Simbani Integrated Research
Telehealth, Digital Access, Innovative Remote Strategy Solutions and Service Development

Australian Government
Department of Industry, Science, Energy and Resources

AusIndustry
Cooperative Research Centres Program

Digital Health for the Bush 2021

DH4B 2021 – Draft Report (Milestone # 33)

9th November 2021

Authors: Marianne St Clair, David Murtagh and Ishwar Ramkumar.

Draft

Acknowledgements

Simbani Research and the project team would like to acknowledge the contributions of all presenters and participants to this forum, the associated research and the Broadband for the Bush network meetings. We would like to thank the Asia Pacific College of Business and Law, Charles Darwin University for hosting the DH4B 2021 Forum.

The project team also acknowledge the financial support of the Cooperative Research Centre for Developing Northern Australia (CRCNA) which is part of the Australian Government's Cooperative Research Centre Program (CRCP).

The CRCNA acknowledges the additional support provided by the Western Australian, Northern Territory and Queensland Governments.

We acknowledge the financial and in-kind support of the project participants:

- Emerge IT Solutions
- Laynhapuy Homelands Aboriginal Corporation
- Puntukurnu Aboriginal Medical Service
- SkyMesh
- Synapse Medical Services
- VisionFlex
- Asia Pacific College of Business & Law
- Biz365
- NBN Co

With support from the Isolated Children's and Parents' Association & the Broadband for the Bush Alliance.

A special thank you to Edwina Griffin and AtOne Australia for sponsoring the DH4B 2021 Forum.

Draft

Table of Contents

Draft

Draft

Glossary

Abbreviation	*Full name*
ACCAN	Australian Communications Consumer Action Network
ACCHO	Aboriginal Community Controlled Health Organisation
ACRRM	Australian College of Rural and Remote Medicine
ADHA	Australian Digital Health Agency
AHCWA	Aboriginal Health Council of Western Australia
AMS	Aboriginal Medical Service
AMSANT	Aboriginal Medical Services Alliance Northern Territory
B4BA	Broadband for the Bush Alliance
CDU	Charles Darwin University
CHF	Consumers Health Forum of Australia
CHIA	Certified Health Information Australasia
CPD	Continuing Professional Development
CRCNA	Cooperative Research Centre for Developing Northern Australia
DCC	Darwin City Council
DNA	Did not attend. Describes the situation where the patient doesn't turn up for the appointment - a common problem with Aboriginal people from remote areas.
DoH	Department of Health
ECG	Electrocardiogram
GP	General Practitioner
GPS	Global Positioning System
ICD	International Classification of Diseases
ICPA	Isolated Children's and Parent's Association.
ICPA NT	Isolated Children's Parents' Association of the Northern Territory

KAMS	Kimberley Aboriginal Medical Service
LHS	Laynhapuy Homelands Health Service
MBps	Megabytes per second
MHR	My Health Record
MP	Medical Practice
NBN Co	National Broadband Network Corporation
NDIS	National Disability Insurance Scheme
NFF	National Farmer's Federation
NP	Nurse Practitioner
NRHA	National Rural Health Alliance
NT PHN	Northern Territory Primary Health Network
NTCA	NT Cattlemen's Association
OOP	Out of pocket expenses
PAMS	Puntukurnu Aboriginal Medical Service
PHI	Private Health Insurance
PHN	Primary Health Network
PSR	Professional Services Review
RACGP	The Royal Australian College of General Practitioners
RRRCC	Rural, Regional and Remote Coalition
WACHS	Western Australia Country Health Service
WONCA	World Organization of Family Doctors

Agenda

Digital Health for the Bush (DH4B) Forum 2021 Tuesday 9th November.

Addressing the great RRR divide:

How can we increase access to a greater range of health services for Rural, Regional and Remote (RRR) people?

1:00	**Welcome and introduction:** Darius Pfitzner, Asia Pacific College of Business & Law (APCB&L). Outline and house- keeping, session will be recorded, ***Respects to Traditional Owners***
Workshop facilitated by Senator Dr Sam McMahon.	
1:05	Opening address, including objectives of workshop. The Forum will follow on from last year's DH4B Forum and explore how access to a wider range of services can be provided to Rural, Regional and Remote (RRR) people through telehealth.
1:10	The Cooperative Research Centre Northern Australia (CRCNA) – Dr Ian Biggs, Senior Project Manager, CRCNA.
1:15	Update on CRCNA Telehealth Project – Marianne St Clair, Researcher, Simbani Research.
1:25	Technology in action: David Murtagh, Researcher, Simbani Research, John Kelly, Senior GP, Laynhapuy Homelands Health Service, Mike Harmon, CEO & Founder, Visionflex.
1:40	The benefits of Community Wi-Fi at Gawa: Dr Kathy Gotha Guthadjaka AM. & Mr Colin Baker
1:45	One year on - what we've seen, what we're hearing and what's next for NBN Co in supporting digital health in the bush - Dr Jen Beer, Head of Health and Education – Regional and Remote, NBN Co.
1:50	Telehealth for the Bush (TH4B) Update: Dr Margaret Faux, CEO & Founder, Synapse Medical Services.
2:00	TH4B Case Study from a clinician's perspective: Professor Stephen Faux, Director of the Departments of Rehabilitation at St Vincent's Hospital, Sydney.
2:05	TH4B Case Study from patient's perspective: Tiani Cook, Founder, Horses for Courses.

Draft

2:10	Q & A.
2:20	Mapping the Digital Gap, Dr Daniel Featherstone Senior Research Fellow, ARC Centre of Excellence for Automated Decision-Making and Society
2:25	Using Tech to Target Stress & Build Mind Fitness: Edwina Griffin: Founder & CEO of AtOne Australia
2:35	Break for afternoon tea
3:00	Evaluation of the current service delivery models and systematic review of telehealth surveys post COVID. David Murtagh, Senior Researcher Simbani & PhD Candidate. Some of the identified barriers for RRR residents accessing a wider range of services through telehealth: • Access to adequate telecommunications. • Digital literacy levels of patients, clinicians and support staff. • Affordable, easy to use and reliable videoconferencing hardware and software. • Capable clinical staff willing to embrace quality improvement using new technologies in their work practice. • Viable business models that allow for the remuneration of telehealth services. • Collaborative partnerships between healthcare providers. • Interoperable health information systems capable of recording/making available all patient health data.
3:05	Let a lawyer guide you through the MBS Wild-west, Dr Margaret Faux.
3:10	Q & A
3:15	ICPA Panel Session: The importance of accessing telehealth services for children in remote areas: Suzanne Wilson, Kerrie Scott & Amanda Murphy, ICPA; Nicole Ramsamy, Nurse Practitioner.
3:35	Summary of ICPA Panel Session: Jen Beer, NBN Co.
3:40	Introduction to Panel Session and Panel Members – Senator Dr Sam McMahon (each Panel Member will provide a brief introduction)
	How can we increase access to a greater range of health services for RRR people?
	Margaret Faux: Margaret Faux, CEO & Founder, Synapse Medical Services.

Draft

	Edwina Griffin: Founder & CEO of AtOne Australia
	Kerrie Scott: NT Isolated Children's and Parents' Association Councillor and Katherine Branch President.
	David Murtagh: Simbani Research (25 years' experience in health technologies).
3:45	Panel discussion.
4:45	Workshop summary, outcomes and recommendations: Senator Dr Sam McMahon & Jen Beer, NBN Co
4:55	Close of Workshop and welcome to Networking Session: Darius Pfitzner, (APCB&L).

Figure 1. The DH4B 2021 was a collaboration with ICPA NT. Photo supplied by ICPA NT.

Draft

Executive Summary

The Digital Health for the Bush (DH4B) Forum 2021 was held at the Asia Pacific College of Business and Law, Charles Darwin University, Darwin on the 9th November, 2021.

Approximately 49 people attended the DH4B 2021 with most attending virtually due to the COVID-19 situation (the Northern Territory had just come out of Lock Down and a number of restrictions were in place).

Overall Summary.

Telehealth has been around for a long time in many forms (originally done via telegraph). The pre-COVID telehealth did not really work well in many situations due to a lack of collaboration, easy-to-use technology, and suitable business models. It is clear from the DH4B 2021 Forum and the Telehealth for the Bush (TH4B) Trial there needs to be a collaborative and partnership approach to maximise the efficiency and effectiveness of telehealth. It is also clear "breaking traditional models of health service delivery is hard". Telehealth in the bush is not optional, it is essential. Currently, some health services are very, very difficult to access, or, are not available to rural, regional, and remote (RRR) people. The TH4B trial has demonstrated this innovative model of service delivery can "close the gap" in service delivery between Urban and RRR people – i.e. reduce "the Great RRR Divide".

Below are listed some of the barriers and issues identified from the forum.
Lack of adequate and affordable connectivity is still a barrier to telehealth access.

Lack of access to patient data & interoperability issues remain another major barrier to improving health services, not just services provided through telehealth.

Medicare.
The Medicare system is complex – a single item number may have over 500 rules and it is not well understood. The Medicare system needs to be repaired. We need to be using the allocated Medicare funds more efficiently. In Australia there is a gap between clinical and billing information (they are completely separate) unlike the rest of the world. Voluntary patient registration may be useful. There may be problems for RRR people with the model proposed in the 10 year plan – it may reduce access to health services for RRR people.

Lack of accessibility to health care services.
For many RRR people, there is no "nearby GP" with patients possibly having to travel 8 hrs to see a GP as well as having to wait weeks or months for an appointment. Where people cannot access a GP there needs to be the option of telehealth, possibly with a Nurse Practitioner (NP) for the initial consultation. At this point in time we need to use NPs as Medicare has a barrier to GPs accessing telehealth item numbers (the GP, or another GP from the same practice, needs to have seen the patient in person at least once in the previous 12 months before being able to claim telehealth Medicare items).

Aboriginal children with Fetal Alcohol Spectrum Disorder (FASD) and other health issues (e.g. ear, nose and throat) being undiagnosed and therefore, not treated.
Due to the lack of access to the necessary clinicians, many children in remote Aboriginal communities are not being diagnosed when they possibly have FASD and other health issues

Draft

which can impede their development. This results in these children not being diagnosed as well as them not being able to access support services such as NDIS.

Training and Education.

Training and understanding how to use the technology and equipment is very important so people can make the best use of the resources available to them.

Health professionals need to be educated about the context of RRR people so they can understand their patients' circumstances.

Many clinicians from "down south" do not have the knowledge about our northern and tropical diseases. For example, it is common for diseases such as Melioidosis, Malaria or other tropical diseases such as Chikungunya not to be initially diagnosed by clinicians in southern urban contexts. Clinicians' education should include this knowledge as well as "how to do a consult via telehealth" – particularly via videoconferencing and using technology including smart tools.

Patients getting lost in the system & lack of continuity of care.

Some patients are not receiving the care they need as they are just "lost in the system" (e.g. referrals not being actioned). This results in some people not getting the care they need. There needs to be a navigation service to ensure this does not happen (as evidenced by TH4B Trials). Patient-centred care with good continuity of care should be the aim.

Patient data, MHR and data interoperability.

Providers have been slow and resistant to engage with MHR. The population of MRH needs to be properly funded. Once MHR is populated, it may then be seen as a valuable tool and be used by clinicians.

Patients not having access to their data is a barrier to Telehealth. Patients want access to their data and they want clinicians to be able to access their data.

Clinicians are not uploading data to MHR and, in some cases (eg pathology and diagnostic imaging data), refusing to upload data to a patient's MHR when requested to do so.

There is a lack of data transferability and interoperability between providers.

We need to move from exclusion to inclusion so we can close that gap.

Some health services not billable to Medicare.

ICPA members report speech pathologist and paediatrician consultations are not billable to Medicare. There needs to be more allied health services included under Medicare.

Lack of access to services resulting in late diagnosis and delays in treatment.

RRR people often do not have access to health services so there can be delays in diagnoses, and therefore treatment. Having timely access to health services would save $1,000s.

Some of these services, such as speech pathology and mental health services can be delivered very effectively by telehealth.

Draft

There is a lack of primary health care services for the bush as well as specialist and allied health services. This results in poorer health outcomes, and, in the case of development issues in children, poorer education outcomes.

RRR areas have less access to diagnostic services and may have to wait months for those services to become available.

Non-Indigenous people unable to access health services at local clinic.
Participants reported there are a number of examples where non-Indigenous people have been refused care at remote health clinics.

Video consultations not offered to patients.
Many GP services are not offering, or are refusing to do, telehealth via videoconferencing.

High staff turnover in remote clinics.
This reduces the effectiveness of the health service and contributes to poor continuity of care.

Nurse Practitioners (NPs) are an under-utilised resource.
NPs need more support from government, more Medicare item numbers. NP need to be recognised for the services they can provide (some NPs are not able to access their patient's health data as they are "only nurses" and not GPs).

More NPs could supplement the deficiency in GP services in RRR areas and reduce the RRR divide.

Smart Devices.

There are a range of good quality smart diagnostic tools which, if made available in RRR areas, could improve health service delivery. There are new devices being developed including prototypes of a 30 kilo CT scanner. Many of these devices are, and can be, remotely deployed by the RFDS or similar services.

There is a stigma to mental health issues and smart devices such as augmented or virtual reality tools may be seen as "cool tech" and taken up more readily – particularly for young people.

Possible Solutions

SNOMED codes are the international language of health used in most countries and are part of Australia's digital health strategy. There are 2 million SNOWMED codes and they can be tailored to a particular context such as remote Aboriginal health. Patient privacy can be further protected with the use of these codes whilst providing good quality data for decision makers. Use of SNOMED codes could provide better visibility over Medicare claims.

Telehealth for the Bush (TH4B) Trial:
The TH4B Trial has successfully provided services to 38 patients including resolving some complicated case scenarios. The Synapse Medical Billing Application improves the billing process as well as supporting a referral pathway – it is central to the success of the TH4B Trial.

Draft

The trial has identified a number of barriers and issues with implementing services via telehealth and these have/will be captured in the case study research component of the current CRCNA Telehealth Project.

It is clear the TH4B model can supplement health services in RRR areas and potentially "reduce the gap" between Urban and RRR health service delivery.

Final comments:

The pandemic has taught us there are so many things that we can do remotely. A lot of the technology has been around for years – but we are just learning how to use it. We do need to acknowledge how far we've come and how far we still need to go.

It is very clear there is a divide between Urban and Rural, Regional and Remote (The great RRR Divide). Data access, transferability and interoperability are major barriers to improving health care service delivery. There is also a lack of continuity of care and patient-centred care is needed. It was agreed there needs to be more research, more services and more infrastructure. We are still a long way from 'closing that gap'. However, working together collaboratively we can potentially solve the Great RRR Divide problem.

Draft

Presentations

The Cooperative Research Centre Northern Australia (CRCNA)

Dr Ian Biggs

Senior Project Manager, CRCNA

Link to slides: Insert link to power point.

Update on CRCNA Telehealth Project.

Marianne St Clair, Researcher, Simbani Research

Link to slides: https://bit.ly/DH4B-P3

Technology in Action

John Kelly

Senior GP, Laynhapuy Homelands Health Service

Link to video: https://bit.ly/DH4B-TIA-JK

David Murtagh

Link to video: https://bit.ly/DH4B-TIA-DM

Alex Hollings

Sales Manager, Vision Flex

Link to video: *https://bit.ly/DH4B-TIA-AH*

We (Visionflex) haven't done too much in the pathology realm and typically a lot of pathology is not something that can be done just over a standard consult in a small period of time. A few of the Aboriginal Medical Services have asked about the integration of a specific device, non-invasive blood analysis rather than having to do the finger prick with traditional blood glucose devices. I'll find the device because I need to speak to the manufacturer about it, and I'll send it through to you and we can talk about that that further.

The spirometer is another one that many people want to have us integrate into the device, so we have a spirometer tile and we're in the process of doing that now as well. We've got all sorts of devices and interesting things we want to add. It's just a question of software engineering time. We're going to have a lot of interesting things coming out in the next few months to show and add to the telehealth experience. Even the technology on certain devices is getting a lot better as well.

Draft

There are paediatric-specific devices as well. Paediatrics is a big one, particularly with otoscopy, ear, and that sort of thing. There's such a broad spectrum of things to cover now with telehealth because we can do all these consults. We're looking at everything, and we're open to everything. Any device suggestions or examinations you want to be done, by all means, let us know. We're very keen.

The benefits of Community Wi-Fi at Gawa

Dr Kathy Gotha Kuthadjaka AM & Mr Colin Baker

Link to video: https://bit.ly/DH4B-KGK

Hello, thank you for giving us some of your time today. Okay, first of all, we would like to say that we are ***very keen*** to see a couple of young people at Gawa trained up as telehealth technicians, and we're starting on this pathway. We're very keen to break through all the hurdles that there are at the moment. We look forward to the day when that service will be functioning well out there. Even just having the Wi-Fi out there has made a tremendous difference in the area of health at Gawa.

My wife, Gotha, is here in Darwin. We're stuck here as she relies on renal dialysis - we're here for health reasons and we can't really get away. Now we're making use of the new renal unit at Galiwinku for extended breaks out there. But it was such a wonderful relief to be able to talk to people back home, to talk to family, and keep up to date with what's going on. One of the first, of course, urgent calls that we got was in relation to COVID-19 vaccination. The people out there - you could imagine if you are living remote and without communication with the outside world, and you hear all these stories. You're going to have a lot of questions before you decide to go ahead and let someone jab you in the arm with something you don't know anything about.

So, communication has been a really a big help in that situation. The first call we got was from the Old Man of the community who wanted to know the story. People go out there from government to try to encourage people for vaccination, which is a good thing, but they (government workers) are unable to answer the key questions that the people have. Government policy actually forbids their workers from really handling those questions in a proper way.

We were able to tell the people at Gawa "You know the mob at Marparu have all been vaccinated with AstraZeneca - no problems whatsoever - the whole community!". That little piece of information that came through the Wi-Fi network – it wasn't there six months ago. It really set people at ease and answered a lot of their questions. We've been able to talk to people and encourage them to go ahead and get prepared for the crisis that's approaching. That's a health crisis and the people out there are relieved to be able to get on the telephone and talk with trusted sources outside of the community. What a difference - this has been amazing!

Thank you very much. We look forward to the day when we can talk a lot more about telehealth and about our technicians are going now.

Draft

Telehealth for the Bush (TH4B) Update

Dr Margaret Faux: CEO & Founder, Synapse Medical Services.

Link to video: https://bit.ly/DH4B-MF1

Our billing app - it's been a decade in the making, we're very proud of it and it's been critical for this project; it's the referral mechanism.

So, if a nurse practitioner sees a patient, they bill a patient using that app you see on the screen, and then they will refer the patient to a specialist via that app. Then a specialist somewhere in Australia will open it and say, *"Oh, I've got a referral to see a patient in Gawa, I'll organize an appointment."*

Medicare is critical to the success of this project, the future of this project, and telehealth in the bush, but it is very complex. A single item number can be subject to over 500 rules attached to that one item number and Medicare is getting more complex all the time. The federal government is chasing recoveries from incorrect Medicare billing all the time.

What's important, and where we can help the participants in this program, is to make sure they're billing correctly and help them understand how to bill so we do a lot of education. Pre-COVID, telehealth was there; a lot of you would know specialist telehealth has been around for years.

The original pre-COVID telehealth was intended to provide specialist care to remote communities and it didn't work. I think that we are realizing why it didn't work. It was largely because of this lack of collaboration and business models and understanding how we all need to work together to make it happen.

With Marianne and David from Simbani, it's been an exciting project to work on. It all came out of a conversation one day where someone said that they had a friend who needed to see a doctor. I think it was the nurse in me who just said, *"Oh, for God's sake, I'll get you a doctor tonight. What is the problem? We will get you a doctor."*

I've got roughly 1000 specialist doctors who are clients. I've got nurse practitioners and GPs as well, but 99% of our clients are specialist medical practitioners all over Australia because they use our billing service, so we've got them everywhere and I said, "*Look, I'll just get you a doctor."*

So, we just got them a doctor, and it worked. They got treated and we thought, let's roll this out more broadly. We have to use nurse practitioners at the moment because of Medicare barriers to general practitioners, but nurse practitioners and general practitioners are both very important in this project.

We are not favouring one over another, we are actually saying if you can get to your GP, go there. That's your entry point to the health system. But as we know, for remote communities, that is not always possible. We set up this program with Marianne and Dave, and we've seen 38 patients. Basically, if you can't access a GP, you jump online fill out a form, and we get a nurse practitioner to have a consult, and we refer them to specialists.

Draft

I've got access to the transplant team in St Menzies hospital Sydney, we've got specialists who are our clients. What we need is the models of care and the pathways and that's a little more complex. What's exciting for all the specialists who are participating in this project is because it's coming through Synapse, through our company and our app, we can control and see what they're billing. They have to agree to bulk bill and they're all agreeing to do that.

It's not easy for nurse practitioners but that's usually the biggest impulse. The biggest cost for patients is the specialist consults that can break the bank because they're very expensive, but they've got access to the pre-COVID telehealth item numbers and they're actually quite high paying item numbers. So, the specialists are actually fine with bulk billing, and we're also getting people operated on in hospitals.

We've done all sorts of interesting things over the last seven months. I think what we've learned over the 38 patients that we've treated so far, is that we talk about patient-centred care a lot. I'm not sure that we all understand what that means, or we all had a different perception of what that means because I've certainly learned a lot coordinating the patients so breaking traditional models of health service delivery is hard.

One example is we refer the patient to the nurse practitioner, nurse practitioner referred the patient to an experienced rehabilitation physician practising out of Melbourne, but that doctor had done some training in Darwin, and knew a lot about the Northern Territory ecosystem. She saw the patient, did a consultation with the patient, and then referred them up to something that got lost in the public system.

Because we're like a patient navigator, we contacted the doctor and said what happened, should I have referred her to the something clinic, and she'll be seen in the next 18 months, and I had to have a quiet word to the specialist and say, "*I know you did that, I know that came from a good place and you felt you were doing the right thing for that patient and you probably were in an old fashioned world, but please don't do that again. Please tell us what the patient needs, and we'll go find it. We don't want her to get lost in the public system."* That's just one example.

TH4B is a simple telehealth concept, but its rare those patients need just the one consult. That's been a key learning where they all need allied health. Some need surgery, they need MRIs, they need X-rays they need blood tests. As Marianne said, pathology and diagnostic imaging have been a major blocker because they just are a bit intransigent about putting results up on my health record (see Note 1 below).

We realized telehealth is not optional in the bush. It's essential and these people need it but are currently denied access. We couldn't have done this without putting a full-time staff member on it. It would not have worked. Without that, these patients would have been lost. Partnerships and collaborations are essential, and continuity of care is critical. But what does it mean? I go back to the patient-centric model, patients are telling us they don't want their records held in GP clinics.

I want my records held on the central government's My Health Record so I can get services wherever I need them or wherever I can so when I can get to my GP clinic, my GP can access them from My Health Record. The providers have been quite slow and a bit resistant to engage with My Health Record but funding models are key. We need this to be properly

Draft

funded and the current barriers in Medicare are not going to make it sustainable, particularly for nurse practitioners, but also for GPs.

Note 1. From the Telehealth for the Bush Trial it has been found some diagnostic services are refusing to give those results to the patient, refusing to upload to My Health Record and, in some cases, only prepared to send the hard summary report to the clinician who referred the patient via traditional mail, not electronic mail.

Case Study from a clinician's perspective

Professor Steven Faux: Director of the Departments of Rehabilitation at St Vincent's Hospital, Sydney

Link to video: https://bit.ly/DH4B-SF

I'm a Professor of Rehabilitation Medicine and pain medicine. I've spent a long time being interested in rural health and how people in the city can actually help people in the country get the health that they need. But it's through Telehealth in the Bush (TH4B) that I was able to be effective for one of the first times. I thought I'd tell you about a handful of cases worked with telehealth in the bush.

I was contacted by TH4B to speak to a woman who'd fallen off a horse, hurt her knee and had a lot of trouble walking after that. I saw her by telehealth and TH4B who organised some physiotherapy and I was able to send the local chemist a script for her start as well as some exercise. Six weeks later when things were not that much better TH4B helped me organise an MRI of the knee which we did in the local area. When that came back, it became clear that she needed to have an operation to repair a damaged cartilage. TH4B organised an outpatient referral for her. And then she had the surgery within a few weeks. And that was all completely on Medicare and nothing out of pocket for her.

I also helped speak to a woman who had significant pain and stress associated with some financial difficulties to do with her cattle. It was interesting seeing her because she couldn't speak to me unless she was in her cattle shed standing on a stool to get the reception. But we were able to make it work and I was able to send her some psychological information and some advice from a psychologist. She was able to manage her pain using mental processes and psychological treatments.

I also had a woman who was referred to me with pain but I discovered that she had a thyroid problem and her weight was swinging wildly. TH4B helped me find an endocrinologist who got onto her and put her on the right medication for the thyroid. Her weight started not to shift as much and we got a physiotherapist to see her online. That was through TH4B. She did exceptionally well and was very happy with a very good outcome.

I also spoke to a chap with pain who was working in a retail industry in the Northern Territory. He needed an MRI and that's not easy to get in rural centres! TH4B sorting it and helped me find a place. He had an MRI and I was able to reassure him that he could just have physio and manage it with some non-opioid or non-morphine painkillers.

TH4B actually helps me to actually treat patients, I can diagnose them and I know what the treatment is. But I have no knowledge of the local resources. And that's where TH4B comes in. They helped me find what local services I can get. They provide telehealth services for specialists that the person needs, so that I can continue to assist them. I've been thoroughly

Draft

impressed with the way they've been able to help me provide services to people in very remote parts of the country. I hope other practitioners have the same sort of experience. I'm really happy to keep working that way with TH4B. Thank you.

Case Study from patient's perspective

Marianne St Clair on behalf of Tiani Cook (Founder, Horses for Courses)

I was at the ICPA conference in Alice Springs in March this year. Tiani was telling me how she fell off a horse and hurt her knee, and that she probably needed to see someone about it, but it was difficult to organize. I was telling Margaret (Synapse Medical) about my friend Tiani and how she really needed to see someone for her knee, but it was difficult to organize appointments in town (Alice Springs). Margaret said *"Oh, for God's sake, I'll get you a doctor tonight! What is the problem?"* So, Margaret organized a consultation with a nurse practitioner, and then an appointment with Steven Faux, and then the subsequent appointments were all organized by TH4B. All Tiani's appointments were done by telehealth (including physiotherapy) except for two trips to town – one to have an MRI, and the other the operation within the Northern Territory Public Health System (Alice Springs Hospital). That was a really good outcome for Tiani and is a really good story.

Tiani did make a point that some of the difficulties she had getting her diagnostic data from the diagnostic services - clinicians were not uploading the data to My Health Record. At the last Broadband for the Bush Network meeting, she expressed a great deal of frustration over the difficulties in accessing the data, lack of data transferability, and interoperability between providers. She would like to see these issues addressed and her health data uploaded to MHR. That was the birth of Telehealth for the Bush.

Mapping the Digital Gap

Dr Daniel Featherstone: Senior Research Fellow, ARC Centre of Excellence for Automated Decision-Making and Society

Link to slides: https://bit.ly/DH4B-P1

Using Tech to Target Stress & Build Mind Fitness

Edwina Griffin: Founder & CEO of AtOne Australia

Link to video: https://bit.ly/DH4B-EG1

Evaluation of the current service delivery models and systematic review of telehealth surveys post COVID

David Murtagh: Senior Researcher Simbani & PhD Candidate

Link to slides: https://bit.ly/DH4B-P2

Let a lawyer guide you through the Medical Benefits Schedule (MBS) Wild west

Margaret Faux: CEO & Founder, Synapse Medical Services.

Draft

Link to video: https://bit.ly/DH4B-MF2

As someone who's just in the last few weeks, got my PhD on Medicare, claiming, and compliance, I can confirm what David said, 'The operation of the health system, in particular, the funding and health financing, it's both complex and not well understood'.

It is like the Wild West, very messy, quite badly broken but not beyond repair. These are findings from my PhD. I wish I could have had positive findings, but I don't have that many. I do have 27 recommendations for reform and ways we can plug some of the holes and make things a lot better relatively quickly and easily. I think the key thing for this forum here is for everybody to understand is that Medicare's in bad shape at the moment, and we will not be getting more funding from the federal government. I think as a taxpayer, it would be irresponsible for the federal government to pour more money into funding, even if it's for services that we all want and need, until such time as we give something back to the federal government. What I'm talking about there is visibility. The key problem for Medicare has always been a gap between clinical information and billing information, those two things are completely separate, and they are not anywhere else in the world.

The work that I do in other countries, and in other countries, when we bill, the first thing we do is we have to allocate an International Classification of Diseases (ICD) code, which is a diagnosis code. That gives the payer information about why the patient was there. So then if someone does a 40-minute consultation, the government's got information that they can match.

They do things like say, "if the patient came in for a repeat script, why did it take you an hour and a half? Why did you bill a really long consultation, the patient said they came in for a script, what's going on?" That's the way they do it in the rest of the world, but not the way we do it in Australia, and we have to plug that gap.

Maybe it's an opportunity for this forum to put our heads together and like run a trial, a pilot, put something to the federal government and say, *"We will give you the visibility we need in the Northern Territory, we'll add SNOMED codes into every MBS claim so you can see what's going on.",* maybe that's a solution. With the problems the Federal government has currently got with Medicare, we won't be able to press forward with the funding that we need.

Voluntary patient registration was a late entry into my PhD. I've been following it and the day it was all being signed off I just added a quick little section saying I've read what they've written, and I'm really worried about it. Based on the current model in that document, the 10-year plan, I'm very concerned, and I don't think it's going to be great for the bush. I'm pretty worried about it, I think it's going to reduce access. It's probably something that needs further work. It's not a lot of good news there, but it's all fixable.

Principal findings from PhD – Dr Margaret Faux

Claiming and Compliance under the Medicare Benefits Schedule: A critical examination of Medical Practitioner Experiences, Perceptions, Attitudes and Knowledge.

The introduction section of this thesis estimated the quantum of non-compliant billing in Australia at 5-15% of the scheme's total cost, though precise quantification was impossible.

Draft

The size of the Medicare leakage problem is an area where this research has reached consensus with previous work. The new learning and points of difference in this research relate to the causes of the problem.

Prior contributions to this area of research have suggested that non-compliance and fraud is solely attributable to deliberate malfeasance by errant medical practitioners, though this has been largely based on opinions rather than empirical evidence. This study challenges that assumption, suggesting that until the serious systemic problems described in this thesis are comprehensively addressed, and every Australian medical practitioner has been educated on the proper use of Medicare via a nationally consistent curriculum, current opinions suggesting Medicare leakage is principally attributable to medical practitioner misconduct and fraud can no longer be upheld.

Far from being simple, the irrefutable evidence shows that Medicare billing is profoundly complex. This has developed mostly over the last 20 years. There is now layer upon layer of widely dispersed, opaque and impenetrable legal instruments, which means medical practitioners cannot always find the laws that apply to them, and their legal advisors may also be struggling.

Participants of this research demonstrated confusion about even the most basic elements of correct billing, there was no legally reliable advice and support available to them, and they felt powerless to address these issues. The evidence also suggests that the government is equally confused about what is or is not a complaint medical bill, and without visibility over clinical relevance, effective management of scheme integrity is wanting. Further, recent reforms, such as through MBS review taskforce initiatives, may have exacerbated some of these challenges.

There can be no lingering doubt that a nationally consistent, regulated, educational response to Medicare compliance is required, but this research found it cannot be introduced until rule of law problems are first addressed.

By demonstrating the significant complexity of medical billing and the wide-ranging knowledge deficit of medical practitioners in this area, this research concludes with a perhaps unpalatable truth, that a principal cause of non-compliant medical billing in Australia is system issues rather than deliberate abuse by medical practitioners. The need for immediate action to address the issues identified in this thesis is therefore pressing.

Without reform, the government can expect no improvement in leakage and increased litigation against the PSR by medical practitioners, who have no choice but to try and comply with a system they cannot avoid, do not understand, and feel powerless to change. Consumer OOP (Out Oof Pocket) medical expenses will likely continue to rise as MP (Medical Practice) shift the cost burden to their patients, which may in turn accelerate contraction of the (PHI) Private Health Insurance market. An urgent correction to Medicare's billing system infrastructure is required, encompassing regulatory, educational, and digital reform.

SNOMED

Link to video: https://bit.ly/DH4B-MF3

Draft

SNOMED codes are the international language of health. There are different types of codes: there are billing codes, terminology codes, procedure codes, diagnosis codes that all health systems use; SNOMED codes are the term. Importantly, they're not billing codes, you can't use them for billing. There are 2 million of them, you would not give doctors 2 million things to bill that will just make all our problems worse. They give meaning to what was meant by any word that can be put into a digital health system.

What did the doctor mean? So, when they put in DD, they often do that something that's in a health record. Did they mean diverticular disease, developmental delay? There are about four other meanings of DD, so it gives you meaning based on context.

It's the international language of health used around most countries in the world now and because they give you meaning the codes can be used for a lot of different things. They're very important and helpful in research, but they're not research codes. Some people think they are, they're not the terminology codes, but you can use them for a whole lot of things.

So, if a patient presents with fever, cough, sore throat, you'd get three SNOMED codes that would say fever, cough, sore throat. It's not about adding value to that, it's just giving information to the government. And then you might bill item 23, which is a GP consultation. Then it makes sense if you would spend 20 minutes with someone who had fever, cough and sore throat.

You also protect patient privacy with coding because you don't need patient details and you don't need a lot of words. So it's quite a good way of passing information around while protecting patient privacy.

So that's sort of a crash course in SNOMED, it's the international language of health and every other country uses it. This is again from my PhD. The American Medical Association has been using it for 10 years, working closely with SNOMED International to align and harmonize their clinical terminology products. So the MBS equivalent in America is aligned with SNOMED.

WONCA (World Organization of Family Doctors) - International Organization of primary health doctors has also aligned their code sets with SNOMED. In Australia SNOMED is part of Australia's digital health strategy. It underpins Australia's digital health strategy, and it's already sitting in the back of my health record so it's already part of the framework. I believe it's one of the ways we can get better visibility over Medicare claims as well. Someone might come up with a better solution, but that's the one I've come up with in my thesis.

ICPA Panel Session: The importance of accessing telehealth services for children in remote areas

Suzanne Wilson

ICPA NT - Vice President and Federal Secretary of ICPA Australia

Link to video: https://bit.ly/DH4B-ICPA1

Northern Territory rural remote families often have little or no access to early intervention services. So, some students start school with undiagnosed learning difficulties. Often, it's a

Draft

home tutor, usually the man who makes observations in the home-school room and raises learning concerns with teachers when a child starts school.

Nevertheless, there are examples of families going months, even years, before they understood, or had enough information to seek professional help, sometimes without support from the school. Even when the child is identified as requiring assessment, it is a long, slow process through the department of education channels to have the child tested and can only be hurried along with the family affording assessments privately. The consultations are usually very costly, and in addition, there are the expenses of travel, accommodation, time of work, days away from family responsibilities, etc.

Correct critical intervention cannot proceed until the formal diagnosis is done. This leaves the child and home tutor unable to access the systems, often falling behind in their schoolwork. That leads to children with special learning needs or developmental delays. Attaining prompt medical diagnosis of their condition is fraught with long waiting lists, and a lack of available conditions. Ongoing therapy after diagnosis can offer the family meaning - the patient, the siblings, the parent. This leaves the parent having to travel long distances to access this with all the difficulties mentioned before.

ICPA NT understands Medicare rebates for telehealth are available for patients accessing a variety of specialist appointments when they live in rural and remote areas of Australia. Unfortunately, we also understand that speech pathologists and paediatricians are not included on this list. We believe that these are vital services and Medicare rebates should be allocated to a variety of specialist partners when families live in rural remote Australia. I'm waiting to hear Margaret's 27 recommendations; going through it might be some good for us.

So, making these appointments more accessible through telehealth options keeps families in their hometown and children in school, rather than travelling to attend sessions. Research has proven, as we now know, that speech pathology is just as effective by telehealth as one-on-one sessions. The government must remember that the dollars spent now on early intervention for children in specific education needs could save 1000s of dollars in the future in the healthcare system. I don't think anybody can illustrate it better than my good friend Kerrie, who experienced it with her daughter's diagnosis and treatment.

Kerrie Scott

ICPA NT - Katherine Branch President and Councillor

Link to video: https://bit.ly/DH4B-ICPA2

I don’t need to explain to anyone here where we're coming from, Health and Education are working together for isolated children, and I don’t think I need to explain how important health and education together are. We've got 224 pasture leases in the NT and ICPA NT represent 154 families from remote Northern Territory. There's a little yellow dot (on this map), and I'm on the Central Arnhem Road heading out towards Nhulunbuy and Amanda Murphy is at Cape Crawford near Borroloola. I'm in between Beswick and Bulman by around 100km in the middle. If you're from the NT you'll have an idea where those Indigenous communities are, 110 kilometres from basic services. I'm around 100 kilometres each way from any type of mobile service or any clinical care. I've got three children and Distance Education is the way they're educated - often the only way that they can be educated

Draft

during their primary years. There's typically between one and four children in the home classroom and the majority of the teaching is delivered by a home tutor, which is often the mum, sometimes it's what we call a governess that is supported by some daily online lessons through the School of the Air. I want to talk to you about our firsthand experience of what we've been through in the last 12 months.

There's my daughter's Zahli, when she was eight, she was diagnosed with Sydenham's Chorea, which is a neurological manifestation of acute rheumatic fever. In the Territory, acute rheumatic fever is unfortunately quite common, but typically in Indigenous communities and but Sydenham's Chorea is actually a very rare neurological disorder. It's defined as random, appearing continuous while awake involuntary movements, which can affect the entire body. This often includes symptoms in arms and legs, often worse on one side of the body. Additional symptoms may include slurring of speech and difficulty maintaining steady hand grip, anxiety, sadness, inattention, and obsessive-compulsive thoughts. Behaviours may also occur and often affects children over the age of five years old, and usually girls. Sydenham chorea usually develops within weeks and months following a strep eye infection and may occur as an isolated finding or as a major complication of acute rheumatic fever.

The only way that you can diagnose acute rheumatic fever is through elimination. Every other serious thing that you can think of has to be eliminated first because there is no way to actually say that these symptoms - until every single other thing has been discounted. It's an autoimmune disorder. Over a period of months before diagnosis, Zali's handwriting deteriorated. We got to the point where we couldn't really understand what she was writing. In the weeks before she'd become increasingly fidgety, inattentive, and had difficulty focusing on set tasks.

She was repeatedly dropping things, such as her pencil. Her condition deteriorated rapidly and she was rushed to Katherine hospital and immediately sent to Darwin. Within a very short time she became unable to walk unaided, she could not feed herself, she needed assistance to do basic tasks such as brush her teeth, diminished capacity to put sentences together in a meaningful way and eventually she became nonverbal and wheelchair bound. Extensive tests led to the diagnosis of Sydenham Chorea (SC) as a complication. Zahli's SC was able to be alleviated with high dose short term steroid treatment over a few weeks. There have been very limited studies to show the long-term effects of Sydenham's.

One third of children will have a reoccurrence between 1.5 and 2.5 years after the initial onset. Many children report they have continuous issues with their fine motor skills, memory, and fatigue. Researchers have noted an association between recurrent symptoms and the later development of the abrupt onset of obsessive-compulsive disorder, attention-deficit/hyperactivity disorder, tic disorders, autism, and which they call PANDAS (Paediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcus infection).

Further studies are needed to determine the nature of the association and biological pathways that connect strep infection, autoimmune response, and allow the development of these specific behavioural disorders. Zahli will need prophylactic penicillin until she's at least 21 to prevent those additional manifestations of rheumatic fever. I know how important it is for us to keep an eye on whether any of these movements start to reoccur because that's an indication to me that she has acute rheumatic fever again.

Draft

So, moving forward, what does telehealth mean to us? From the moment that we left the hospital, virtually, we were on our own. There's no clinic, we had no GP at the time, there was no GP in Katherine at all. So, my nearest GP would be in Darwin, which is eight hours away. What we need now is regular video consultation with Rizal, her paediatrician, to monitor her condition. Video consultation with the paediatric neurologist located in Sydney is the only other person that could assist us during this whole time. Neurological assessments can be done at home and recorded to be sent to the Allied healthcare team. I became very familiar, very quickly with neurological assessments to see where she was at, which we do often.

Quite often, if I see her doing some unusual movements, or if I see a sudden deterioration of her handwriting, anything that sort of doesn't look quite right - we go back. We'll assess the situation there, we need to do that for us in order for us to come home and have some sense of normality. I can't assess exactly where she's at with those movements, so I needed to be able to send those off to our paediatricians for them to send them off to the neurologist to say, *"Well, what's going on here?"*, and "*what do we do next?*" Unfortunately, with SC it's quite rare and there has not really been a lot of research since the 70s. It's an unusual thing for a non-Indigenous girl to have it in a quite isolated environment. So fine and gross motor skills can be monitored by the Allied Health team through telehealth against baseline assessments and adjustments and assistance methods implemented by an occupational therapist.

Appointments can be made with the least amount of disruption to Zahli's schooling and day-to-day activities resulting in a better quality of life. Problems can be assessed in a timely manner to minimise residual symptoms impacting Zahli's education. What I found that we could do better are video consultations for isolated children. They need to be seen as a typical way to provide health care. When we were in a hospital, nobody really knew how we were going to be able to handle this once we left, because we were so isolated. We had no offers of video consultations and I had really pushed for that because there's no set standard procedure of how we can help geographically isolated children. Healthcare professionals need to have a better understanding of the lifestyle and distance of geographically isolated families and their lack of access to health care.

And not all remote children have access to, or are permitted to use, community clinics. We're non-Indigenous and I can travel 110 kilometres to the community clinic and it's dependent on what nurses and practitioners are there at the time as to whether we're seen. We're certainly not a priority at all. So, a dedicated secure professional video conferencing system, which we've been looking at today, needs to be implemented. So currently, we use private Zoom accounts and WhatsApp linked to individual mobile numbers, there are possible privacy issues and diminished continuity of care.

So, I don't know, like when she got sick, and I had to monitor it from home, and I was worried. Fortunately, you know, the paediatricians had said, *"Hey, look, here's my phone number if you need, because I knew that you were out on our own, if you need something."* so I was able to take some videos and use WhatsApp to send them through to them so that they could look at those things and monitor them. But to be honest, I don't know what happens to those videos. There's no continuity of care there, there's no way that we can look back and look at the history. I look at that video without me holding on to that all that stuff. And private Zoom accounts. I'm lucky that we have a fantastic paediatrician that travels, but she'll do a consult for us at home if we need to - from her home.

Draft

But a professional video conferencing system could be amazing and should be used in conjunction with face-to-face consultations. Health professionals should be visiting isolated children when practical, i.e., when there's the ability to have a face-to-face consultation. There should be allowances for practitioners to incorporate a pastoral property into their travel to community clinics.

As president of the Katherine branch, we have many stories of similar situations where the children are in isolated pastoral properties and we've got practitioners going straight past their driveway. There's no provision for them to be able to stop in and see those children and they can't be seen at the clinic because they're not Indigenous. There are quite a few things that we can do better here.

I'm 110 kilometres from the nearest Indigenous community both ways and a lot of the pastoral properties are closer. We do have a problem because the Territory is such a transient community, so the healthcare professionals are often turned over quite a bit and there's no standard practice. It's dependent on which service provider is being used as to the rules of whether non-Indigenous people can be treated at the clinic.

For instance, on one side of the Territory, we use one particular health provider at the clinics, and on the other side of the Stuart Highway, they use a different one. They're far more open to having non-Indigenous people in the pastoral community to access the clinic, but sort of down toward Alice Springs, there's been actual notices sent out to say, *"do not come to the clinic, you need to go to Alice Springs."* so that could be an extra couple of 100 kilometres to see the same practitioner.

Nicole Ramsamy: Response to Kerrie Scott - *Nurse Practitioner*

Link to video: https://bit.ly/DH4B-ICPA3

My name is Nicole Ramsamy, and I'm based in Queensland. I enjoyed listening to your presentation but also can understand your frustrations. As a health professional, I do find that our services can be very muddled, and particularly, that continuity of care is very difficult to provide in those remote contexts. So, well done! You know what you've done to direct, to get the great care for your family, well done! But as a nurse practitioner going forward, in our day, it's certainly valuable, because we're not having to have many doctors coming into the rural and remote areas.

That's a lot to do to their different medical models for personal needs or whatever. But also, it can come back down to finances. I find that the growing nurse practitioner practice scope means we need to have a lot more support from the government to enable our practice scope to continue to expand.

This is so that we can then deliver a safer service so that we cannot have to always be going back and having limitations, and how we want to treat some of the patients regarding what we're seeing in front of us.

One of the best things about nursing and nurse practitioners in these areas is that we understand our philosophy, and how we deliver that care - for continuity of care is very important, but also the advanced clinical scope. Now expanding our practice to requesting

Draft

different types of investigations is extremely vital because there're so many nurses in the rural and remote communities that we're able to have a better hand.

I think what's happening at a local level, and how things are playing out from a systemic perspective, but also from a regulatory perspective, from how we provide our care, I honestly feel that we really all need to be working together. Some of the biggest things that are letting us down are the different types of IT systems that are across so many of our different service providers.

So, if you're working for Queensland Government, or you're working for a private practice or Northern Territory in different places, you've got so many different places where you can go get your investigations done, but they all don't marry up or provide input back into the system where you're documenting or where you need to follow up care. So, it's really hard to get your investigations that you've ordered. Some places have their own jurisdictions on how they regulate that.

But in some places, they've got an understanding of agreements where they have memorandums, where you can share that information. But again, it comes back down to a personality thing because of the inconsistent staffing issues and in the transient staff in those areas.

I believe that a lot of the doctors coming from down south may not be familiar with these, particularly, the rheumatic heart disease conditions in our tropical climates. It's always known to be affecting the Indigenous population, particularly in those very remote communities where those socio-economic statuses are quite significant. So, the way we're trying to train health professionals is to look out for that information and to provide that community awareness.

I mean, even from that perspective, it's very difficult to easily diagnose these types of conditions, simply because we may not also have a lot of the investigations readily available to us, particularly, echocardiograms. That's part of the vital sort of investigations, to actually classify people's diagnosis, and also where they're at within their condition.

So, we're always going to have those concerns and I feel a lot of the time that we don't provide adequate primary care to people as well. So, it's sort of a hit and miss. You don't get referrals from people and then if you go off to a place where you can get your tests done, it doesn't necessarily mean that you can get that procedure done at the time, simply because of the availability of appointments or access to those referrals.

I feel that we've still got a long way to go. I do strongly believe that telehealth is one of our answers to look at resolving a lot of these issues that we currently have in very rural and remote areas for everyone. I think having that access to that continuity of that service provider is one of the most significant aspects of finding the solutions in providing management to those clients that are at an earlier time, rather than extending the condition to become more deteriorated.

So, I feel that we need to be advocating for nurse practitioners to be going to rural and remote communities. I feel that we need to be able to extend our scope of practice and also enable us to be able to work in a private capacity with more Medicare entitlements that we could get for claiming our benefits and extending our practice scopes as well.

Draft

So that's something that we need to be looked at. And we've got separate nurse practitioner chapters right across Australia, in Queensland, New South Wales, Northern Territory, and each nurse practitioner is certainly strongly encouraged to take part in these chapters. Lobbying these concerns to the government regularly as united front nurse practitioners - we have got the best chance to help resolve a lot of these issues in the rural and remote communities.

Panel Session: How can we increase access to a greater range of health services for RRR people?

Panel Members:

Margaret Faux: Margaret Faux, CEO & Founder, Synapse Medical Services.

Edwina Griffin: Founder & CEO of AtOne Australia

Kerrie Scott: NT Isolated Children's and Parents' Association Councillor and Katherine Branch President.

David Murtagh: Simbani Research (25 years' experience in health technologies)

Margaret Faux: CEO & Founder, Synapse Medical Services.

Diagnosis of Children.

Link to video: https://bit.ly/DH4B-MF4

We've (Synapse Medical/Telehealth for the Bush) been working with the registered nurse at PAMs and she's working on her own out there. She's got responsibilities across a very large community of children and needs additional support in certain areas. Stephen Faux has had a meeting and he said, "*Here's my mobile phone number, just call me when you need me, I'm happy to help."*

He's got a background as a GP as well, so he's got a lot of that paediatric experience. What we did with her is set up a meeting with some of the nurse practitioners so that we could just understand a little bit about the FASD patients. She said that she felt 50% of children that she was responsible for may have FASD and needed very specific diagnostic help.

We had a meeting with her to say who diagnoses FASD, and what has to happen, and she said it had to be an occupational therapist, a psychologist and neuropsychological assessment, are the group of people that have to assess children to give her the diagnosis. Once she's got the diagnosis, we can organize treatment.

By having that meeting, we're now coordinating with her to get the relevant people involved so that they can consult these kids, get the diagnosis, and once we've got that were then able to help her and that's how that process has evolved.

Edwina Griffin - Founder & CEO of AtOne Australia

Link to video https: //bit.ly/DH4B-EG2

Draft

From my experience, I'm working more in the virtual reality space and have been speaking in that world with Facebook, just announcing the metaverse and the future of tech. And to me, I think that's a huge opportunity and also potentially a threat in that's where everything's headed.

I know internationally, telehealth is already in virtual reality a lot in the US, and I think so in the UK, as well. I also wonder whether that means, as Margaret said, bringing in experts from overseas, which opens up an opportunity for it to be worldwide, but that is also opening up the market for worldwide people to come in. I think it's going to be important, to make it fun; from a mental health point of view, from my point of view, and from the younger generation's point of view, mental health anxiety is something that's not cool. But gaming and tech are cool at the moment.

I think it's a nice entry point to try and bring that conversation out and make it a positive conversation rather than something to be shied away from or something that you don't want to admit to or, as is the majority of the time from my understanding and what I've read, a lot of people don't even go and get help around any of that. Because it's something to be shamed, or it's not accepted in communities, it's not accepted as something that you want to admit to.

So, I do see it as an opportunity in terms of tech, to bring that conversation up and to shift it to a more positive experience of what we're up to with the latest, and we're bringing in this game or whatever that looks like. I realised initially, as everyone said, it's not going to be too sophisticated. But I think getting on that page is a good starting point. And then working as Margaret said, in a contained environment in a smaller community where we can test it and get that feedback initially, and hopefully demonstrate to the rest. But I think there's a huge opportunity and also risk. If we start small and I think it's exciting. As I said, my space has been more in the virtual and in the high-tech area, so I think it's exciting to have this conversation.

Draft

Close of Workshop

Darius Pfitzner

What we've talked about today was meant to be solved in the late 1990s. They were saying back then that technology is going to solve the tyranny of distance. Well, guess what? We heard a story today about someone that is 100 kilometres away from a place that's useful to them when they need medical care. It seems like technology's failed us and we haven't solved this tyranny of distance yet.

I think from all of this that I would take, my angle, my perception is that we still have significant barriers to the uptake and offering of telehealth services in the north, the remote, regional, and the rural communities for our people. This has resulted in a really significant technological service, if you will divide for a certain group of people, that's the triple RRRs there. We started with this concept of digital inclusion, and I'll say the result of this is digital exclusion.

And that's what we're all trying to solve. Turning it on its head from exclusion to inclusion, we need to close the gap. Through the conversations, the big things that I've seen here, we're seeing problems with billing and there's a whole storm of little issues within those problems or the problems of billing. We're seeing problems with tele consults, or telehealth consultations, both synchronous and asynchronous.

And you might extend that to storage and transmission and all those sorts of things. It's not just the telehealth concept, where you pick up the telephone or you plug into the Zoom and away you go. It's about transferring data both beforehand, during, when you've got connectivity, and all those sorts of things, most problems still need to be solved.

And this idea which Margaret brought out is access to both general and specialist health services, consultants, professionals, etc. We need to improve that. It's a big problem but I think we do it through policy, through education of the public, governments, and specifically practitioners. We certainly need to talk about the satellites, certainly need to look at different ways of upgrading our infrastructure, not necessarily waiting for Elon Musk to come along but doing anything. We can improve these services right now. That is also the internet services because sometimes we've got the connectivity, but we don't have the actual service itself at the end of the pipeline. And there are still businesses out there that can make money.

Such as the Vision Flex services system, which is a great piece of hardware and associated software. If everyone had one of those, I think half of our problems would be going away. We need to significantly improve existing and develop new services. We need creativity so we don't get caught doing what we used to do while you'd walk into the clinic. Think of different ways of doing it.

If I can go to the coffee club, get my discount, and pay for what I ordered with my phone, which I could years ago, why can't it be part of my medical treatment? And so this envisioning of how we do things in the future, how do we do it? So to finish up, there is a divide. It's very clear. We need more research, we need more services, we need more infrastructure. Most importantly, there are others of us out there working on these problems to get rid of the divide. We are still a long way from closing the gap and getting rid of that divide, fording the divide, however, together we can solve the problem.

Draft

Senator Dr Sam McMahon

Just picking up on something Darius said, where we haven't overcome the tyranny of distance. Whilst I understand that, I think we've come a hell of a long way down that path. We've got people here today that we've heard on stations, have satellite broadband services that are accessing telehealth. When I first came to the territory, stations didn't even have telephones.

They had VJY, which was the radio, where you had to book a call, sometimes days in advance unless it was an absolute emergency, and then talk over the radio to try and organise something. If someone was desperately ill, you'd chuck them in a land cruiser and you drove them somewhere, or you managed to get onto the RFDS. Today people have got broadband services into remote stations, I think we do have to acknowledge how far we have come.

I don't think that telehealth is going to replace the in person consults. Sometimes, a doctor or specialist needs to put their hands on someone. That's still going to be the thing, there is still going to be times when you do need to put your hands on the patient or do an MRI. Unless we're going to put an MRI in every station or community, we are going to still have to have that hands-on service. Although there is under development and almost working prototypes of a 30 kilo CT scanner, which can be remotely deployed by the RFDS.

So we're still going down that path of closing that journey of distance. There are times when you're still going to someone hands-on, but we've discovered so many times and so many different ways that we can use these services that doesn't have to involve hands-on. I've talked about this in a wide range of different industries and areas, the good things that COVID has given us.

Sometimes it sounds a bit funny to say that, but it has taught us that there are so many things that we can do remotely. A lot of this isn't brand new technology. We've had it for a while we're just learning how to use it. And I think we will continue to develop ways to use it. It's probably, in some ways, that we don't even think of right here, right now. I think that's a wonderful thing. We do need to acknowledge how far we've come and how far we'll probably continue to go.

Draft

Speakers

BAKER, Colin

In partnership with Dr Kathy (Gotha) Guthadjaka, Colin established the Gawa Christian School. Colin has a number of joint publications with Dr Guthadjaka and other members of staff from the Northern Institute. Colin works tirelessly to secure better services and infrastructure for the Gawa Community.

Dr BEER, Jen

Jen has enjoyed a diverse career including her time as a small animal Vet Surgeon; delivering programs in partnership with communities across WA, SA, and NT in an NPA; in the telecommunications industry in strategy, customer experience, transformation and product delivery roles; and her most recent role at NBN co heading up the regional and remote strategies for health and education. Jen is a proud Darlot woman from WA and spent most of her life in Perth before moving to Melbourne in 2015 to study her MBA at Melbourne Business School. Jen has been recently appointed to the Board of Zoos Victoria and the Advisory Councill for the Dilin Duwa Centre for Indigenous Business Leadership.

Dr BIGGS, Ian

Working from the CRCNA's head office in Townsville, Ian is responsible for identifying and brokering Queensland-focused research collaborations and RD&E ventures, which align with the CRCNA's strategic investment plan.

After acquiring a PhD in crop physiology, Ian has gained extensive experience in developing and managing projects in all aspects of Research, Development, Extension and Adoption in agricultural science and industry development, gained while working in government research organisations, university, and agricultural consultancy.

As Queensland Project Manager, Ian will use his experience of research process and project management to work with stakeholders in all CRCNA's focus areas to develop and support projects targeting northern Australia's economy and community.

Contact Ian: qldmanager@crcna.com.au

Draft

Dr FAUX, Margaret

Margaret Faux is a Solicitor of the Supreme Court of NSW and the High Court of Australia, having practiced law for over two decades. She is also an academic scholar of Medicare and health insurance law, having recently completed a PhD on the topic of Medicare claiming and compliance. She has also published in peer reviewed journals on the topic of Medicare compliance.

Margaret has been administering medical billing since Medicare began and is the founder and CEO of global MedTech company, Synapse Medical, which operates one of the largest medical billing services in Australia via an app-based billing system with Australia's only medical billing rules engine.

Margaret is passionate about supporting health professionals with their Medicare compliance obligations and unravelling the mysteries of Medicare. Margaret is considered one of Australia's leading experts on the operation of Medicare and contributes widely to the national health reform debate.

Professor FAUX, Steven

Professor Steven Faux established the Director of the Departments of Rehabilitation at St Vincent's Hospital, Sydney and is a conjoint academic at the University of NSW and the University of Notre Dame. He has authored over 90 journal articles and his research team authored Australia's first studies in tele-rehabilitation for Chronic Pain and he is as a foundation member of the National Facility for Human Robot Interaction Research at University of NSW. He is a Graduate of the Australian Institute of Company Directors and he has won a number of Australian Research Council grants for research in robotics for dementia, the use of unobtrusive sensors in falls prevention and the use of immersive (3D) virtual reality for stroke education and pain management. He is a board director of the Rehabilitation Medicine Society of Australia and New Zealand and the Clinical Lead for the Rehabilitation Community of practice for COVID19 for the NSW Ministry of Health.

Draft

Dr FEATHERSTONE, Daniel

Daniel began at RMIT in April 2021 as Senior Research Fellow on a project mapping digital inclusion in remote Indigenous communities. Previously Daniel was the General Manager of First Nations Media Australia (formerly Indigenous Remote Communications Association) from 2012 to 2020. He oversaw the organisation's transition in 2016-18 from remote Indigenous media peak body to national peak body for the First Nations media industry and staff growth from two to 18, across a range of programs. In this role Daniel introduced and led a range of new programs and initiatives, including the annual CONVERGE First Nations Media National Conference, First Nations Media Awards, inDigiMOB Digital Mentors program, re-development of indigiTUBE as a national content sharing platform, the Our Media Matters campaign, the First Nations Media Workplace Development Strategy, and the First Nations Media Archiving Strategy, among other projects. From early 2020 to April 2021, Daniel managed FNMA's archive projects, a field he has been passionate about for many years.

From 2001-2010, Daniel was Manager of remote media organisation Ngaanyatjarra Media, coordinating a range of media, telecommunications, and digital inclusion programs for 15 communities across the Ngaanyatjarra Lands of WA. Prior to that he had a successful career in the film industry in Perth and Sydney. In 2015, Daniel completed a Research PhD on evaluation and policy development of remote Indigenous media and communications.

GRIFFIN, Edwina

Edwina has worked in the fitness and wellness industry for 25 years running Fitwomen, Fitmum and Fitmen centres and has taught meditation for 20 years. She has worked in staff training for corporate, government and non-for-profit sectors and continues to do workplace mediations.

After collapsing in a workplace from workplace stress in 2012, Edwina began to explore a multi-sensory approach to medication and mind fitness using technology and developed AtOne. She is the founder and CEO of AtOne Australia.

Draft

Dr GUTHADJAKA, Kathy (Gotha) AM

Senior Research Fellow & Elder on Country

Dr Kathy (Gotha) Guthadjaka AM is a senior elder from Gäwa, a small family community on Elcho Island in East Arnhem Land in the Northern Territory. Kathy has worked as an educator for over 50 years and has always had a strong interest in research. She is currently employed as a part-time Senior Research Fellow at the Northern Institute at Charles Darwin University. Kathy is interested in collaborative qualitative research projects where she can share her Aboriginal knowledge and expertise. She is keen to cover multidisciplinary areas in her partnership projects.

Dr KELLY, John

John is a physician and also the Senior GP for Laynhapuy Homelands Health Service. He is an Australia College of Rural and Remote Medicine Fellow. John has been working with David and Marianne in various capacities over the last 5 years and has co-authored a number of papers with them and Jeff Cook, Clinic Manager, LHS. John has made the journey from telehealth by phone to videoconferencing and smart diagnostic tools.

HARMAN, Mike

Chief Executive Officer and Co-Founder – Visionflex

A desire to solve problems and a thirst for adventure have shaped Mike Harman's 40 years of experience in the technology sector. After studying Electronic Engineering at RMIT in Victoria, Mike spent several years travelling abroad before spending a year at New Zealand's Scott Base in Antarctica as the Senior Science Officer. On returning from a long winter at Scott Base and meeting his wife Elke, they travelled together overland across Africa for a year before settling in Germany. Mike worked in the Black Forest of Germany for 7 years in the high-tech automation technology sector before the family returned to Australia in 1995. Mike founded INLINE Systems at that time and the company quickly become a leading supplier in Australia's medical imaging sphere. More recently, Mike has made inroads in the Australian and international telehealth markets with his new company, Visionflex. Established in 2014, Visionflex designs, manufactures, and distributes telehealth hardware and software solutions and approved medical devices that are transforming the way remote doctors collaborate and conduct clinical medical examinations. In his spare time, Mike enjoys ocean swimming, travelling, and spending time in remote regions around the world.

LinkedIn: https://www.linkedin.com/in/mike-harman-36133b11/ `

HOLLINGS, Alex

Business Development Manager – Visionflex

Alex Hollings has over 10 years' experience in sales, marketing, and business development across multiple industries. Alex graduated from the University of Sydney in 2012 specialising in government and international relations. During his career, Alex has won multiple sales and management awards across Australia and New Zealand. He's an active participant in the Broadband for the Bush Alliance that focuses on connectivity and digital health for those in rural areas and has spent the last 18 months with Visionflex happily bringing clinical telehealth to the healthcare industry.

LinkedIn: https://www.linkedin.com/in/alex-hollings-329180167/

Senator Dr MCMAHON, Sam

CLP Senator for the NT

Senator Dr Sam McMahon is the Country Liberal Party Senator for the Northern Territory. Sam is a veterinarian who has operated veterinary practices in Katherine, Darwin Rural area, Nhulunbuy, Tennant Creek and Alice Springs prior to her election in 2019. She has extensive experience working as a veterinarian on remote cattle stations and Aboriginal Communities throughout the NT.

She was a national director of the Australian Veterinary Association for five years and president of the Northern Territory division for two years. She became a Fellow of the Australian Institute of Company Directors in 2003. She won the Centenary Medal for business leadership in 2001, was awarded the Australian Veterinary Association Meritorious Service Award in 2014 and was awarded the NT Telstra small business award in 2017.

Sam has a sound understanding of the challenges faced by rural, regional and remote (RRR) people and communities. She is passional about Territorians, advocating to improve the economy and maintain the unique Territory lifestyle. She has been a strong advocate for RRR businesses and communities.

MURPHY, Amanda

ICPA NT – Publicity Officer

Amanda Murphy lives on a cattle station between Daly Waters and Borroloola with her husband and four children. Amanda and her family run brahman cattle and have road trains that cart cattle across the NT. Her eldest child is away at boarding school, while the younger three are learning through Distance Education, enrolled at Katherine School of the Air. Amanda is passionate about equity in education and health in the outback and the importance it is to keep families in the bush.

MURTAGH, David

David has over 25 years' experience working in Digital Health as a strategic advisor, researcher, data analyst, project manager, working and gaining skills in ICT security, ICT systems design, virtualisation, network communications, health informatics, statistics, demography, public presentations, corporate governance, standards auditing, national professional networks, strong written, one to one and group communication skills.

David is currently researching new business models in remote Telehealth at the College of Business and Law (Charles Darwin University) and is a PhD Candidate. He was accepted as a Fellow of the Australasian Institute of Digital Health. This organisation has recently formed by joining the Australasian College of Health Informatics (established 2001) and the Health Informatics Society of Australia (established 1992).

David previously worked with the Australian College of Rural and Remote Medicine (ACRRM) Managing project deliverables for ACRRM, CSIRO and the Australian Digital Health Agency to assist ACRRM members to use and understand Telehealth, health data interoperability, My Health Record, and other digital technologies. He worked with member clinicians to promote Telehealth solutions and work practices through the development of Digital Health Standards and Guidelines in rural and remote Australia.

Draft

RAMSAMY, Nicole

Nicole is a Nurse Practitioner with many years' experience in remote Aboriginal Health. Nicole was our first Nurse Practitioner to participate in the Telehealth for the Bush Trial. She supervised the 17 telehealth checks at Gawa Community when the community Wi-Fi was first installed.

SHANDLEY, Peter

Chief Operating Officer and Co-Founder – Visionflex

Innovation and solving problems are what keeps Peter Shandley motivated. Engineering, science, and innovation have been important interests of his from a young age, and lead to him study electronic and telecommunication engineering at university. In his 40 years within the technology sector, Pete has worked in successful electronics and technology companies in the United Kingdom, and Australia. In 1995, Pete and his family moved to Sydney, Australia, where he ran his own successful electronics business, before returning to the fields of industrial design, and medical device design and technology, as an engineering and business consultant. It was during this time that Pete and Mike Harman met, and together established Visionflex in 2014. In his role as COO, Pete works with the hardware and software design teams, as well as the compliance, regulation, and finance teams, to ensure that operations run smoothly. In his spare time, his favourite pastimes are tinkering with classic British cars, bushwalking, and cooking up a storm in the home kitchen.

LinkedIn: https://www.linkedin.com/in/petershandley/

Draft

ST CLAIR, Marianne

Marianne St Clair is a Researcher specialising in economic development using transdisciplinary and collaboration theory. She is interested in developing the north in the fields of Technology and Primary Industries. More specifically, her work examines the role of collaboration in seafood enterprise development and enabling innovative solutions using trans-disciplinary approaches.

Marianne and David have lived in the NT since 1994 having a property about 20 kms out of Katherine for many years. They have both been part of Broadband for the Bush (B4BA) which was established in 2012 and focuses on getting improved telecommunications and access to a wider range of services for regional and remote areas.

In 2019, they left their research roles at the Northern Institute and established Simbani Research – a small research organisation operated from a property about 35 kms south of Darwin. They were successful in obtaining a co-investment from the CRCNA for the Telehealth Project: Developing a simple, robust telehealth system for remote communities. Synapse Medical is one of the 10 project partners working collaboratively to expand access to telehealth for regional and remote people.

Simbani is keen to expand its research into developing innovative models of health service delivery and get better health services (and outcomes) for regional and remote people.

Draft

Isolated Children's Parents Association (ICPA)

The Isolated Children's Parents' Association of Australia had its beginning in the NSW outback town of Bourke, in April 1971. Families were struggling with drought and the consequences of such an event, and most importantly, the effects of the drought on the education of their children.

Figure 2. Children in the bush sitting on baled hay. Photo supplied by ICPA NT.

The late Mrs Pat Edgley, MBE, called a meeting to save the Bourke Hostel, which serviced families in the outlying district, from closure. Out of this grew an amazing organisation, with branches of ICPA springing up all over Australia, and eventually its national overarching body – ICPA (Aust) was formed. In its 50 years as a volunteer organisation, ICPA has achieved much for geographically isolated families and children. ICPA will continue to strive for equity of access to an appropriate education for these children.

Ten years later, ICPA NT State Council was formed, and will be celebrating its 40th anniversary in 2022. ICPA encompasses the education of children from early childhood through to tertiary. Children may be educated in small rural schools, by distance education, attend boarding schools or school term hostels and sometimes have access to early childhood

services. Tertiary students whose family home is in rural and remote Australia frequently must live away from home to access further education

The Association has over 4,500 members, residing in the more remote parts of Australia, who all share a common concern of gaining access to education for their children and the provision of services required to achieve this. Membership includes a cross section of Australia's rural and remote population and includes fishermen, miners, itinerant employees, farmers, pastoralists and small business owners. ICPA seeks to have all elements of education (cultural experiences, social contacts, participation in sport and other enriching activities) available for all children regardless of their home location.

Figure 3. The school room at Kalala station is a shipping container. This is where the children do their home schooling supported by School of the Air. Photo supplied by ICPA NT.

To achieve its goal ICPA pursues objectives in the following areas:

- Education Allowances
- Boarding Schools/School Term Hostels
- Travel – Across the Border
- Distance Education
- Special Education Needs
- Curriculum
- Communications & Technology
- Rural and Remote Schools
- Early Childhood Education
- Tertiary & Training

Figure 4. ICPA report many geographically isolated children are not getting their developmental issues diagnosed or treated early enough, which has negative impacts on both their health and education outcomes. Photo supplied by ICPA NT.

WILSON, Suzanne

ICPA NT - Vice President and Federal Secretary of ICPA Australia

Suzanne is also the Federal Secretary of ICPA Australia. ICPA's core mission is to advocate to improve the educational opportunities and outcomes of geographically isolated children.

Although living in Darwin CBD now, she did spend 6 years living and working in remote northern Australian waters on a yacht in the latter half of the 1990s. There was no internet, no mobile phone, no satellite phone and only HF and VHF radio to connect her with the outside world. Since becoming a landlubber, Suzanne has had a long involvement with distance education for rural and remote students through her small family-run company and so has become a strong supporter for education in the bush.

At both a State and Federal level, she sits on the Specific/Special needs portfolio and whilst having no clinical experience in the field, finds this area to be of particular interest. Families living in the bush face many challenges, not the least being connectivity and access to responsive and timely access to health care for children in remote areas and its importance from an educational perspective.

SCOTT, Kerrie

ICPA NT - Katherine Branch President and Councillor

Kerrie lives on Mountain Valley Station situated 255km east of Katherine in East Arnhem land with her husband and three children. All of Kerrie's children have studied via distance education, with her oldest now at boarding school. Kerrie is passionate about isolated children having fair access to education and brings first-hand experience of how accessibility to health services from a distance impact her children's education.

Draft