health conditions. This phase involves desk review, mapping and in-country data collection. The in-country data collection is the subject of this *Field Visit Report*.

Phase 2: Scoping existing rehabilitation materials for adaptation as required for prioritized conditions in the Micronesian context. This phase involves desk review and consultations with providers of rehabilitation in remote Pacific (and other) locations.

Phase 3: Design of context-relevant training materials for basic rehabilitation skills for identified priority health conditions with recommended integrated approach to delivery of training to educate health workers and families and caregivers across the continuum of care from acute, ward-based care to out-patient service, community health (dispensary) and public health outreach programs to families and caregivers at the village level.

1.2 Scope of Field Visit

Through this visit, our intention was to consult with key stakeholders to answer the following questions:

1. What is the existing health workforce in FSM and the likely potential and capacity to deliver basic rehabilitation services for the prioritised health conditions?
2. What rehabilitation services could the current health workforce in FSM deliver considering the following:
    a. scope of practice, knowledge and experience
    b. workload and priorities
    c. capacity within the system for training and support
    d. likely capacity given context-appropriate training and resources
    e. ability to work with and transfer knowledge to carers

The Field Visit was undertaken by Professor Gwynnyth Llewellyn and Ms Alexandra Lewis-Gargett from Monday 24th July to Friday 28th July 2017. We were fortunate to visit and talk with many people during this week in Pohnpei and to hold more formal consultations on Wednesday 26th July. We met with government leaders, health workforce, DPOs, international ambassadors and embassy staff, international aid agencies and WHO country office staff. Appendix A provides a summary of meetings and visits listing the people visited and the people present.

We would like to thank Mr. Stuard Penias, Youth and Disability Program Coordinator from the Department of Health and Social Affairs (DHSA), FSN National Government and Mr. Johnny Hadley, Chief of Administration and Planning and Interim State Disability Coordinator, Department of Health Services, Pohnpei State Government for their support in coordinating meetings during the visit and sharing their knowledge of the health system, rehabilitation and disability in FSM. Thank you also to Dr. Eunyong Ko, World Health Organisation (WHO) Acting Country Liaison Officer Northern

Micronesia who facilitated our visit and assisted with coordinating meetings, and to WHO Western Pacific Regional Office for funding the project.

2. Summary

2.1 Context

Rehabilitation is defined by the World Health Organization as "a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment. Health condition refers to disease (acute or chronic), disorder, injury or trauma"[21] (WHO, 2017: p1). For many with disability, rehabilitation is a key enabler for their participation in community life. It is included as a fundamental right in the Convention on the Rights of Persons with Disabilities (UNCRPD)[22] in Article 26:

"State parties shall organize, strengthen and extend comprehensive habilitation and rehabilitation services and programmes…"

With a focus on improving the health of people with disabilities, WHO released the *WHO Disability Global Action Plan 2014 – 2021*: *Better health for people with disability*[23]. This action plan is framed by 3 key objectives, one of which is strengthening and extending rehabilitation.

The FSM National Government is committed to recognizing the rights of people with disabilities as demonstrated through the *National Policy on Disability 2009 – 2016* and the ratification of the UN CRPD in December 2016. Providing rehabilitation through health systems in FSM is an essential component of implementing the UNCRPD.

WHO policy and guidelines focus on rehabilitation as an essential component of universal health coverage. In other words, everyone has the right to access rehabilitation as a means to improving their heath and well-being, including but not limited to people with disability. FSM, in keeping with the global trend, is facing rising rates of non-communicable diseases, many of which lead to chronic health conditions and illness. Rehabilitation plays an essential role in the management and response to chronic health conditions and long term illness. As noted in *Rehabilitation: Key for health in the 21st century*[24]:

Integrating rehabilitation into the health care system and ensuring early access to services can help ensure optimal outcomes from other health interventions, and mitigate the risks of ongoing complications that may diminish a person's health and well-being and burden the health system (p.2).

[21] World Health Organization (2017). *Rehabilitation in health systems*. Geneva: p 1. http://www.who.int/disabilities/rehabilitation_health_systems/en/

[22] United Nations (2008). *Convention on the Rights of Persons with Disabilities.* Geneva. https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

[23] World Health Organization (2014). *WHO Global Disability Action Plan 2014-2021:Better health for all people with disability.* Geneva

[24] World Health Organization (2017). *Rehabilitation: Key for health in the 21st century.* (Background paper for the Rehabilitation 2030: A Call for Action meeting February 6-7 2017, WHO Headquarters Geneva): p2 http://www.who.int/disabilities/care/rehab-2030/en/

2.2 Estimating the need

The overall population of FSM is approximately 103,000. The State of Pohnpei has a population of approximately 36,000 people and hosts the national capital, Palikir. The largest urban centre is the state capital Kolonia, located in the north-east pocket of the island and has a population of approximately 6,000[25].

According to the FSM 2010 Census 11% of the population have disability[5]. It is acknowledged that this is likely an underestimation partly due to reporting challenges with data collection during the Census but also the increasing rate of NCD's and hence likely increase in associated impairment since 2010.

The *World Report on Disability* states that 15% of the world population lives with disability. The statistics on NCD in Pohnpei suggest that the prevalence of disability is very likely to be closer to this, if not higher. A 2008 report of the NCD risk factors in FSM[26] found that 42% of the population had 1-2 NCD risk factors (moderate risk) and over half the population (57%) had 3-5 risk factors (high risk). The rate of diabetes identified in this survey was 30%.

During the Field Visit to Pohnpei, serious concerns were expressed about the 'emergency NCD situation' in FSM. At the Pohnpei State Hospital that week, we were told, there were three below knee amputations. Mr. Johnny Hadley provided us with data from the Pohnpei State Hospital that reported diabetes was in the top three reasons for admissions, outpatient consultations and deaths at the hospital (see Appendix B). In addition, we heard about injuries from road trauma, from falls including from roofs or trees, and electrocution. In Appendix B we provide estimates for national diabetes and circulatory disease rate. It could be anticipated that most if not all of the population with either or both diabetes and circulatory disease will benefit from rehabilitation in addition to those experiencing trauma as noted above and/ or functional decline associated with ageing.

2.3 Current rehabilitation services

As with many Pacific Islands, the health services are concentrated in the urban centres. The limited rehabilitation services available in Pohnpei are based in Kolonia as the largest urban centre. There is however a strong infrastructure foundation in the dispensaries located in municipalities which could be utilised to improve the reach of rehabilitation into the communities where the majority of the population live. Outreach to and from the dispensary level is currently limited by workforce capacity.

The public health infrastructure consists of the Pohnpei State Hospital in Kolonia, 1 Community Health Centre (KCHC) also in Kolonia, 4 dispensaries on the main island of Pohnpei and 5 dispensaries on the outer islands under the jurisdiction of Pohnpei State (see Appendix C for list of health facilities). KCHC is the Kolonia dispensary, although in contrast to other dispensaries in Pohnpei ,it receives funding under the US Government Community Health Centre Program. This program provides guidelines, policies, and practice manuals for setting up and operating a community health centre and this model involves more services and highly trained staff than currently operate under the Pohnpei dispensary model. (See Appendix C for the services available at the KCHC). The Pohnpei Department of Health has previously unsuccessfully applied to convert

[25] All population data taken from : Division of Statistics, FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management (2010). *Summary analysis of key indicators from the FSM 2010 Census of Population and Housing.* Palikir.

[26] Government of the Federated States of Micronesia & World Health Organization Western Pacific Region (2008). *Federated States of Micronesia (Pohnpei) NCD risk factors: STEPS Report.* Suva.

Pohnpei dispensaries to community health centres, however we were informed there are plans to submit another proposal.

Rehabilitation staff within the public health system include one expatriate physical therapist (trained at the University of the Philippines) based at KCHC who also works from the hospital 3 days a week, one traditional therapist with chiropractic skills based at KCHC and one massage therapist at the hospital. The physical therapist and traditional therapist have recently begun offering home visits on Saturday. These occur in response to requests from families residing outside Kolonia, and particularly where families find it difficult to bring their family member to the hospital or KCHC for an out-patient/ clinic visit.

The hospital has four wards: one each for male and female surgical and general medical wards. There are 14 beds per ward and when full, two nurses are assigned to each ward. There is a dedicated physical therapy room with specialist equipment for physical rehabilitation (treadmill, weights, parallel bars, steps) and electrotherapy and traction (see Appendix D for photos).

The Department of Health also conducts a public health program which offers clinics in Kolonia and runs outreach services to some but not all the dispensaries. The public health services are divided into the following streams: Cancer; NCD; Behavioural and Mental Health, Maternal and Child Health Care (see Appendix C for details).

Traditional healers are found throughout Pohnpei They are not included in the formal health system, however they are widely used due to their value to the community and widespread belief in their medications and physical treatments. Traditional healers are available close to where people live, which is an added advantage when apart from the dispensaries, all other health services are primarily available only in Kolonia. Traditional healer services include not only medication but also physical therapies such as massage and steam therapy and we understand these are widely used for example after stroke or to help manage diabetes.

There is a private health system available which is covered by private health insurance. This is available only to government employees and is accessed by approximately 40% of the population. The remaining 60% of the population have access only to the public health system and traditional healers. According to reports, Genesis which includes a private hospital offers physical therapy (reportedly 1 physical therapist) and a well- equipped gymnasium. Genesis also offers clinics such as diabetes monitoring and foot care.

3. Report against Project Key Questions

3.1 Question 1. What is the existing health workforce in FSM and the likely potential and caacity to deliver basic rehabilitation services for the prioritised conditions?

Achievements

• Through individual meetings, visits to health facilities, and two half-day consultation meetings, we obtained information and understanding about:
  ○ current rehabilitation provision in Pohnpei and the unmet need for rehabilitation at each level of the health system: at the National Hospital, at the dispensaries, and for outreach to people in their homes and at the village level
  ○ key stakeholder perspectives on priority health conditions, the understanding of these conditions in the general community, and how these conditions are currently understood and treated within the health system
  ○ current health workforce including medical and nursing staff, public health program personnel, dispensary staff and traditional healers and their current and potential roles in working with people for the prioritised conditions
  ○ training and capacity of the current health workforce to develop understanding of the contribution of rehabilitation and implement basic rehabilitation techniques to improve functioning, reduce secondary complications and co-morbid conditions, and decrease hospital admissions over the medium and longer term
  ○ the FSM policy, socio-economic and cultural context in relation to the priority health conditions identified by key stakeholders and the cultural attitudes which may impede or facilitate rehabilitation interventions which focus on increasing functioning, improving quality of life, and thereby contributing to better outcomes and more productive and longer life
  ○ The FSM policy, socio-economic and cultural context in relation to people with disability and the recent ratification of the UNCRPD and the impact of this at FSM National level and at the State level in particular in Pohnpei
  ○ The critical importance of traditional healers who provide traditional medicine and traditional massage and other physical techniques and who are the first 'port of call' as well as the preferred health personnel for many in the community

3.2 Question 2. What rehabilitation services could the current health workforce in FSM deliver considering the following:

- scope of practice, knowledge and experience
- workload and priorities
- capacity within the system for training and support
- likely capacity given context-appropriate training and resources
- ability to work with and transfer knowledge to carers?

Achievements

Through individual meetings, site visits, consultations we identified the following as *areas for developing capacity in the current workforce through training and appropriate resource materials:*
• For Hospital Based staff
  ○ Medical and nursing staff could then provide messages of hope and possibility by explaining that things can improve day by day with practice and time.
  ○ Nursing staff on the ward could then demonstrate essential care techniques that promote mobility and self-care this was considered essential for people to go home with a sense of hope and possibility.
• Public Health, Rehabilitation and Dispensary staff would be able to:

- Demonstrate essential care techniques to families to promote mobility and self-care with a focus on activities of daily living
- Give basic exercises for building strength, balance and fine motor skills
- Develop basic skills in counselling and emotional support for people after stroke and amputation including key messages to support the ongoing use of the care and exercise techniques
- Give simple instructions on local fabrication of essential assistive devices such as mobility aids, self-care aids and modifying basic furniture
- Engage local community groups such as traditional leaders and church groups to provide village level support
- Provide basic training for caregivers which was considered necessary and valuable, particularly for shifting current expectations that nothing can be done for the priority conditions of stroke, amputation and ageing
- Provide screening for early identification, for example developmental milestones in children, early signs of stroke, and prevention of co-morbidities such as by diabetic foot monitoring and care.

4. Training and resource materials required to ensure an integrated approach that will strengthen rehabilitation within health services

The information gained in relation to the two key questions noted above has led to the following conclusions. These are presented in two sections. The first details the proposed methodology to develop training materials and the second deals with an integrated approach that would strengthen rehabilitation within health services.

4.1 Focus for basic rehabilitation training materials and resources

Priority health conditions identified

The first priority health condition identified was for people who had experienced a **stroke** and had returned home. This concern was based on the increasing incidence of cardio-vascular disease and stroke including in younger adults, and because the general community view, including that of the person experiencing the stroke, was “Now I’m done”, “This is a death sentence”. Thus, post-stroke most people would go home expecting to no longer engage in work, family and community life, resulting in them being entirely dependent on their family members. The only exception to this was when people were able to go off island for example to Guam, or Hawaii, or the Philippines and experience first-hand the benefits of rehabilitation and if needed, assistive technology and come back determined to continue to improve their physical and mental condition and engage proactively in usual activites.

The second priority health condition identified was for people diagnosed with **diabetes**. This was primarily because of the frequency of amputations, particularly progressive amputations from toes to feet to below or above knee amputations, and the negative impact on daily life on return home. Being diagnosed with diabetes is a frequent occurrence, in families, in younger adults, and throughout the community. Seeing others encounter foot problems and end up having parts of their foot, or lower limbs amputated, we were told, also left others with a feeling of inevitability – that they too would be in this situation, not if, but when and that there was little hope of returning to their former lives.

The public health NCD program is dedicated to raising community awareness of the importance of nutrition and exercise and maintaining healthy weight, and to some screening and advice about foot care, however there are limited interventions apart from wound care, no diabetic foot clinic or readily available assistive technology to assist those who have already experienced amputations.

The third priority health condition identified was for senior citizens, many of whom became inactive with increasing dependence and secondary complications related to their **inactivity**. The term bedridden was frequently used in relation to people at home who had experienced stroke, or older people who no longer left their beds due to functional decline, with little community understanding that taking to one's bed was not an inevitable outcome of stroke or aging and that basic rehabilitation techniques would increase functioning and participation in family and community life.

A common theme in these three priority health concerns is about impaired functioning in daily life and dependence on a family member for all daily needs. This was particularly so for people who had experienced stroke, for people with amputations and for older people,, although in the case of amputations, when a mobility aid was available or creatively produced such as a home-made crutch this somewhat eased the situation.

There can be common functioning difficulties after stroke and decline in older age in all activities of daily living. For example, mobility may be impaired so that the person is unable to get out of bed safely, move from sitting to standing and balance, walk steadily and safely particularly on uneven ground without falling, and negotiate steps (of which there are many outside buildings and inside rooms as well). Common difficulties also occur in relation to personal hygiene. Bathing safely is difficult particularly if this requires standing or bending down to reach water to wash in or sitting on an unstable stool or chair (plastic stacking chairs are very common). Feeding oneself can be very difficult if the plate moves on the table, and can be dangerous as there is the risk of choking if food is not the right consistency, if swallowing is slowed down, and chewing poor or non-existent. Dressing can be particularly challenging post-stroke when one side is paralysed and the person no longer realises that this side of their body exists (which is called one-sided neglect). A further difficulty commonly found in people post-stroke or older age is depression and anxiety and feelings of hopelessness. This becomes a serious problem as the person loses motivation to help themselves, and this is exacerbated if being in this situation is seen as 'waiting to die'.

The proposal to introduce basic rehabilitation techniques was welcomed by key stakeholders and specifically in the first instance to help people post stroke and those with functional decline due to ageing. Although the incidence of diabetes is at an emergency level, there is a current program to raise awareness in the community, and plans to develop consistent screening and more outreach to dispensaries and to the village level with the support of village leaders.

Our first conclusion therefore is that the basic rehabilitation materials and resources ought to focus in the first instance on the functioning difficulties associated with stroke and decline in older age. We anticipate that with training and use of these materials, transfer of knowledge and skills is likely to occur to other conditions that affect daily living such as diabetes particularly post-amputation.

Priority needs for training

We identified a need for basic rehabilitation materials and resources that would be useful across all levels of the health workforce. This is because while health personnel at any level continue to regard stroke and older age as 'terminal' and with 'no hope', then training only one part of the workforce would be counter-productive. A focus on basic rehabilitation techniques and motivating clients to increase their functioning is critical for all: hospital ward and out-patient staff, public health program

personnel, dispensary staff, families and caregivers, people with the priority health conditions and traditional healers so that consistent 'messages' of improvement and hope are delivered and consistent techniques practiced at the tertiary, secondary and primary levels of the health system. This is important so that everyone is on the 'same page' and consistent and uniform (not conflicting) advice is given.

After further discussion, it was agreed that the training using basic rehabilitation materials and resources would need to be at national level (taking the differences in each state into account). This was regarded as very important to deliver an integrated approach to strengthening rehabilitation capacity within health services, to achieve better health outcomes, and to make sure that FSM implements the relevant health Articles in the CRPD. Further recommendations for strengthening rehabilitation capacity within health services are included in Section 5 below.

(1) Need for training of hospital and ward based doctors and nurses

Medical and nursing staff are critically important to ensuring patients can imagine a positive and purposeful future immediately after a stroke or amputation. The messages and instructions given in the hospital ward by doctors have a profound impact on how people post stroke or post amputation and their families think about the future. People also need nurses to assist them using correct basic rehabilitation techniques for example when sitting up from lying down in bed, from bed to standing safely so they understand that they will be able to do this for themselves as they improve day by day, 'one step at a time'. Nurses play a very important role in demonstrating these techniques in front of family members so that they too know how best to assist their family member to regain and maintain their functioning.

(2) Need for public health staff training

Public health staff running different programs – NCD, cancer - come into contact with people post-stroke and post-amputation either when they come for appointments or when the staff visit some only of the dispensaries on Pohnpei. It is vitally important that these staff are also trained in basic rehabilitation techniques so they can reinforce what people post-stroke or senior citizens have been told by the doctors or nurses as in-patients and out-patients at the hospital.

With the limited rehabilitation professionals available in FSM, the public health staff are a key resource for teaching others as well as for implementing basic rehabilitation techniques. They also reported they are willing and able to support people to live better lives in their homes and to promote a sense of hope that their future can be different. Previous training undertaken by some public health staff on working with caregivers had been enthusiastically received.

(3) Need for dispensary staff training

Key stakeholders agreed that the dispensaries located in each municipality offer good infrastructure and staff who could develop their knowledge in basic rehabilitation techniques. They could then also share these techniques with villagers when they come to the dispensary or when the dispensary staff visit them at home. We visited two dispensaries in Pohnpei and had brief discussions with dispensary staff (one available at each) on their role. Both staff had received 16 months training for their positions. On seeing their facilities and hearing about the tasks that they undertake, in our opinion, these staff could be trained in basic rehabilitation techniques to share with villagers who present to the dispensary and their families.

5. Integrated approach to strengthening rehabilitation in the health system

5.1 Opportunities

There are good opportunities to strengthen rehabilitation in the Pohnpei public health system. These are:

- many influential key stakeholders in government have personal/ family experience of stroke and/ or functional decline in older age and are motivated to change the current situation where these health conditions are seen as 'a death sentence' with no hope of improvement
- the key stakeholders in the new administration are keen to develop health system capacity to benefit the citizens of FSM
- there is a growing awareness of the need to take health services to where people live (the villages); to introduce screening and assessment of need; and, to make it easier to people to access and use the dispensaries and public health programs closer to home rather than having to come to the hospital emergency department
- there is a pilot program about to begin in two municipalities in collaboration with village leaders to bring health services screening and earlier identification of health conditions to the village level
- FSM has recently ratified the UNCRPD and has a National Focal Point on Disability as well as State Focal Points on Disability. There is keen interest in and motivation to achieve practical actions relating to the health Articles of CRPD
- the National Focal Point on Disability, Mr Stuard Penias from the Department of Health and Social Affairs and the Pohnpei Interim State Disability Coordinator, Mr Jonny Hadley from the Department of Health Services, will be attending the WPRO Meeting on Rehabilitation in Universal Health Care in late August 2017 and will be involved in workshopping there and learning about others experiences in developing rehabilitation as an integrated approach in health systems
- there are three FSM people studying Physical Therapy (PT) at Fiji National University, two from Pohnpei and one from Chuuk who are due to return in 2018. One has already done an internship at the KCHC. Currently there are no locally trained PTs in Pohnpei; there is one PT trained at College of Allied Medical Professions at the University of the Philippines whose contract ends in 2018. The addition of two trained physical therapists to the Pohnpei health system will therefore increase rehabilitation workforce capacity by 200%.
- the increase in PT capacity in 2018 provides an excellent opportunity to build a more locally based rehabilitation service – that is, at the village level – rather than expecting and relying on people to travel to Kolonia. Travel is not easy and usually prohibitive. So, after one or two visits to Kolonia post hospital discharge, people post-stroke or senior citizens do not continue with out-patient visits. Currently this means there are no rehabilitation services at village level. Very recently, Mr Arnel Perillo (PT) and Mr.Johnson Miquel (traditional healer with chiropractic skills) introduced a Saturday service where they visit clients and their families around Pohnpei (approximately 12-14 caseload each). The current demands on Mr Perillo and Mr.Miquel suggest that their Saturday service is most likely to be unsustainable.

It will be critically important that the two new PTs are out and about to the dispensaries outside Kolonia and not isolated in a PT room at either the hospital or KCHC.

- A better use of the increase in PT capacity in 2018 would be for the therapists to (1) educate hospital based doctors and nurses, public health personnel, and dispensary staff as suggested under 3.2 Question 2 above; and (2) conduct outreach because as resource people they can provide community (dispensary) and village level support and services (village leaders, traditional healers, clients and their families) so that basic rehabilitation techniques are more broadly distributed throughout the population
- There are several educational programs relevant to rehabilitation in the Pacific. There is the 3-year full time Bachelor of Physiotherapy at Fiji National University (FNU) as well as a one year full time Certificate of Disability and Community Based Rehabilitation. Both of these programs are open to students from other Pacific Island nations. There is also the 2-year Diploma of Community based Rehabilitation at Solomon Islands National University (SINU). This program is considering taking international students. This means there is an opportunity to seek additional scholarships and support from UN agencies for more local FSM people to undertake these programs
- There are other short course training and resource opportunities relevant to disability and rehabilitation. In particular, the Asia Pacific Centre for Development and Disability located in Bangkok, provides short course training with residential accommodation to people from the Pacific Islands. Information about this Centre is available from Mr Aki who is the Director at http://www.apcdfoundation.org/. Short course training at APCD would be very helpful particularly in learning about how to develop national strategies and implement UNCRPD
- Director of Pohnpei State Department of Health Services, Mr Kapilly Capelle is familiar with and very keen to encourage health services being provided closer to where people live and to integrating these health services with traditional practices so that Pohnpei citizens can benefit from both
- Australian Volunteers International (AVI) at https://www.avi.org.au/ and Japan International Cooperation Agency (JICA) at https://www.jica.go.jp/english/ are present in FSM, with offices located in Pohnpei. Both these organisations are well known for their focus on disability and their work, particularly JICA, supporting rehabilitation in other parts of the Pacific. Following our meetings with both these organisations, the Pohnpei Interim State Disability Coordinator was encouraged to submit applications for volunteers to be involved in the implementation of the training materials and resources as recommended above throughout the Pohnpei health system
- The Australian Department of Foreign Affairs and Trade offers the Australian Leadership Award Program which brings people from the region to Australia for short courses. The Australian Ambassador upon hearing about a country team based approach previously used by our team at the Centre for Disability Research and Policy was keen to entertain an application by the Pohnpei Department of Health Services under this scheme to support health service development in FSM. The approach taken by our Centre was to include a team from each country, the national statistician, the senior health service director or deputy director, the senior director or deputy director from the department of labour and social affairs, and a senior representative from a Disabled Persons Organisation (DPO). Together this team identified a case study prior to coming to Australia, worked on this during the program with a dedicated member of the University team, and the university

provided follow up for implementation by way of electronic communication and in-country visits where practical and relevant.

- The US government provides funding under special programs. During our visit, we learnt of the special education program in the US Department of Education, the Community Health Centre program and the Rural Development Program, all of which provides grants for specific purposes for which FSM can apply and which are additional to funds under the US-FSM Compact. It is possible there are grant funding opportunities in the US Department of Health which could be accessed to strengthen rehabilitation in the health system of FSM.

5.2 A way forward

- Strengthening health systems requires strategy, policy, planning and implementation. Strengthening rehabilitation in health systems can be done in three ways at this level:
    - by incorporating rehabilitation and building workforce capacity into already existing strategies and programs
    - by incorporating rehabilitation and building workforce capacity into related health areas
    - by developing national and state based rehabilitation strengthening strategies which present a systematic, considered and short, medium and long term approach to meeting the rehabilitation needs of the population
- Firstly, investment in strengthening rehabilitation in health systems and building workforce capacity can be **incorporated into already existing strategies and programs**. It is not necessary to delay until there is state and/ or national rehabilitation in health systems strategy and accompanying policy. Basic rehabilitation techniques can be incorporated into primary health care strategies, planning, policies and practices. Primary health care already exists in FSM as evidenced by the distribution of dispensaries throughout the community. As noted above the dissemination of rehabilitation techniques broadly throughout the community at the primary health care level and including to families and caregivers can have a significant impact on reducing disability and dependence both in relation to NCDs such as cardiovascular disease and stroke and slowing functional decline in the older population.
- Secondly, investment in strengthening rehabilitation in health systems and building workforce capacity can be **incorporated into new national and state strategies in related health areas** as these are developed. We understand that the WHO Country Liaison Office is working with DHSA to develop a national NCD strategy. As evidenced by the material presented here, the inclusion of rehabilitation with NCD in WHO governance and strategy, and the relevance of rehabilitation to reducing the impact of impairment, reduced functioning, secondary conditions and comorbidities associated with NCDs, there is ample opportunity to incorporate rehabilitation in NCD strategies at national and state level.
- Thirdly, investment in strengthening rehabilitation in health systems and building workforce capacity needs to be **considered at national and state level as a distinct rehabilitation capacity building strategy with a specified time frame and achievement targets** at specific time lines for the short term, medium term and longer term. We understand that the FSM National Government is well versed in formulating particular health strategies, and the State governments responsible for implementing these strategies through their actions. It is critical that a rehabilitation in health systems strategy is developed to guide investment for

future directions in facilities, workforce, service delivery at each level of the health care system and the availability and maintenance of affordable assistive technology products.

6. Next steps

During our Field Visit we collected much additional data particularly on preferred learning methods which will inform the next steps of this project. The remaining two phases are:

Phase 2: Scoping existing rehabilitation materials for adaptation as required for prioritized conditions in the Micronesian context. This phase involves desk review and consultations with providers of rehabilitation in remote Pacific (and other) locations.

Phase 3: Design of context relevant training materials for basic rehabilitation skills for identified priority health conditions with recommended integrated approach to delivery of training to educate health workers and families and caregivers across the continuum of care from acute, ward based care to out-patient service, community health (dispensary) and public health outreach programs to families and caregivers at the village level.

Phase 2 is currently underway and we anticipate providing the outcome from the desk review and consultations to WPRO by end of October 2017. Phase 3 will commence later in 2017 and continue into the first quarter of 2018 resulting in a set of training materials and resources for basic rehabilitation skills for the identified priority conditions of stroke and functional decline associated with aging.

Appendix A – Summary of meetings and consultations

Day – Time – Venue	**Who?**
Monday July 24	
8:30 – 11:00am Yvonne's Hotel	Background briefing with - Stuard Penias – Youth and Disability Program Coordinator Department of Health & Social Affairs, FSM National Government - Johnny Hadley, Interim State Disability Coordinator, Department of Health Services, Pohnpei State Government
11:30am – 12:15 pm Pohnpei State Government Department of Health – office of the Director of Health Services	Meeting with Mr. Kapilly Capelle, Director of Health Services
Lunch	
3:00 – 4:30 pm WHO Country Liaison Office	Meeting with Dr. Eunyong Ko, Country Liaison Officer
Tuesday July 25	
9:00 – 10:00 am Federated States of Micronesia National Department of Health and Social Affairs	Meeting with Honourable Magdalena Walter, Secretary of Health and Social Affairs, Federated States of Micronesia National Government
1:00pm – 2:30pm Australian Volunteers International Office	MaryAnn Eperiam, Program Officer North Pacific, Australian Volunteers International
4:00pm – 5:00pm Kolonia Community Health Centre	Visit to Community Health Centre
Wednesday July 26	
9:00 – 12:00	Consultation with health staff involved with disability related program
1:30 – 4:00pm	Consultation with people with disability, their families and caregivers
Thursday July 27	
10:00 – 11:00am United States Embassy	Joanne Cummings, Deputy Chief of Mission
11:00am – 12:00pm Japan International Cooperation Agency	Mr.Shibata Shinji!, Country Representative
2:00 – 3:00pm Australian Embassy	Mr. George Fraser, Australian Ambassador Federated States of Micronesia, Republic of Marshall Islands, Republic of Palau
Friday July 28	
8:00 – 9:00am Ocean View Hotel	Breakfast meeting with Mr. Kapilly Capelle, Director of Health Services, Mr Johnny Hadley
10:00am – 1:00pm Madolenimw Municipality	Dispensary visits – Lukop Dispensary and Pohnlangas Dispensary
Lunch	
3:00 – 5:00pm	Home visit

Health Staff Consultation – Wednesday July 26 2017

Pohnpei Department of Health – Hospital Conference Room

Participants included: 1 physical therapist, 1 clinical psychologist, 6 public health nurses from Public Health Programs

Organization – Department of Health Division	**Number of Participants**
Public Health – Maternal Child Health Program	3
Public Health – Cancer Program	1
Behavioural Health and Wellbeing Program	1
Pohnpei Community Health Centre	1
NCD Program	1 (attended half of session)

Appendix B – Estimating Rehabilitation Need

Rehabilitation increases functioning and includes preventive measures for delaying disease progression and preventing secondary complications and co-morbidities. Rehabilitation is an essential component of the health system to increase functioning, prevent functional decline and prevent secondary complications and co-morbidities.

The following estimates come from the rates of diabetes and hypertension recorded in the 2008 STEPS survey conducted in Pohnpei[7]. These numbers are likely to be under-estimates given social and cultural attitudes towards impairment, disability and functional decline, and privacy particularly about difficulties and keeping information within the immediate family group.

FSM and States		**Rate of diabetes amongst 25-64yr olds 32.1%[27]**	**Rate of hypertension among 26-64 yr olds 21.3%[7]**
	Population[28]	Estimated number of people with diabetes	Estimated number of people with circulatory disease
Pohnpei	36,000	11,556	7,668
Chuuk	50,000	16,050	1,065
Kosrae	6,000	1,926	1,278
Yap	11,000	3,531	2,343
FSM Total	**103,000**	**33,063**	**11,354**

Pohnepei State Hospital Data (provided byMr. Johnny Hadley, Chief of Administration and Planning and Interim State Disability Coordinator). This provides some information on the conditions most frequently treated at the hospital.

Total patient admissions in FY2014 – 4,469

Total patient admissions in FY2015 – 4,406

Top 3 leading causes of admissions	Influenza like illness	Urinary tract infections	Diabetes
Top 3 leading causes of mortality	Acute bronchiolitis	Intra-cerebral haemorrhage	Diabetes mellitus
Top 3 reasons for presenting to outpatient department (2015)	Influenza like illness	Measles	Diabetes

[27] Government of the Federated States of Micronesia & World Health Organization Western Pacific Region (2008). *Federated States of Micronesia (Pohnpei) NCD risk factors: STEPS Report.* Suva.

[28] Population estimates based on Division of Statistics, FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management (2010). *Summary analysis of key indicators from the FSM 2010 Census of Population and Housing.* Palikir.

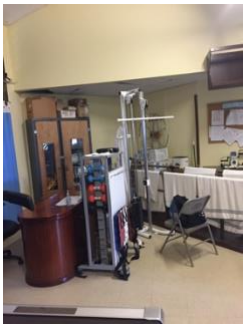
Appendix C – Health System in Pohnpei and Available Rehabilitation

Service/Facility	**Overview of services and infrastructure**	**Rehabilitation**
Pohnpei State Hospital	4 wards – male/female surgical and male/female general medical 14 beds per ward – 2 nurses rostered per ward when full. Outpatient department – follow up clinics including diabetes monitoring Emergency department and radiology	Physical Therapy Department. 1 room with: -exercise therapy equipment (parallel bars, weights, treadmill) -electrotherapy -traction -whirlpool 1x massage therapist 5 days/week 1x physical therapist 3 days/week (employed by Community Health Centre) Receive referrals from doctors on the ward and outpatients' department – varying understanding amongst doctors of the services provided by PT department.
Kolonia Community Health Centre	Funded under community health program of the US government. Community health services available on ground floor, administration and staff on second floor. -Dental health – dental health technician -Maternal child health – regular follow up until 6 years old with focus on nutrition -Cancer screening – e.g. HPV, breast cancer -Medical consultations – 3x doctors (including Dr. Josephine Simon, Centre Manager) -Diabetes monitoring including foot care -Cardiovascular monitoring -Radiology – 1x radiology technician -Pharmacy – 1x pharmacist -Physical therapy – see next column for detail All programs include some community outreach and there is a recognized need for services close to people's homes	Physical Therapy provided by: 1xPhysical Therapist 3 days per week - including Saturday outreach (also works from Pohnpei State Hospital 3 days per week)– Filipino national on contract until end of 2017 1 x traditional healer with chiropractic skills (1-month course in China). Both conduct home visits on Saturday (approx. 14 patients each). Back pain is primary condition that is referred to PT. Both see some patients for stroke rehab but it appears this is not widespread and depends on the family's request for these services.
Division of Public Health	Includes the following programs: -NCD – including diabetes and cardiovascular -Behavioural Health and Wellness -Tobacco -Sexually Transmitted Diseases -AIDS -Leprosy -Immunization	EHDI – screens all children at birth then follow up screening for children who don't pass. Telehealth program linking with audiologists in US (funded by US government) CSCHN - linked to special education program provides home visits and community services for children with special health needs

	-Early Hearing Detection and Intervention (EHDI) --Maternal Child Health Care including Children with Special Health Care Needs (CSHCN) Centralised service in Kolonia with community outreach to dispensaries – weekly visits to main islands dispensaries (not all) and bi-annually to outer island dispensaries There are 34 staff employed under the public health division which includes the dispensaries outside of Kolonia (excludes KCHC). The staff roles include program coordinators, health assistants, nurses and data management.	Behavioural Health and Wellness – counselling services for patients across the other programs. Much of work focuses on substance abuse.
Dispensaries	10 dispensaries in total in the state of Pohnpei: -5 on main island (including Kolonia Community Health Centre) -5 on outer islands Staffed by health assistants (some have 2 – as per above there are 34 staff employed across the dispensaries and public health programs excluding KCHC staff). Provide basic assessments, medications and referral to hospital if necessary.	No rehabilitative care identified. Potential for screening for the need for rehabilitation and teaching families basic rehabilitation techniques.
Department of Education	Reported* to include special education program which provides services to children with disabilities up to the age of 21. Includes home visits, special education – including sign language, physical therapy. *We were unable to meet with Department of Education during the consultation visit July 2017	According to reports* there is one physical therapist working with the Department of Education. Unclear of qualification and training but very experienced and now close to retirement.

Appendix D - Photos of Health Service Infrastructure

Physical Therapy Department – Pohnpei State Hospital

Physical Therapy Department – Pohnpei State Hospital	 
Kolonia Community Health Centre	
Dispensaries