Remote Health Workforce Project - Quantifying health care occasions of service for the Australian Remote Population

Shark Bay REPORT

Authors

Date 6/02/15
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INTRODUCTION

Aim

The overall objective of the study is to utilise the methodology in the form of a time log/diary that will provide a detailed understanding of the diversity and unique characteristics of health service delivery models provided in remote Australia, as well as the workforce providing the services. This will inform future service and workforce planning, and ultimately underpin work to ensure a sustainable remote health care delivery system.

Rationale

The project will involve the development of a methodology that will enable us to:

- Validate population profiles based on existing data;
- Identify a range of unique health service delivery arrangements;
- Quantify the type and volume of health care provided; and,
- Identify the workforce profiles providing the health services.

The methodology will be developed through a pilot case study based on small-area analysis. Depending on the success of the pilot, a subsequent series of case studies will be carried out that reflect regional variations and the diversity of health service delivery and workforce models in remote Australia.

BACKGROUND

Limited data is currently available in relation to the remote and isolated health workforce in Australia that accurately reflects the numbers, vacancy rates, characteristics and settings/facilities in which they work. In a series of papers by Lenthall et al. (2011), the characteristics of the nursing workforce in remote areas have been described. This research reflected that remote Australia has a disproportionately low number of health professionals per head of population, in comparison to urban and rural Australia.

This mal-distribution exists across all health professional groups and whilst nurses are the most evenly distributed across geographical areas and comprises 50% of total workforce; their numbers and those of midwives are decreasing in remote areas. Remote health workforce work longer hours, and are older compared to the urban workforce. Remote communities are becoming increasingly reliant on overseas trained professionals, short-term placements and fly-in fly-out visits. The remote health workforce includes Medical and Allied Health professionals, Aboriginal Health Workers (AHW) and Remote Area Nurses/Midwives (RAN/Ms).

Acknowledgements;

Health Workforce Australia especially Mathew Kube and Melanie Milstead Research Analysts

SilverChain Group Shark Bay Health Centre team in particular Sandy Bell Primary Health Remote Nurse Practitioner and, Lesley Pearson Regional Manager Primary Health Country.

METHOD

The project involved a case study approach using mixed-methods of evaluative framework with data collected through a number of stages. In summary,

Stage 1: Profile Development via Desktop Research to develop population profile and mapping of local service delivery models.

Stage 2: Local Validation - Semi-structured interviews with key Health Professionals/key Management Leads, to verify existing data, gather workforce profile data and preliminary information about the type of services and care provided.

Stage 3: Collection of Service Provision data

The intention was to collect a series of case studies to reflect unique characteristics of different remote communities.

The areas proposed included:

- Small community with a hospital/clinic staffed by RAN's / AHW's
- Remote Tourist region
- ATSI communities
- Mining region with fly-in/fly-out workforce

Shark Bay was selected as the pilot site. The community is located in a remote region of Western Australia in a World Heritage Area. The permanent population is small but the numbers increase significantly in tourist season. Access to health services is very limited.

STAGE 1: PROFILE DEVELOPMENT VIA DESKTOP RESEARCH

Development of Population Profile: A statistical profile of the people in the region using Australian Bureau of Statistics Census of Population and Housing (e.g. age, sex, indigenous status, family status, income, industry, occupation, education) and other available small-area data sources.

Mapping of local service delivery models: A description of health service providers locally and in surrounding towns, based on readily available existing information, which includes:

Health professionals and specialists in the region

Type of services (e.g. hospital, clinics, fly-in, private/public)

Location of service provision

Frequency of fly-in/drive-in services

STAGE 2: LOCAL VALIDATION

Use of semi-structured interviews with key health professionals/key management to:

Verify Population Profile

Verify Service Delivery Models

Gather Workforce Profile Data – the interviews will illuminate the characteristics of the service providers and current workforce, including roles, FTE, resident/visiting etc. This data will be verified by employer.(SilverChain Group)

Gather preliminary information about the type of services/care provided to inform the development and format of a data collection tool.

STAGE 3: DESCRIBING THE SERVICE PROVIDED

Developed and trialed a survey instrument/time-use diary specifically for this project, to quantify the type and scope of work provided within the service. The tool was validated by an expert panel based on information gathered from the interviews. The survey tool was designed to capture relevant data in a structured way and included the direct client activities broken down in to types of activity such as History and assessment, procedures, following up results, consultation with other health professionals, family/carer liaison and documentation. The non direct activities were the pre- identified common tasks and entered as blocks of time. The sample population was a forced sample consisting of two (2) permanent staff: one Nurse Practitioner; one Registered Nurse (Remote Area Nurse).

We anticipated to supplement this data with:

SilverChain data on services provided including the data from the visiting General Practitioner's visits. Their data is currently held on "Best Practice" and "Com Care" databases concerning services provided, number of patient/clients seen including 'after hours' with categorisation into DRG's (Diagnostic Related Groups i.e. average number of primary health patient/clients seen in the clinic and average emergency occasions of service). (SilverChain Group, 2014)

Our goal was to source Medicare activity data from the region for the same period.- this presented some challenges in identifying the Denham data specifically through the GP's occasions of service and due to inability to access the data, was not undertaken.

Ethics approval from University of Adelaide, reference number HS-2013-005.

RESULTS

POPULATION / REGIONAL PROFILE

A comprehensive service profile was undertaken by Health Workforce Australia (HWA) and is attached. In summary this highlighted

- Shark Bay is 820 kms north of Perth, a World Heritage area, famous for Monkey Mia, Denham is the township.
- Population profile based on the 2011 Census revealed
- The usual resident population of Shark Bay (S) was 920. Of this population, 53.3 percent were male and 46.7 percent female
- 8.5 percent of the population identified as Indigenous
- a small number of adolescents and young adults, and a higher proportion of older adults, particularly males in their 60s.
- 62.9 percent of the labour force worked full-time at the time of the Census, while the unemployment rate was 2.4%,
- one third of those employed worked 50 hours or more per week
- Majority of occupied private dwellings were owned outright (53 percent). (Australian Bureau of Statistics , 2011)

The Shark Bay Government website provides information on services available to both local community members & visitors: http://www.sharkbay.wa.gov.au/

Health services as described below under 4.3

Airline services to the area provided by Skipper Aviation
http://www.skippers.com.au/

Figure 1 Maps of Gascoyne Region Source WACHS

Closest regional centers

Carnarvon

Population (ABS 2011 Census data) 6095

Distance from Denham is 329 kms, 4hours 20 mins (Google maps) sealed road.

Hospital staffed by WA health employed GP's who provide services to Hospitals as well as Private general practice.

Limited services although a range of Allied health Services available, with some providing visiting health services to Shark Bay.

Geraldton

Population 39,311,

Distance from Denham 408 kms , 5hours 14 mins(Google maps)

Geraldton has large Regional hospital with extensive services including but not limited to medical imagining, surgical services including day surgery, mental health unit, renal dialysis. Geraldton also has a Private Hospital and Aboriginal Medical Service.

HEALTH PROFILE

Hospitalisations

The data was not specific to Shark Bay but for the broader region the Gascoyne Health District, data over the period 2006 to 2010, most hospital admissions were for factors influencing health status1, digestive diseases, injury and poisoning.

The rate of admissions was notably higher than the rate for Western Australia for injury and poisoning, pregnancy and childbirth, respiratory diseases, and skin diseases. Diabetes complications was most commonly responsible for potentially preventable admissions (24.1 percent), followed by chronic obstructive pulmonary disease (12.3 percent) and dental conditions (10.7 percent).(Public Health Information Development Unit, 2013

Mortality data

The rate of premature death in Shark Bay was slightly higher than in Western Australia and Australia, but lower compared with the Gascoyne Statistical SubDivision (SSD) and non-metropolitan Western Australia. The most common cause of premature death during the same period was cancer, followed by circulatory system diseases. The rates of premature death for the Gascoyne SSD were considerably higher than those across the state and nationally. (Public Health Information Development Unit, 2013

Medicare Services

In Shark Bay, available data shows that Medicare Benefits Schedule services were substantially less than those for Western Australia and Australia.

Specifically, the rate of GP services was more than three times greater in Western Australian than in Shark Bay, and more than four times greater nationally. There were four times as many practice nurse services in Western Australia and nationally than in Shark Bay. There were no annual health assessments by GPs for persons aged 75 years and over in Shark Bay. The rate in Western Australia was almost double the rate in the Gascoyne SSD. ((Public Health Information Development Unit, 2013)

Disability

In Shark Bay, 37 people needed assistance with core activities (4.3 percent) and 72 people aged 15 years and over were provided unpaid assistance to persons with a disability (10.1 percent). For both indicators, the proportion was greater compared with outer regional, remote and very remote Western Australia and for the whole state, but smaller compared with Australia.

In Shark Bay, 71 people had a profound or severe disability (3.6 percent), including people in long-term accommodation1. This was slightly higher than the state proportion but below the national proportion. In Shark Bay, about half of those with a profound or severe disability were living in the community, which is lower than the proportion in Western Australia and nationally. (Public Health Information Development Unit, 2013

Aged Care

In June 2011, Shark Bay had no residential aged care places and more broadly the rate in the Gascoyne SSD was very low compared with Western Australia and Australia. However, Shark Bay had 10 community aged care places and the rate was much higher than those recorded across the state, including non-metropolitan areas, and nationally. (Public Health Information Development Unit, 2013)

Pregnancy / Maternity Services

The following indicators were not available for Shark Bay. In the Gascoyne SSD in the period 2009 to 2011, 33 babies had a low birth weight (7.0 percent). This was slightly higher than the proportion in non-metropolitan Western Australia, Western Australia and Australia (all in the range of 6.4 to 6.6 percent).

During the same period, 13.4 percent of pregnant women in the Gascoyne SSD smoked during pregnancy, which was lower than the proportion in non-metropolitan Western Australia (15.1 percent) and Australia (13.7 percent) but higher than the state proportion (11.7 percent). (Public Health Information Development Unit, 2013)

Child Immunisations

Child immunisation data was not available for Shark Bay. In the Gascoyne SSD in 2011/12, the immunisation rate was lower at one year of age compared with Western Australia and Australia, but notably higher at ages two and five. (Public Health Information Development Unit, 2013

MODEL OF SERVICE DELIVERY

Health Services

The Primary Health Care Clinic for Shark Bay is located in Denham and managed by SilverChain Group. They have a permanent staff consisting of a Nurse Practitioner (NP) 0.8 FTE and a Remote Area Nurse (RAN) 1 FTE. Both Nurses are rostered on Monday to Friday, during clinic hours, the Nurse Practitioner plans to have one office day per week, with no direct patient/client contact for administration, and managing repeat prescriptions

One FTE Receptionist / Administration support employed by SilverChain, who supports the Nursing staff, plus manages all bookings for the GP's and Allied Health, as well as coordinates GP visit, provides transport to and from the airport, enters data and extracts results from the shared Electronic records. This primary health patient/client record system is 'Best Practice' an integrated patient/client record between SilverChain staff, GP's and Allied Health professionals.

The range of health services provided by SilverChain staff include: Primary Health, chronic disease management, emergency response, provision or facilitation of child health and school health services and disease control.

The two Nurses share the 'after hours on call' cover and weekends between themselves, responding to all calls through a telephone system located at the clinic where a call from the patient/client is taken by Health Direct(WA wide service) who then as required contacts the SilverChain Customer Center and the nurse on-call speaks to patient/client direct and then re-triages.

In addition SilverChain coordinate the provision of Wound Care, Palliative and Diabetes Educator services through their pool of specialist Nursing staff. These are available either for site visits upon request and/ or telephone consultation. (See Table Telehealth consultations).

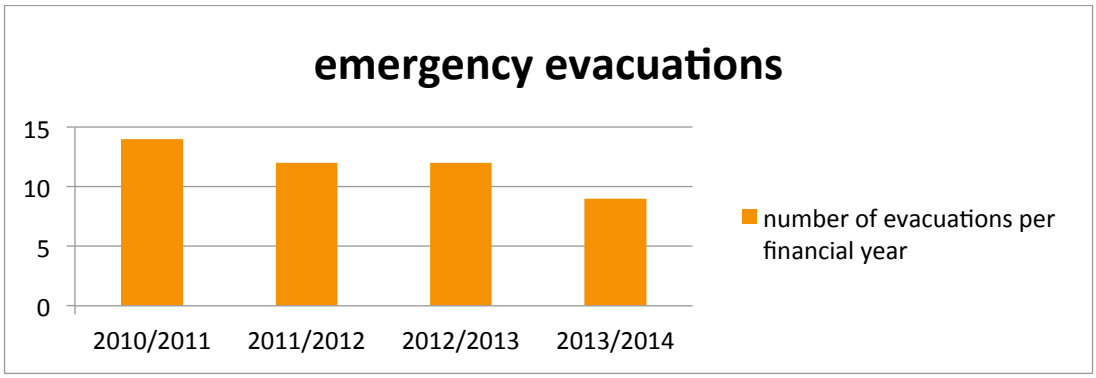
Shark Bay was one of the sites for the Nurse Practitioner (Australian Government project) completed in June 30 2014. (The Report was released in January 2015) .

The 'Shark Bay Nurse Practitioner for Older Australians at Home and on the Move' Project (The Project) has provided a timely access point for older Australians who live in and who visit the Shark Bay area. The Project has offered an advanced clinical assessment and management pathway for chronic and acute health presentations in the older population through daily access to the Nurse Practitioner (NP)(Silver Chain , 2014)

The improved access to primary health care to the transient 'grey nomad' population by the NP has provided immediate care interventions to address acute clinical needs, to provide timely access to ongoing management of chronic disease, as well as implementing systems such as the "health passport" to assist the "grey nomads" with managing their health whilst travelling around.

One of the major achievements of The Project has been the continued reduction in evacuations of older people from Shark Bay to a tertiary centre, which was one of the Project's objectives. Comprehensive, preventative care provided by the NP has resulted in the reduction in new incidences of acute illness and a decrease in exacerbations of chronic disease in the older population, which has led to a reduction of evacuations from the community.
The decrease in evacuations results in a decrease in health costs, both to the community and the organisation, and a reduction in the social, emotional and financial impact on the client and their family. The graph below highlights the reduction of emergency evacuations in The Project's cohort over the past 4 calendar years.

Table 1: SilverChain Health Service – Shark Bay Emergency Evacuations by the number per financial year



SilverChain Community Care (HACC) services and the Shark Bay community reports to the Mid-West Area Health Manager located in Geraldton . The service provides 3-5 staff who deliver activities to the Day Centre, and Home Help / Personal Care to the community. An average of twenty (20) HACC patient/clients , per week, receive varying hours of care from SilverChain

(Entrance to SilverChain Health Center)

Outreach Services

Medical services

Provided by GP's from Carnarvon Hospital, employed by WACHS. This program is managed through the Royal Flying Doctor Service (RFDS Western operations) Primary Outreach Program, which is funded by Commonwealth Government. RFDS outsources the clinical provision / visits to WACHs and the RFDS aircraft are utilized to transport the GP's from Carnarvon.

The pool of GP's based in Carnarvon is around 20 and whilst initially it was reported that the visits were shared between 5-6 GP's which did provide consistency, this is no longer the case. SilverChain reports that there are now 20 GP's in their 'Best Practice' database which impacts on consistency.(Pearson,2014) GP visits are one day every week with an additional half day every two weeks. In addition, they provide the telephone consultation for the nurses for Primary Health and RFDS provide emergency consults.

Allied Health services

A range of Allied Health services come from Carnarvon and Geraldton, including but not limited to Physiotherapy, Drug & Alcohol Counseling, Dietetics, Mental Health, Podiatrist, Women's Health, and Child Health.

Specialist visits

There are regular visits by appointment from a Geriatrician. Other Specialist consultations are available through Telehealth, coordinated through the nurses at the clinic.

Emergency

The RFDS response is from Perth and there is a SJA Volunteer Ambulance service from the local community. RFDS also provides remote consultation in addition to the Carnarvon GP's.

(Refer to table 1 showing the decline in the number of emergency evacuations, and the discussion re: impact of Nurse Practitioner).

Telehealth

SilverChain with assistance from Department of Health (WA) invested in TeleHealth unit at Shark Bay which is used to link the Aged Care Assessment team, other Nurse Practitioners, Diabetes Educator, Allied Health Care Providers, Geriatrician and other Specialists . This has proved timely, cost effective and convenient access to Specialist services particularly for the older population reducing the need to travel significant distances

Table 2: Telehealth utilised by health care provider and number of consults

Source: SilverChain (June 2014)

Health care provider	**Number of consults**
General physician	8
Burns unit	3
Speech therapist	10
Mental health	2
Gynaecology	4
Dermatology	4
Cardiology	2
Pain Specialist	2
Plastics	2
Orthopaedics	2
Diabetes Education	8
Internal training session	5

Comments:

As the GP's are available on a fly in – fly out (FIFO) basis, stretched across 20 different GP's, the only consistent health professional for patient/clients is the Nurse Practitioner and the RAN.

Whilst there is a significant Aboriginal & Torres Strait Island (ATSI) population present in the region, there are currently no Aboriginal and Torres Strait Islander Health Workers/ professionals locally available. SilverChain staff and other providers liaise and work with the Geraldton Aboriginal Medical Service (AMS) when the need arises.

The staff interviewed in Stage 2 identified that an outreach Midwifery Service would be an asset, currently local services are provided by Nurses and the GP's on visits. All maternity patient/clients are referred to a location of own choice for birthing, with usual recommendations /requirements for the time away from community pre birth (from 36 weeks)

Other services identified as being 'ideal' are Dermatology, and Mental Health Services.

STAGE 3 SERVICE PROVISION

The pilot data consisted of 7 practitioner days.

The data was collected over 3 days in April 2014, which coincided with School holidays and Easter. Peak tourist season is the winter months and school holidays, so whilst April is not considered peak time it is higher than non school holiday time (refer to graphs).

In summary

- NP 4 days (0.8 FTE) – one an administration day, one was an on-call day
- RAN 3 days (0.6FTE)- with one as an administration day
- (0.2 – 0.4 FTE) days were both nurses were scheduled
- There were 2 days where a Doctor Clinic was held and both nurses were in attendance in the clinic.
- A summary of the average time per day on activities is described in the figure below. The data is summarized as Direct Care and Non Direct Care.

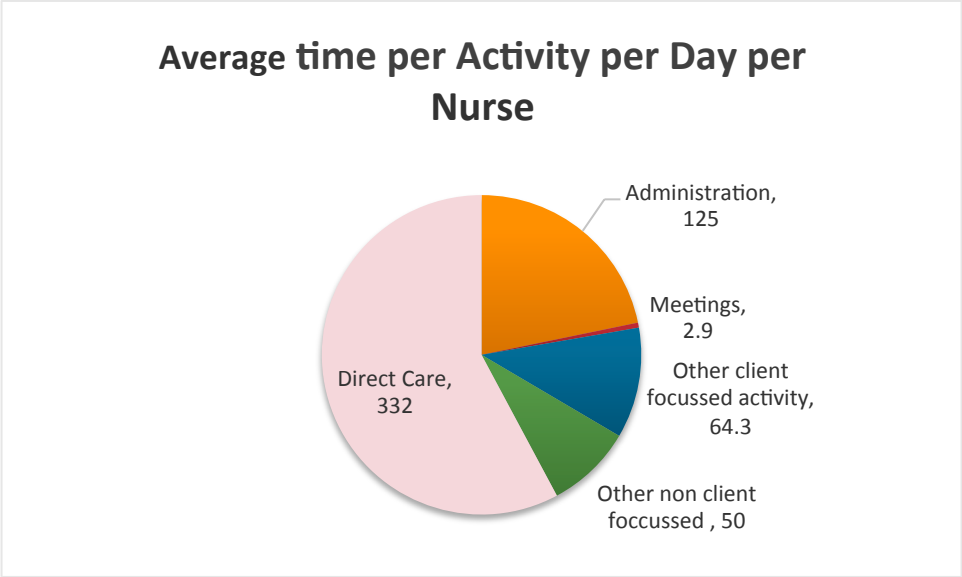


Figure 2: A Nurse's Activities by average time per day

The following figure shows the direct patient/patient/client care, other patient/client focused activity by practitioner day.

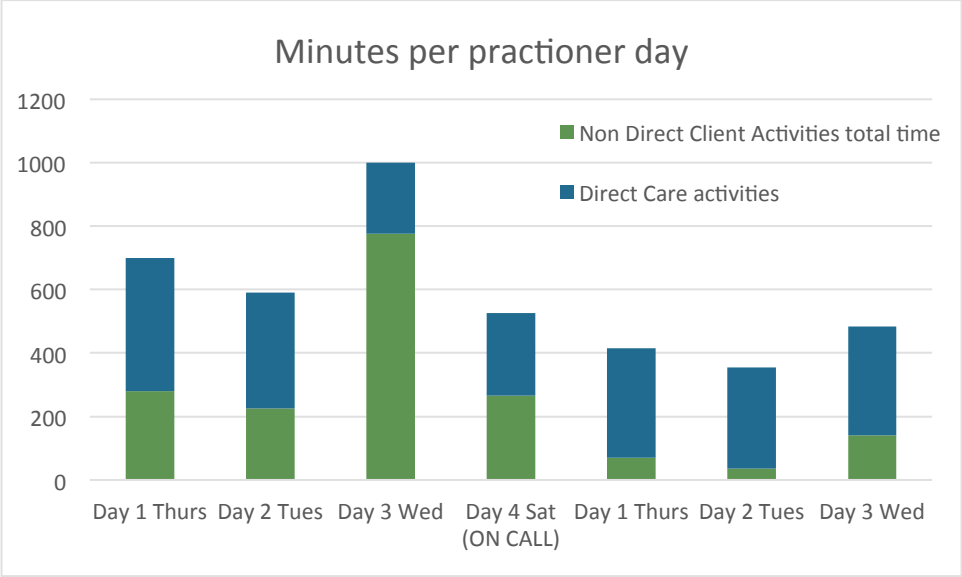


Figure 3: Direct Care and Non Direct Care

Direct Care

Data was collected on the Care provided over the survey period (occasions of service).

In total over the 7 day period, there were 94 patient/ clients attended, with a total time of 2278 mins of care (avg 25 mins per patient /client, range (r)5-105 mins). There was an average of 13 patient/ clients per day per nurse.

On average patient/ clients had 3 Elements of Care (r = 7). These were classified as

- 69 history/physical assessment
- 60 tests
- 73 Document during consult
- 18 required a consultation with another practitioner
- 56 treatments
- 53 education
- 12 results follow up
- 12 discussions with carer / family
- 11 other intervention

Other consultations (number (n)=18)

- With NP (n=12)
- Mental Health
- Physiotherapy
- Emailed the wound nurse
- Nurse at a different centre
- Midwife
- Remote GP
- Visiting GP (n= 4)

Location of the care: 88 occasions of service were delivered in the health care centre, 1 in another location.

The “other” location was not specified.

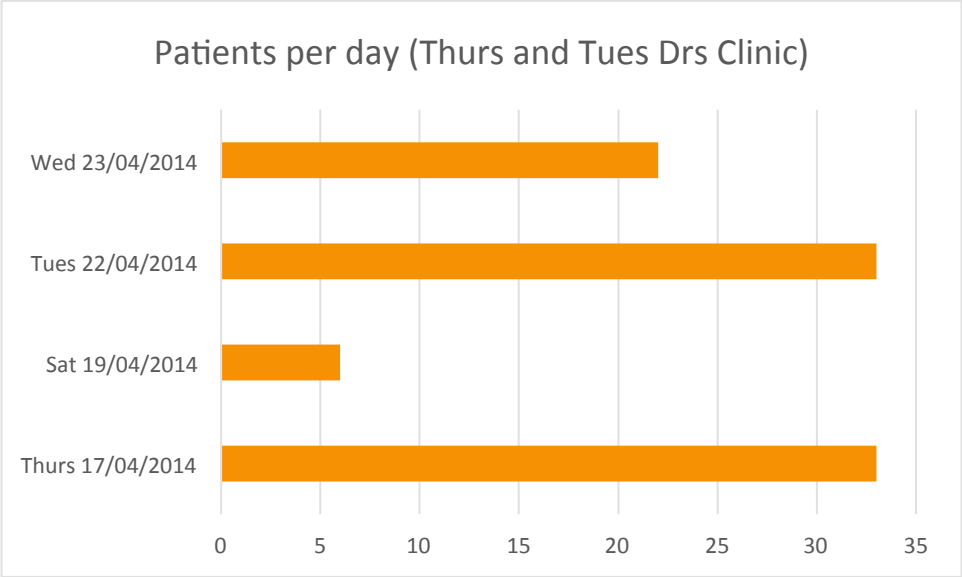


Figure 4: Doctor consults shown by patients per day

We were able to access data from SilverChain for the same period to try and validate the data we had collected. This showed the daily average of patient/ clients seen for the month of April was 8 (week days and weekend days combined). The average time per patient/ client 38 mins. The data showed the ratio of weekday patient/ clients , to after hours/weekend presentations is approximately 8 patient/ clients to one patient/ clients (week day hours compared to out of hours and weekends/public holidays).

It is important to note that from this data it is specifically recorded the NP recorded 12 patient/clients with script and dosage adjustment interventions.

** The GP consultations are independent to the NP/RN, bookings may be referred on or self referred. The SilverChain figures, below, show the trends across the year, indicating the peak tourist time with significant rise in presentations.

Non Direct

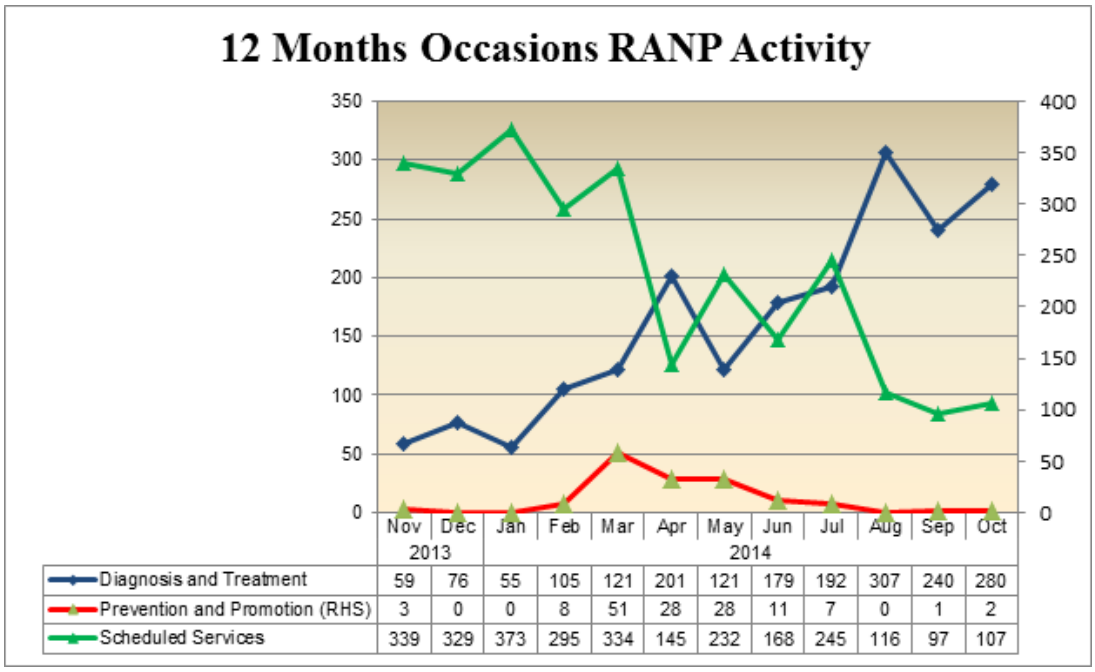
Looking at non-direct care provided over the 7 days (4 NP/3 RAH) there was an average of 255 mins or 4.2 hours per day per nurse (range 35-775).

Table 3: Non-direct activities by themes and time spent

Non-direct patient/client contact activities

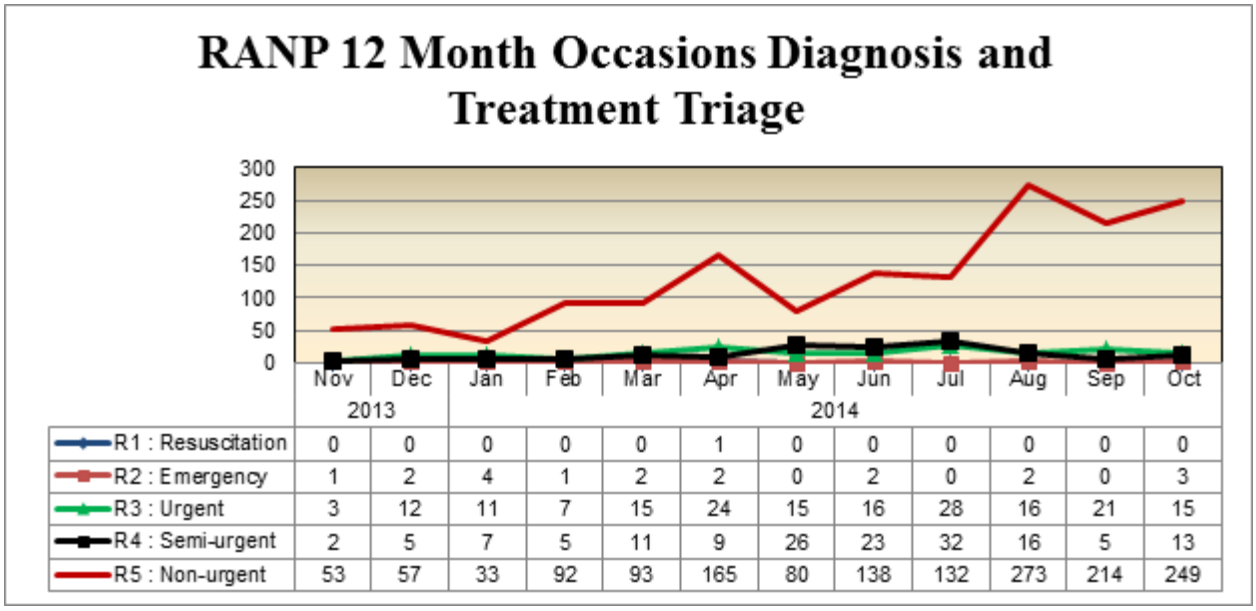
Theme	Activity	Time spent
Administration	Employer reporting requirements	35
	Chasing files/transferring files/filing	13
	Checking voice mail and email	74
	Preparing staff roster	4
Meetings	Internal Administration meetings	13
	Community meetings	0
	Regional health service meetings	0
Other patient/client-focused activities	Clinical reviews / audit	3
	Preparation / follow-up for patient/client appointments	9
	Chasing patient/client results	11
	Ordering scripts	11
	Phone consultations / enquiries	33
	Community health promotion / education	0
Non-patient/client related activities	Developing education resources	0
	Staff development / training / self-development	13
	Medication checking / ordering	19
	Equipment checking / ordering	18

Figure 5:



	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014
Diagnosis and Treatment	59	76	55	105	121	201	121	179	192	307	240	280
Prevention and Promotion (RHS)	3	0	0	8	51	28	28	11	7	0	1	2
Scheduled Services	339	329	373	295	334	145	232	168	245	116	97	107

Figure 6:



	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014
R1 : Resuscitation	0	0	0	0	0	1	0	0	0	0	0	0
R2 : Emergency	1	2	4	1	2	2	0	2	0	2	0	3
R3 : Urgent	3	12	11	7	15	24	15	16	28	16	21	15
R4 : Semi-urgent	2	5	7	5	11	9	26	23	32	16	5	13
R5 : Non-urgent	53	57	33	92	93	165	80	138	132	273	214	249

Source of DATA: SilverChain RANP activity 2014 COMCARE

SUMMARY OF FINDINGS / DISCUSSION

A wealth of information was collected to support. On reflection the findings included:

- There is no consistent existing mechanism to quantify the health service provision that occurs in remote settings
- A data collection tool and process, the work diary plus semi-structured interviews, has been developed to collect occasions of service in the remote setting that encompasses the range of direct and non-direct activities.
- The remote service collection data tool (work diary) was reported as easy to use by the nurses on the ground. It does require testing over a longer period and in another setting. It would be ideal to develop this in an electronic format to reduce the burden of data entry. A number of the fields seemed to be redundant, although before major changes are made it would be good to repeat using health care workers from another discipline. This would then form the basis of a consistent taxonomy to be used across the sector.

It s recommended that data collected through this on the ground collection method be compared to existing data sets to see if correlations could be made The SilverChain data as reported above correlates in terms of trends and numbers, other additional data would be available if able to access Nurse Practitioner MBS item numbers. RFDS emergency evacuation data would provide information around emergency transfers.

The findings indicate that access to NP and RAN provided a greater breadth and depth to the local health service, such as, medication management and more complex health problems. The NP/ RAN model provides for mentoring, capacity building role of the RAN by the NP.

In addition, the NP model has the capacity to support the role of the FIFO GP by enabling their limited availability to focus on more complex consultation.

SilverChain, reports in the DSS report on the Nurse Practitioner Project that access to an NP has contributed to significant reduction in evacuations/ emergency transfers of older population to a tertiary centre. This results in significant health cost savings, as well as emotional social and financial impact on individuals. This trend was replicated in the Aged care NP Program in Wheatbelt region of WA. *(Refer to Figure 2 Emergency Evacuations)* (SilverChain,DSS ,2014)

As noted, initially the pool of GP's was limited to group of 5-6, which provided consistency for the patient/ clients as well as for the NP/RAN, allowing a building of the professional relationship. However having a pool of 20, results in a number of process issues, data base management challenges and restricts the opportunities for consistency for both consumers and nurses.

Consultation remotely with GP's, Specialist and other health providers provides a network of support, with opportunities to further enhance this through expanded Telehealth services and virtual consultations. This supports the health professional though peer support , clinical supervision and professional development but also has significant impact on the patient/ clients with a reduced need to travel to access services.

In this fiscally restrained environment where the delivery of services are under scrutiny being able to demonstrate the benefits of the NP/ RAN model from both a financial and consistency perspective is critical. Success of the model is reliant on better and broader access to telehealth services not just for patient/clients, but also peer support/ supervision.

Future research considerations include:

- To compliment this current research the inclusion of community consultation regarding local required health services, with the health professionals and people living in the area as to what they see as gaps and strengths in the current system.
- Greater understanding of the funding models for all of the services provided.

- Opportunities to explore the funding of remote PHC services/ health assessments through accessibility for remote health services to Medicare items to fund these services to remote consumers, in the absence of, or with limited access to the medical workforce.
- Optimisation of the limited access to medical/GP services through NP/RAN models, the better use of the GP's expertise to deal with the more complex issues.
- Further exploration of the cost of running the service model. SilverChain has undertaken some initial work analysing their various models of delivery, i.e. Nurse Practitioner and RAN models from a health economics perspective. To date the analysis has shown that providing health care in remote location is more expensive from the perspective of such things as, the cost of freight, travel expenses, access, and infrastructure costs. However the Nurse-led models do provide other cost efficiencies, without risk to quality of service.
- Utilisation of this research to inform future service planning

Limitations:

This study was undertaken at one point in time within one service. More work is required to understand seasonal variation and how that impacts on service delivery profile. The remote service collection data tool (work diary) used in this research needs to be validated in different service models with different health professions to further enhance the tool.

SilverChain data indicates the seasonal variation is definitely worth discussing and quantifying into the future.

A Way forward:

The two key next steps:

1. Write this report in a Case study format for publication
2. Seek opportunities to repeat exercise, enhance the tools and validate a taxonomy of care. This may need external financial support.

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