Mapping service integration for primary healthcare patients

Lessons from a regional GP Super Clinic

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A C K N O W L E D G E M E N T S

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Glossary of terms and abbreviations

APHCRI	Australian Primary Health Care Research Institute
ATSI	Aboriginal and Torres Strait Islanders
Bulk billing	Services which are free at the point of care because the service provider accepts the MBS payment and does not charge an additional co-payment.
CDM	Chronic Disease Management
Co-location	Specialist nurses and allied health professionals, employed by the Local Health District, provide their services on a sessional basis from a participating community primary care practice (GP practice).
DoH	Department of Health
EP	Exercise Physiologist
GP	General Practitioner
HREC	Human Research Ethics Committee
Integrated Care	Integrated care aims to cut across multiple services, providers and settings to create person centred connectivity, alignment, and collaboration within the health care sectors. It uses a coherent set of approaches and models to funding, administrative, organisational, service delivery and clinical levels. The goal of these approaches is to enhance quality of care and quality of life, consumer satisfaction, and system efficiency for patients [1]
Integration	Processes to achieve integrated care
LGPSC	Lismore General Practice Super Clinic
LHD	Local Health District
MBS	Medical Benefits Scheme (the Australian health care funding model)
NCML	North Coast Medicare Local
NLS	Network Linkage Survey
NNSW	Northern New South Wales
Patient-centred care	Actively working with consumers to ensure that health information, systems and services meet their needs
PCIF	Person Centred Integration Framework
SCU	Southern Cross University
TCA	Team Care Arrangements

UCRH	University Centre for Rural Health

1. Background and introduction

Primary health care integration in Australia

In 2010, the first National Primary Health Care Strategy was prepared in response to challenges associated with the growing burden of chronic disease, an ageing population and health workforce pressures in Australia [2, 3]. The strategy identified that a strong and efficient primary health care system is critical to the future success and sustainability of Australia's health care system. General Practice (GP) Super Clinics were considered a key component of this strategy, to meet the growing demand for primary care integration by providing a 'one-stop shop' of health and medical services for consumers [4].

The Commonwealth Government expected each super clinic to demonstrate [4]: integrated multidisciplinary patient-centred care; responsiveness to local community needs and priorities; accessible, culturally appropriate and affordable care; preventive care; and integrated with local programs and initiatives. Concurrently, the Commonwealth Government introduced Medicare Locals (renamed Primary Health Networks in 2015) to support regional integration and shift the burden of care from hospitals to primary health care.

General practices manage just over half of the burden of chronic disease [5]. In recognition of this the Department of Health (DoH) has made provision through Medicare for an integrated approach to the care of patients with chronic disease in which eligible patients receive a fixed amount of reimbursement for allied health services from the Commonwealth Government under the Medicare Benefits Scheme (MBS) [6].

The Lismore GP Super Clinic (LGPSC) background, context and setting

The LGPSC is located geographically in regional north-eastern New South Wales in the city of Lismore, a regional hub with the population, including the surrounding area of about 45,000 people, of whom 2,287 identify as Aboriginal or Torres Strait Islanders [7].

Figure 1: Map showing the Northern NSW region

The LGPSC is a privately run primary healthcare clinic offering a range of co-located medical and allied health services plus a full dental service. The practice operated as Meridian Health Care for five years before being awarded Super Clinic status at the end of 2011.

The LGPSC has a large, stable population of both aboriginal and non-aboriginal patients [8]. Of the total clinical population of 8,600 patients, 10.7% self-identify as ATSI peoples, accounting for 27% of all scheduled appointments in a region where the ATSI population accounts for approximately 5% of the population [7, 9].

The LGPSC is situated within the catchment of the North Coast Primary Health Network and the Northern New South Wales Local Health District. In partnership with the Primary Health Network, the Local Health District has taken an active interest in health care integration.

Definition of integration

For the purpose of this study, integrated care is defined as:

A coherent set of methods and models on the funding, administrative, organisational, service delivery and clinical levels designed to create connectivity, alignment, and collaboration within and between the cure and care sectors. The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction, and system efficiency for patients ... cutting across multiple services, providers and settings. [Where] the result of such multi-pronged efforts to promote integration [lead to] the benefit of patient groups [the outcome can be] called integrated care [1].

This definition places consumer satisfaction and improvements in care and quality of life at the centre of integrated care making this definition particularly appropriate in the context of this report. It has been suggested that better integrated care enhances patient outcomes, although this is often difficult to verify [10, 11]. Organisational integration has a direct impact on the availability of patient services. For instance, patient outcomes are likely to be enhanced when services are co-located or have established protocols promoting referrals and the exchange of information relevant to the patient's health. Similarly, the extent of systemic organisation has the potential to improve the patient experience when wider system networks share knowledge and evidence.

A conceptual framework for integrated health care which forms an important basis to this work [12] identifies six approaches to or categories of integration: clinical, professional, organisational, system, functional, and normative (Table 1).

Despite the importance of patient perspectives in informing and planning changes to healthcare delivery, little of the integration literature captures patient preferences of integration [13]. A small number of tools have been developed to capture integration from the patient's perspective, they largely reinforce the 'systems and service' perspective of integration, rather than the true patient perspective. At the time of undertaking this work, the Valentijn framework was the dominant integration framework, and no other framework existed with a stronger focus on patient-centred integration.

Kitson [14] undertook a review of the core components of patient-centred care. This paper identified three broad themes: patient participation and involvement; relationship between patient and health professional; and the context in which care is delivered [14].

Other models of patient-centred integration have been explored. For instance, the "Patient Perceptions of Integrated Care" survey [15]. This tool was built around seven constructs: coordination within the care team; coordination across care teams; coordination between care teams and community resources; continuity (familiarity with the patient over time); continuity

(proactive and responsive active between visits); patient centredness; and shared responsibility. These concepts were developed through expert consultation. The tool contains 80 items, which already questions the notion of patient-centredness for chronically ill patients.

Table 1: Types and levels of Integration adapted from Valentijn [12]

Level of integration	Definition and example	Linking activities	Functional integration	Normative integration
Micro	**Clinical integration** *The coordination of person-focused care in a single process across time, place and discipline.*		*Key support functions and activities (i.e., financial, management and information systems) structured around the primary process of service delivery, to coordinate and support accountability and decision-making between organisations and professionals to add overall value to the system.*	*The development and maintenance of a common frame of reference (i.e., shared mission, vision, values and culture) between organisations, professional groups and individuals.*
Meso	**Professional integration** *Interprofessional partnerships based on shared competences, roles, responsibilities and accountability to deliver a comprehensive continuum of care to a defined population*.			
	Organisational integration *Inter-organisational relationships (e.g., contracting, strategic alliances, knowledge networks, mergers), including common governance mechanisms, to deliver comprehensive services to a defined population*.			
Macro	**Systems integration** *Rules and policies that promote both horizontal integration (strategies that link similar levels of care) and vertical integration (strategies that link different levels of care).*			

Research approach

Our team was approached by the LGPSC to collaborate with them in this research. The aim of the project was to develop a practice guide that can map, measure, analyse and ultimately enhance service integration in primary care at the level of the patient, service and system (micro, meso, macro), using Lismore GP Super Clinic (LGPSC) as a case study.The project was developed to address the following objectives:

- To describe the nature and strength of integration of the LGPSC at clinical, organisational, professional and systems levels.
- To develop a framework for analysing and describing integration at clinical, organisational, professional and system levels that may be relevant to other primary care settings.
- To generate a practice guide incorporating a tool to assist the LGPSC (and other integrated services) to analyse and evaluate their integration, and based on this reconfigure, to enhance service delivery outcomes.

The LGPSC and other stakeholders were engaged in the research as partners, rather than ‘subjects’. This was facilitated through, consensual interpretation with stakeholder consultation and feedback, consistent with Kodner’s definition [18].

2. Overview of methods

The study employed a longitudinal, mixed methods design using the LGPSC as a case study. This chapter provides a high level summary of the methods used within this study, however to streamline the information, the full method of each project component is presented alongside the findings resulting from that component.

Mixed data sources were used to undertake the research. The approaches to data collection used to address the different levels of integration were Social Network Analysis of patient referral patterns based on an audit of 200 randomly selected patients on chronic disease management (CDM) plans; interviews with key stakeholders; analysis of key relationships (eg board structures); a network linkage survey administered to practitioners within the local region and a survey of patient and practitioner perspectives on integration.

The approach to the data analysis was based on the framework developed by Valentijn [16] and colleagues which is described in the introduction (Table 1). We aimed to examine integration explicitly from the micro (clinical integration) perspective; the meso perspective (professional and organisational); and the macro (systems perspective).

2.1. SOCIAL NETWORK ANALYSIS OF PATIENT REFERRALS

Social Network Analysis is an ideal methodology to examine integration as it maps, measures and analyses connections between a set of actors (termed nodes) who are connected by a set of ties (connections) [17, 18]. Unlike conventional survey approaches, which focus on individuals' attributes, Social Network Analysis focuses on the relationships (connections) between individuals or entities [19]. Its mathematical underpinnings and coding rules enables Social Network Analysis to produce data that correctly measures the characteristics of network transactions. Accordingly, network analysis provides a useful methodology with which to measure services and systems integration, both within networks and across levels of analysis [38, 40]. It was employed to examine connections between the LGPSC and the local health community.

2.2. PATIENT AND PRACTITIONER PERSPECTIVES OF INTEGRATION

We initially proposed to interview a sub-sample of randomly selected patients included in the file-audit. Due to patient confidentiality concerns within the LGPSC, we altered the protocol to interview consecutive patients presenting to the LGPSC to ascertain what they considered to be important around person centred integration.

Based on the Patient Perspectives of Integration questionnaire, we developed a practitioner based tool to ask GPs and co-located allied health staff what factors they considered when they were making patient referrals.

This change occurred late in the project, so only a small number of patients responded, however this will inform future stages of the project.

2.3. QUALITATIVE ANALYSIS

Service and system level integration was explored through qualitative data collection involving interviews and self-report Network Linkage Surveys (NLS) [17] with selected key stakeholders. Stakeholders included representatives from the LGPSC (practice managers, GPs, practice nurses, the directors, allied health providers); key stakeholders with strategic roles in health delivery locally, including chief executives of the Local Health District and Medicare Local; representatives from the GP Education and Training North Coast; Aboriginal networks and private community based services providers (such as allied health providers, private medical specialists).

In addition, we analysed the board structures of local organisations involved in the strategic level of primary health service delivery in Northern NSW to enhance our understanding of integration and relationships at the strategic level.

2.4. FACILITATED WORKSHOP WITH KEY STAKEHOLDERS

A facilitated workshop was held with key stakeholders from the local Primary Health Network, Local Health District, the Southern Cross University Health Clinic, the research team and the LGPSC. The purpose of the workshop was to present the initial Primary Health Care Integration Framework to participants for feedback, content validity, verification and to inform the presentation of the final document. The workshop also involved a presentation, discussion and interpretation of the findings to date.

2.5. ETHICS AND GOVERNANCE

At admission, all LGPSC patients are asked to sign a Health Information Collection and Use Consent Form (Appendix B), which requests the use of their de-identified data for “research and quality assurance activities to improve individual and community health care and practice management”, with the opportunity to opt out.

Ethical approvals for this research were obtained from the Human Research Ethics Committee (HREC), Southern Cross University: Approval Numbers ECN-14-111 and ECN-14-273.

The project was overseen by a steering committee comprised of content and methodology experts in primary health care, integration, rural health and Aboriginal health. This committee met three times with the evaluation team during the course of the project.

3. Results

3.1. SOCIAL NETWORK ANALYSIS OF PATIENT REFERRAL PATTERNS

Aim

The aim of the file audit was to provide data concerning clinical, professional and organisational integration within the LGPSC and between the Super Clinic GPs and regional healthcare providers.

Method

A random sample of electronic records of 10% patients who attended the LGPSC in 2014 and were assigned to the CDM program with either a GP Management Plan and/or Team Care Arrangements, were selected. No sample size calculation was performed as there is currently no formula to reliably predict sample size in Social Network Analysis [20]. Data were extracted by a trained member of the LGPSC team directly into a Qualtrics data extraction tool.

Demographic data collected from the files consisted of year of birth, gender, current postcode and whether identifying as ATSI. Medical data included preexisting chronic health conditions. Specific data regarding the following fifteen chronic health conditions was collected: arthritis, asthma, cancer, cardiovascular disease, chronic obstructive pulmonary disease, diabetes, drug and alcohol problems, gastrointestinal diseases, mental health conditions, obesity, oral health concerns, osteoporosis, renal disease, stroke and non-diabetic eye conditions. Data were collected on up to 10 referrals.

Data were analysed using the Ucinet 6 Social Network Analysis software [43] to produced network maps and network metrics.

The audit was conducted in November 2014 over a period of five days (24th to 28th November) and captured referrals occurring during a period of six years nine months (10th March 2008 to 17th November 2014).

Results

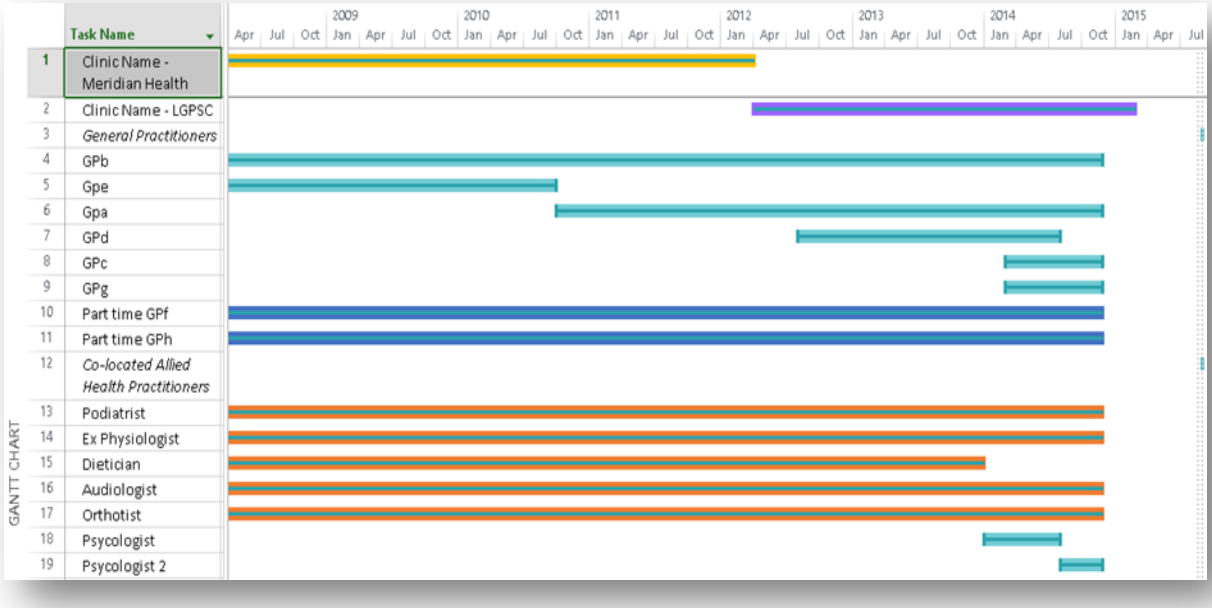
Participants

The LGPSC had 2068 patients on CDM plans in November 2014. We randomly selected 10%, resulting in the audit of 204 files. Participants included 102 males, 101 females and 1 patient of undisclosed gender; the age range in years of all patients was 4 – 91 years (Mean 55.4 years SD 17.47). The mean age of the 23 ATSI patients represented in the audit was 38.5 years with a range of 13 – 65 years (SD 13.16), compared to a mean age non-ATSI patients of 57.6 years (SD 16.79). The non-ATSI population included both the youngest (4 years) and oldest (91 years) patients represented.

Of the 204 patients, 188 (92.2%) were referred to another practitioner at least once. No referrals were documented for 16 patients. Nineteen (82.6%) Aboriginal patients received

referrals and 169 (93.4%) of non-ATSI patients were referred from a total of 181 files. Only 11 patients (5.85%) were referred 10 times (the maximum number of referrals captured by the audit).

Figure 2: LGPSC staffing during the audit period



During the audit period, three GPs practiced at the clinic, one full-time and two part-time. Three GPs joined the practice, one of whom left after two years. A second GP left just before the end of the audit period. There were fewer staff changes amongst the co-located AHPs who consist of a dietitian, podiatrist, exercise physiologist, audiologist, orthotist and latterly, a psychologist. The dietitian left at the end of 2013. A psychologist took rooms in the practice briefly in 2014 and was replaced by another in the last two months of the audit period (Figure 2).

Size of networks

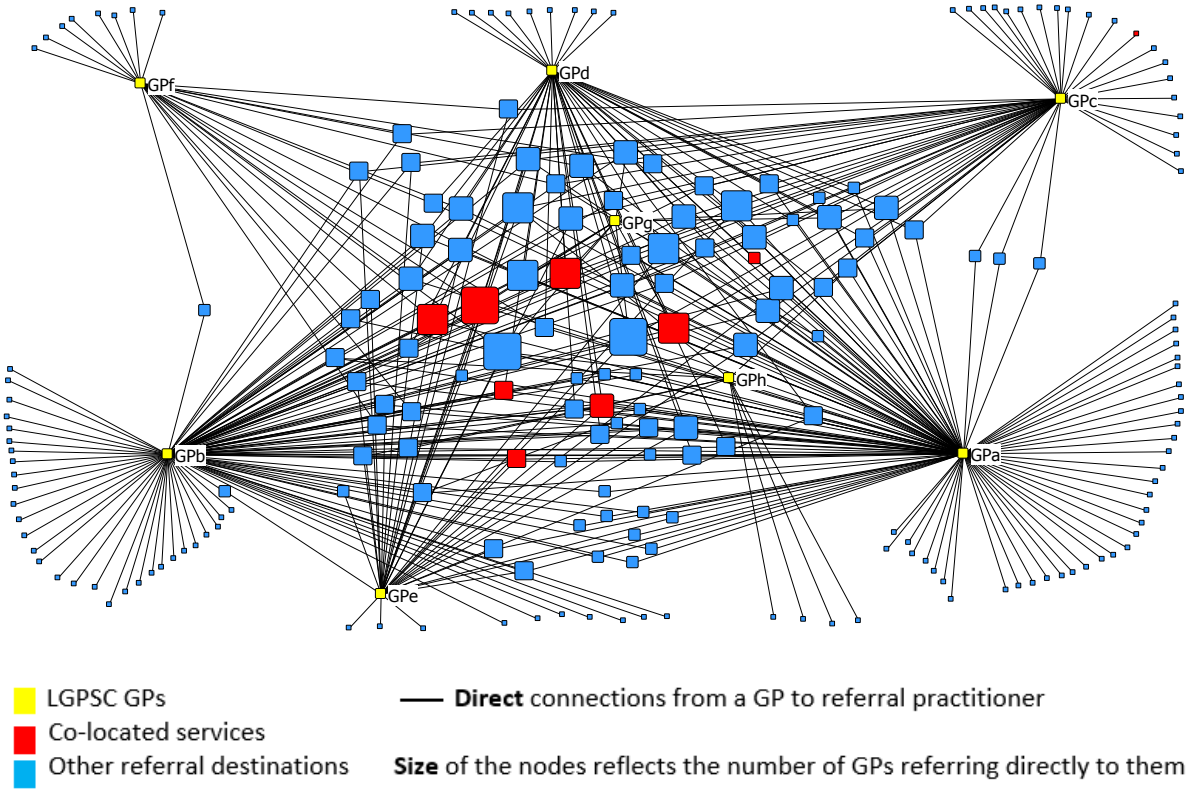
The eight GPs employed at the LGPSC during the audit period made 737 referrals for 188 patients to 213 different practitioners or practices. Of these, 40 referrals were to a business or practice only, not an individual practitioner whereas 593 referrals were to specific practitioners (Table 2). Just over a third of the referrals (33.8 %) were for patients who had seen more than one GP. GPc made 70 separate referrals to 56 different practitioners.

Figure 3 shows the connections between each GP (yellow nodes) and each practitioner (blue nodes) to whom a GP referred a patient directly. The outer blue pendants show the large number of practitioners who received referrals from a single GP, while the nodes in the centre of the diagram represent practitioners referred to by most of the GPs. GPs working in the same community and the same practice have visibly different referral networks, some more extensive than others. The size of the red and blue practitioner nodes give a visual indication of the number of referrals to each practitioner and highlights the large number of referrals made to the relatively few co-located practitioners.

Table 2: Size of GPs networks based on direct connections to practitioners

GPs	Degree (n=213)	Patients Involved with (n=188)	Number of referrals (n=737)	Mean Referrals per Patient	%of network reached (n=213)
GPa	121	84	270	3.2	56.81%
GPb	108	66	219	3.3	50.70%
GPc	56	30	70	2.3	26.29%
GPd	48	21	65	3.1	22.54%
GPe	35	23	62	2.7	16.43%
GPf	26	9	31	3.4	12.21%
GPg	12	9	10	1.1	5.63%
GPh	11	7	10	1.4	5.16%

Figure 3: GP to practitioner network based on direct connections with practitioners

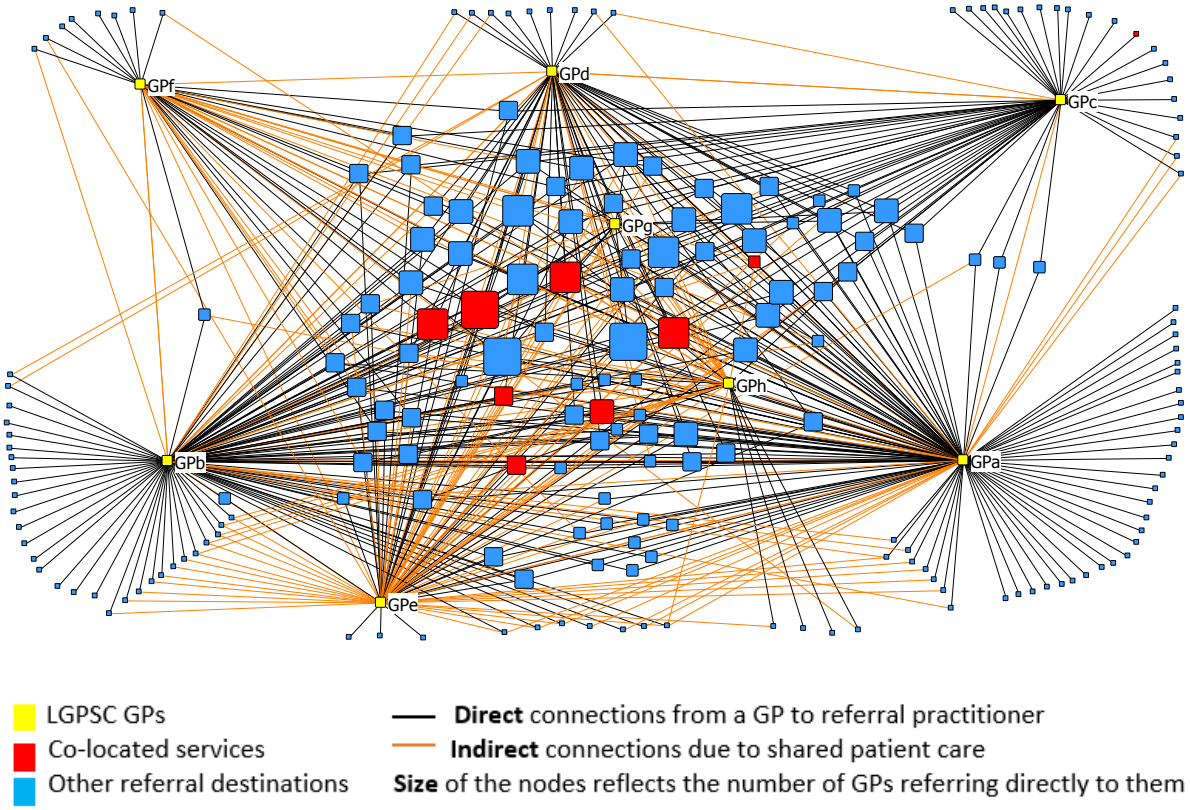


A GP is linked indirectly to a practitioner when a patient for whom they have made referrals has also been given a referral by other LGPSC GPs in the course of their care. Table 3 reports each GPs network when it is expanded to include both direct and indirect links.

Table 3: Size of GPs networks including the indirect connections to practitioners via shared patient care

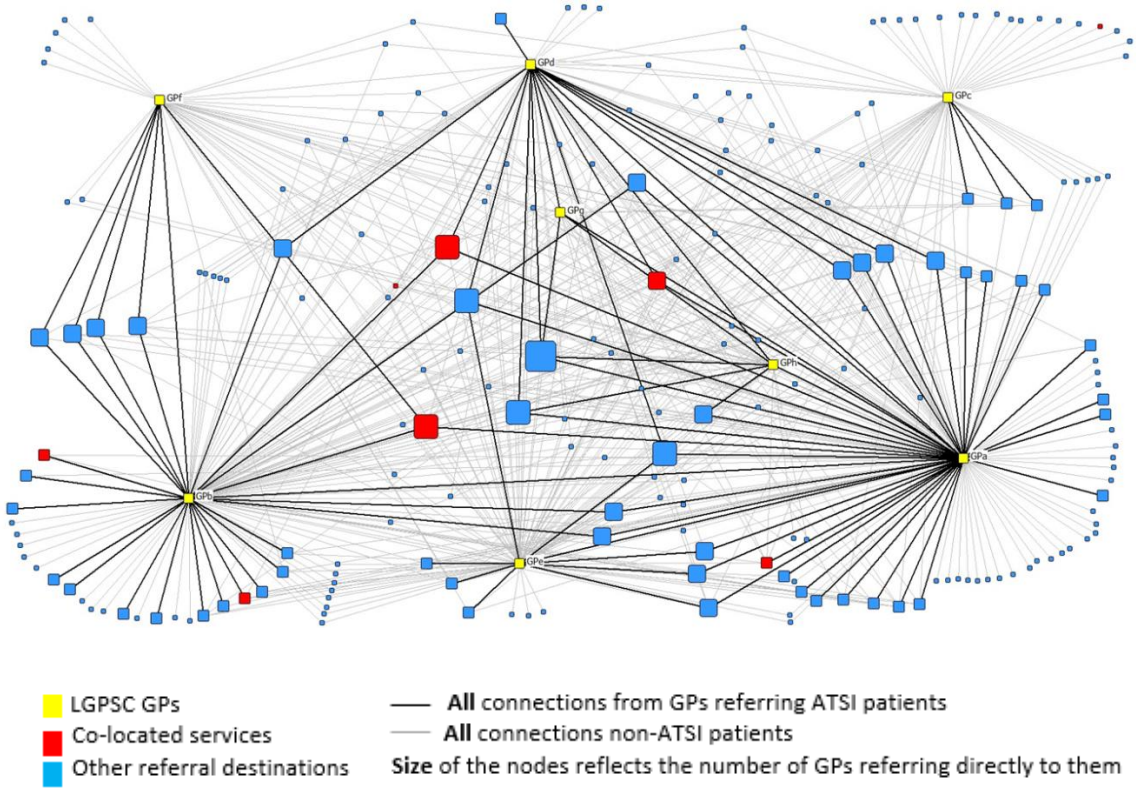
GPs	Direct and indirect referrals Degree (n=213)	Connections due to indirect referrals	% change from direct referrals	Percentage of network reached	Change in % of network reached
GPa	144	23	18.7%	67.61%	10.8%
GPb	126	18	14.29%	59.15%	8.45%
GPc	59	3	5.08%	27.70%	1.41%
GPd	65	17	35.41%	30.52%	7.98%
GPe	99	64	182.56%	46.48%	18.17%
GPf	45	19	73.1%	21.12%	8.91%
GPg	18	6	50.0%	8.45%	2.82%
GPh	37	26	236.36%	17.37%	12.21%

Figure 4: GP network to practitioners including indirect and direct connections



The network of referrals made on behalf of the 19 Aboriginal patients whose referrals were captured in the audit is illustrated in Figure 4. These patients represent 10.1% of referred population and were connected to 59 (27.7%) practitioners. A number of medical specialists in the region bulk bill Aboriginal patients.

Figure 5: ATSI and non-ATSI referrals



Professional integration within the clinic

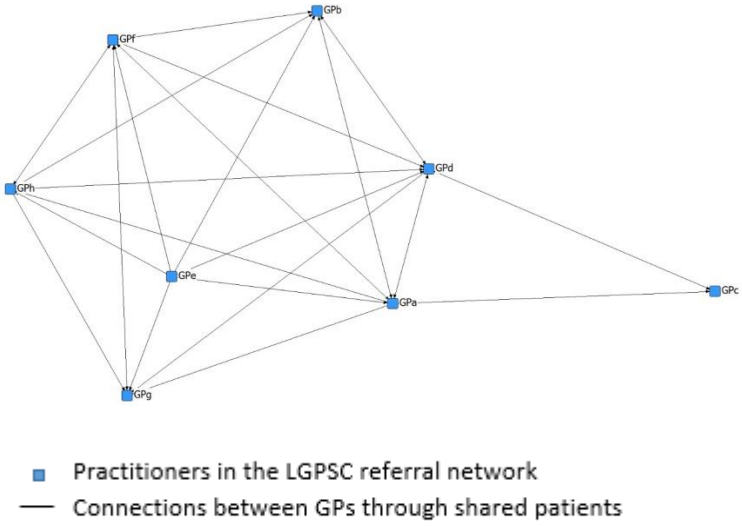
Table 4 describes professional integration within the LGPSC by enumerating the internal links between one GP and another, in terms of shared patients.

Table 4: Interrelationships between GPs at the LGPSC through sharing of patients.

GPs	# of other GPs connected to each GP via shared patients independent of timeline (n=7)	# of GPs connected to sequentially with a GP via shared patients (n=7)	Duration of involvement with audit
	Full time throughout audit		
GPb	5	3	81 months
	Part time throughout audit		
GPh	6	4	81 months
GPf	6	5	81 months
	Full time for part of the audit		
GPa	7	7	49 months
GPe	6	6	34 months
GPd	7	4	26 months
GPc	2	1	9 months
GPg	5	1	9 months

Figure 6 illustrates the relative integration of the GPs into this aspect of the network. The GPs who work the least hours in a month (GPf and GPh) share patients with (almost) all of their LGPSC GP colleagues. GPc and GPg are the most recent additions to the clinic (second column). Each initiated the referrals of just one patient each, whose next referral was made by a different GP.

Figure 6: Professional integration amongst GPs at the LGPSC through referring shared patients



Referrals to healthcare practitioners

Referrals were made to 31 different medical specialisations and 22 allied health professions and nursing specialties. Gastroenterologists, orthopaedic surgeons, ophthalmologists and cardiologists were the specialists most frequently referred to, while dietitians, exercise physiologists and podiatrists were the most commonly referred to AHPs (Tables 5 and 6).

Table 5: Number of referrals to name medical specialists or businesses

Medical specialist	People referred by name	Referred only to business	No of referrals	Medical specialist	People referred by name	Referred only to business	No of referrals
Anaesthetists	1		2	Oncologist	4		6
Cardiologists	6		37	Opthalmologist	9		37
Colorectal surgeon	1		1	Oral Maxillo Facial Surgeon	1		2
Dentists	1		1	Orthopedics	11		38
Dermatologists	3		20	Paediatrician	3		4
ENT	9	1	30	Physician	4		10
Endocrinologists	2		6	Plastic Surgeon	1		1
Gastroenterologists	6		43	Psychiatrists	5		5
General Surgeons	9		30	Respiratory specialist/Physician	5		7
Gerontologist	1		1	Rheumatologist	2		5
Gyneacologist/obstetrician	7		19	Sleep Physician		2	2
Haematologists	2		6	Spinal surgeon	1		1
Heptologogist		1	2	Urologist	7		21
Immunologist	2		2	Vascular surgeon	5		11
Nephrologist/renal specialists	3		7	Unspecified medical specialist		2	2
Neurologists	2		7				

Table 6: Referrals to named allied health and specialist nursing services or businesses

Allied health and specialist nurses	People referred by name	Referred only to business	No of referrals	Medical specialist	People referred by name	Referred only to business	No of referrals
Alcohol/drug worker		2	2	Rehabilitation services		1	5
Audiologist		1	1	Respiratory nurse practitioner	1		1
Chiropractor	8	2	24	Occupational Therapist	1		2
Community Services			22	Osteopath	8		24
Dietitian	3		90	Pharmacist		1	1
Exercise Physiologist	5	2	65	Physiotherapists	12	2	29
Hepatitis services/nurses	2	3	7	Podiatrist	3	4	62
Mental Health worker/nurse	6	3	11	Psychologist	10		16
Diabetes Educator /nurse	2	1	6	Speech pathologist	1	1	2
Incontinence Nurse	1		2	Stomal therapist	1		1
Renal Nurse Practitioner	1		1	Unspecified specialist nurse	2		

Table 7 illustrates individual GP referral networks. When considered alongside the data about duration of participation in the audit and time spent in the practice per month, these data suggest how the network supports each GP. GPg who was new to the practice had no unique links to practitioners. GPh, who attends the practice for four days a month, has only four unique links, and GPf (also 4 days a month with one day a week) only eight unique links. The two full time GPs (GPd and GPe) who left the practice during the timeframe of the audit (in October 2010 and August 2014 respectively) had 12 unique links between them and their departure potentially risks the loss of those 12 referral practitioners from the network.

Table 7: Number of practitioners unique to each GP

GPs	# of practitioners	% of total unique practitioners (n=117)	% of total practitioners in the network (n=213)
GPa	36	30.77%	16.90%
GPb	37	31.62%	17.37%
GPc	20	17.09%	9.39%
GPd	9	7.69%	4.23%
GPe	3	2.56%	1.41%
GPf	8	6.84%	3.76%
GPg	0	0.00%	0.00%
GPh	4	3.42%	1.88%

The resilience of the LGPSC referral network can be tested by considering the theoretical effect of withdrawing a GP's connections to practitioners. The long term, full time GPs (GPb who has practiced at the clinic for over than seven years and GPa who joined in 2010) had the highest number of unique connections (37 and 36 respectively) and the loss of either of these GPs could lead to a loss of almost a third of the unique connections to practitioners from the network.

Table 8 illustrates the number of referral destinations each GP shares with every other GP. The matrix is symmetrical. The only GPs not to have shared practitioners are GPd and GPg. The two GPs that shared the most practitioners were GPb and GPa, who also had the most practitioners in their network and were both full time staff and had practiced long term at the

LGPSC at the time of the audit. GPs with the lowest percentage overlap pose the greatest risk to the referral network if they leave the practice.

Table 8: Number of practitioners referred by each LGPSC GP who were also referred to by another GP within the clinic

	GPa	GPb	GPc	GPd	GPe	GPf	GPg	GPh
GPa	121	63	31	37	25	13	10	7
GPb	63	108	24	24	26	13	8	5
GPc	31	24	56	15	11	4	7	2
GPd	37	24	15	48	11	8	8	0
GPe	25	26	11	11	35	5	3	3
GPf	13	13	4	8	5	26	4	1
GPg	10	8	7	8	3	4	12	1
GPh	7	5	2	0	3	1	1	11
% of over-lapping referrals	70.25%	65.74%	64.29%	81.25%	91.43%	69.23%	100%	63.64%

Note: the gold squares indicate the number of referrals made in total by an individual GP.

Practitioner networks and metrics

Figure 7 illustrates the degree distribution, which measures connections within the network: the number of practitioners (y-axis) versus the number of other practitioners they are connected to (x-axis). The practitioners represented to the right of the x-axis are the practitioners who were referred to most frequently and shared in the care of the largest number of patients. The five most connected practitioners included five co-located practitioners (a dietitian, two exercise physiologists and a podiatrist and an ophthalmologist who shared the same precinct).

Figure 7: Degree distribution: connections by shared patients between practitioners in the referral network

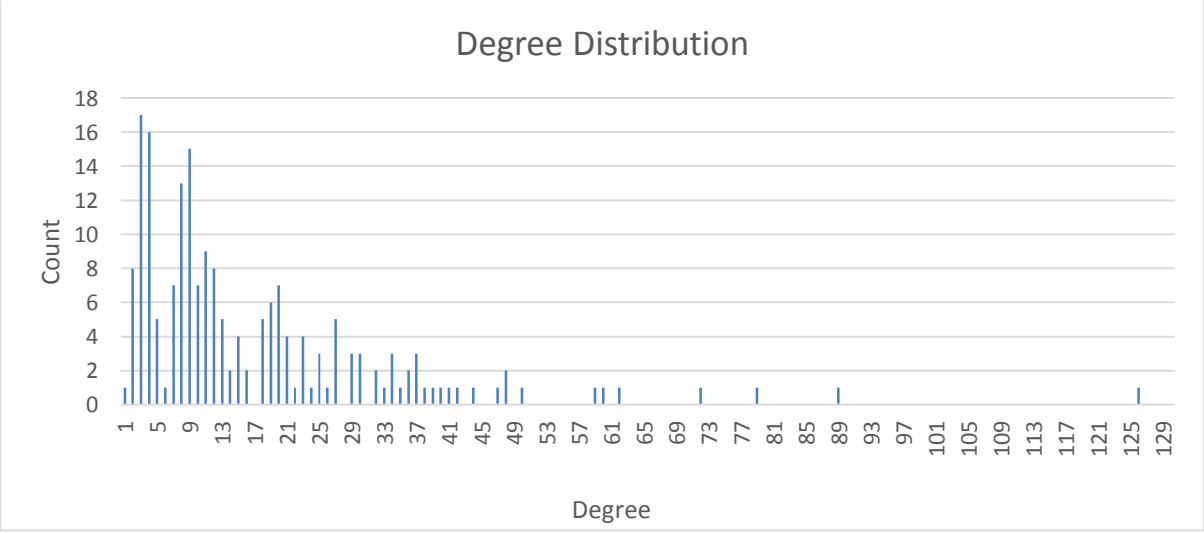


Table 9 indicates the practitioners that were most frequently referred to and involved in the care of most patients. Thirty seven referrals were made to eight ophthalmologists during the audit, 26 of these were to Ophthalmologist 1, who was referred to by six GPs and whose rooms are situated in walking distance of the LGPSC. The distribution of referrals to cardiologists shows a different pattern with 37 referrals made to six cardiologists during the audit period; the most highly referred to cardiologist, Cardiologist 1 received 12 referrals from only two GPs.

There were eight instances where a patient was referred to the same practitioner twice during the course of their care. Three patients were referred to the co-located exercise physiologist on two occasions, another three had repeat referrals to the co-located dietitian; one patient had two referrals to a general physician and another to a local physiotherapist.

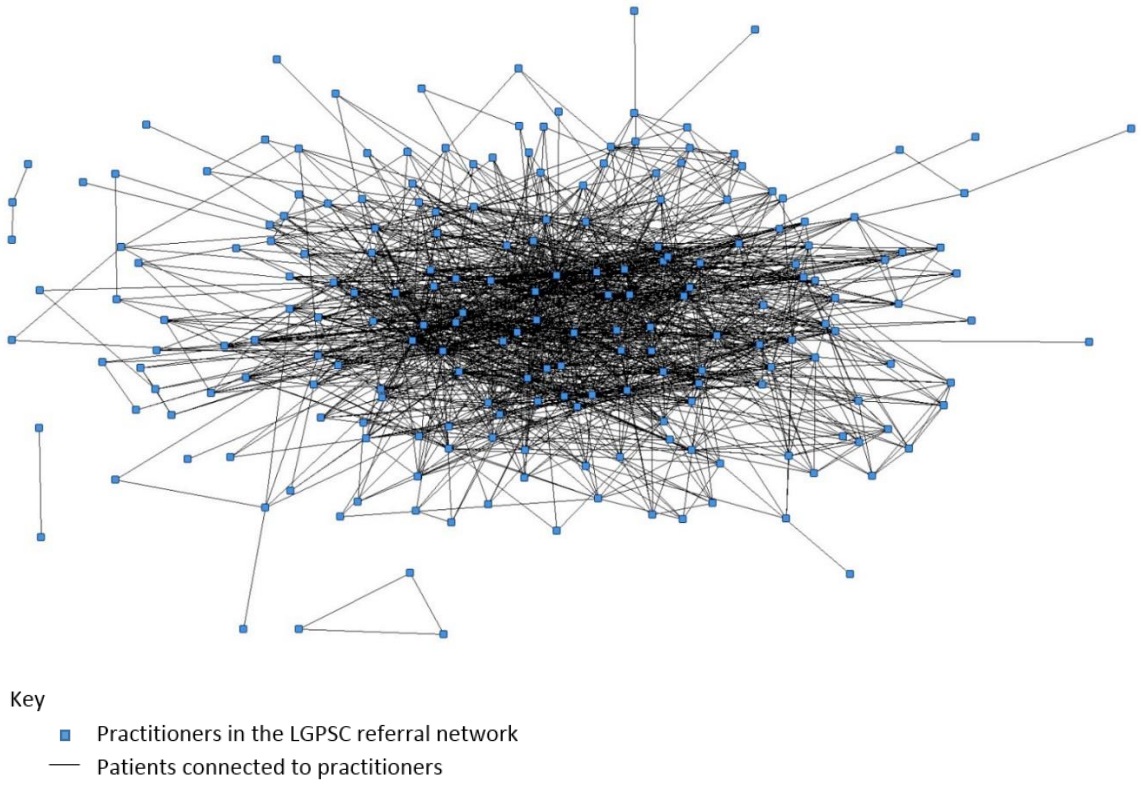
Table 9: Most referred to practitioners

Most referred to	No of referrals	No of referring GPs	% of cases involved in (n=188)	% of total referrals (n=737)
Dietitian 1	70	5	37.23%	9.50%
Exercise Physiologist 1	44	6	23.40%	5.97%
Podiatrist 1	27	5	14.36%	3.66%
Ophthalmologist	26	6	13.83%	3.53%
Exercise Physiology business	24	4	12.77%	3.26%
Podiatrist	21	6	11.17%	2.85%
Dietitian 2	15	5	7.98%	2.04%
Gastroenterologist 1	12	4	6.38%	1.63%
Cardiologist 1	12	2	6.38%	1.63%
Cardiologist 2	12	5	6.38%	1.63%
Ear Nose & Throat Specialist	11	5	5.85%	1.49%
Orthopaedic surgeon	11	4	5.85%	1.49%
Gastroenterologist 2	11	5	5.85%	1.49%
Gastroenterologist 3	10	3	5.32%	1.36%

Figure 8 shows the connections formed between practitioners referred to by the LGPSC when they were referred the same patient. In this analysis, when a patient was referred to both an exercise physiologist and a dietitian, a connection formed between the exercise physiologist and the dietitian, represented by the line. The GPs are not represented in this analysis, but each practitioner is represented by a blue node. Whether this connection had a real world

effect is uncertain, as the audit data does not reveal whether either party was aware of the link to the other parties involved in the patient's care. However it is revealing from the perspective of the GPs at the LGPSC, and shows how they integrated their networks across the patient's care. As can be seen in Figure 8 there are four components in the network, two of size 2, one of size 3, and one giant component with 202. There are also three nodes who are not connected to any others, and have not been included in the map. The degree of connection varies with 46 weak components in the network. The overall clustering coefficient of the network is 0.417, (average number of triangles compared with the total potential number of triangles in the data). The average number of connections each practitioner has, or their 'average degree', is 8.571, and the density of the network is 0.041. The diameter of the network, a measure of the number of steps to get from one side of the network to the other, is seven, and the average distance is 2.708, with a standard deviation of 0.89.

Figure 8: Integrated network of services as measured through patient referrals



Discussion

These findings suggest that practitioners working in the LGPSC have access to a large referral network, however there are no normative data available for comparison or benchmarking. We are also unable to determine the quality or appropriateness of the referrals within this study. For instance, it may be that the referral destination was inappropriate, or that an alternative provider may have been more appropriate. Further research is needed to understand the dynamics, quality and outcomes of the actual referral processes.

Unsurprisingly, GPs working at the LGPSC for the longest time and working full time had the most extensive referral networks and shared the care of more patients. Shared patient care increases the resilience of the network to any potential loss of a GP from the system. Although this study makes no assessment of the effect of increased referral networks on individual patients, multiple connections to the region's medical specialists and AHPs is considered a resource. Succession planning that includes knowledge of personal referral patterns could mitigate against the potential loss. Events that build personal relationships between GPs and practitioners provide important opportunities to foster and grow networks.

The audit was based on electronic medical records, thus, paper based referrals were not included. This may account for the 16 people assigned to the CDM program for whom no referrals were recorded. Incomplete medical records impede the flow of information among practitioners sharing the care of patients and may result in poorer outcomes for patients in some cases.

The discrepancy in the proportion of referrals for Aboriginal patients represented in the audit (82.6% of 23 cases) compared to non-Aboriginal patients (93.4% of 181 cases) is worthy of consideration. If 93.4% of Aboriginal patients in the sample were referred at least once, 21 rather than 19 would have been referred to a medical specialist or an AHP. While the audit data cannot explain this difference it is an important result, especially since the limited demographic data about these patients is in line with national findings.

The development of referral networks is an individual process which was reflected in the data regarding the two newest arrivals at the clinic. GPc came to the LGPSC in the last months of the audit from an established practice in an adjacent postcode. Audit data found GPc directly referred to 27.7% of the network (Table 3). When indirect connections were considered, this altered GPc's share of the network by 5.1% (Table 4). In contrast GPg, who joined the practice at the same time, but from a hospital background, was directly connected to 5.2% of the network, but when indirect connections were included, the change in GPg's share of the network was 33.3%. Moving into the professionally integrated LGPSC allowed a GP with a small referral network to rapidly increase connections within the network. GPc brought in a much wider personal network, introducing new practitioners to the network. At the time of the audit 26 of these were connected only to GPc (Table 3). Over time these connections with individual practitioners are likely to be shared with other GPs increasing the resilience of the clinic's combined referral network. Longitudinal research employing similar methodology could track this evolution.

Bulk billing is usual practice at the LGPSC for all GPs except GPc, who negotiated an independent agreement when he joined the clinic in 2014. All co-located AHPs bulk bill for their services to LGPSC patients. Some medical specialists also agreed to bulk bill LGPSC referrals, particularly Aboriginal patients. These factors may have contributed to the finding that four of the five 'superconnectors' in the network were co-located at the LGPSC and one was located in the same precinct (Figure 6).

GPs who worked the fewest hours at the clinic shared patients, by referral, with almost all the other GPs, again suggesting an appropriate level of professional integration within the LGPSC. The part-time GPs (GPf and GPh) developed special interests within general practice (mental health and skin conditions, respectively) and were referred patients with these

concerns by other GPs within the practice. This driver of internal professional integration could not be ascertained by the audit.

Conclusions

This audit provides an important baseline of aspects of micro and meso level integration in the North Coast and Northern Rivers region of NSW.

3.2. PATIENT AND PRACTITIONER PERSPECTIVES OF INTEGRATION

Aim

The aim of this component of the study was to capture what patients valued in terms of their integration.

Methods

In consultation with the team at the LGPSC, we developed a brief survey tool, based the published literature on patient perspectives of integration [14]. The literature was augmented through consultation with our research team, including the LGPSC partners, to identify aspects of care that may be appropriate to integration that were not covered in the existing literature review.

Based on the literature review and stakeholder feedback, we developed a series of statements to identify what is important to patients / clients about their integration experience. The result was a 25 item questionnaire (the Patient Perspectives of Integration Survey) which asks patients to identify the extent to which they value specific aspects of integration (Appendix B). Patients were asked to rate each of the statements from 0 – 10 (10 is highest) according to how much they value each of those items in their referral consideration.

The patient questionnaire was then piloted in the waiting room of the LGPSC. All consecutive adults (over 18) deemed able to provide informed consent were invited by the receptionist to participate in the survey following a brief verbal explanation of the study. The two interviewers (CA and SN) approached the consenting participants and administered the questionnaire directly into an online survey tool (on an iPad). This method of administration was chosen to enable the interviewer to clarify or rephrase questions to enhance participant understanding.

A mirror survey was developed for the practitioners (Practitioner Perspectives of Integration), which asked the practitioners the extent to which they consider the items listed when making referrals (Appendix C). This survey was piloted with 10 health practitioners for content validity and terminology which resulted in a small number of minor wording changes, and the addition of a question about whether the patient has a preference for always seeing the same GP. The final questionnaire was developed into an online survey tool using Qualtrics survey software. This survey was initially emailed to the GPs and co-located AHPs (n=12). Only one replied to the online survey, so it was then redesigned as a paper survey tool.

A modified ethics approval was obtained for this stage of the research (ECN 14-273).

Results

Patient perspectives of integration

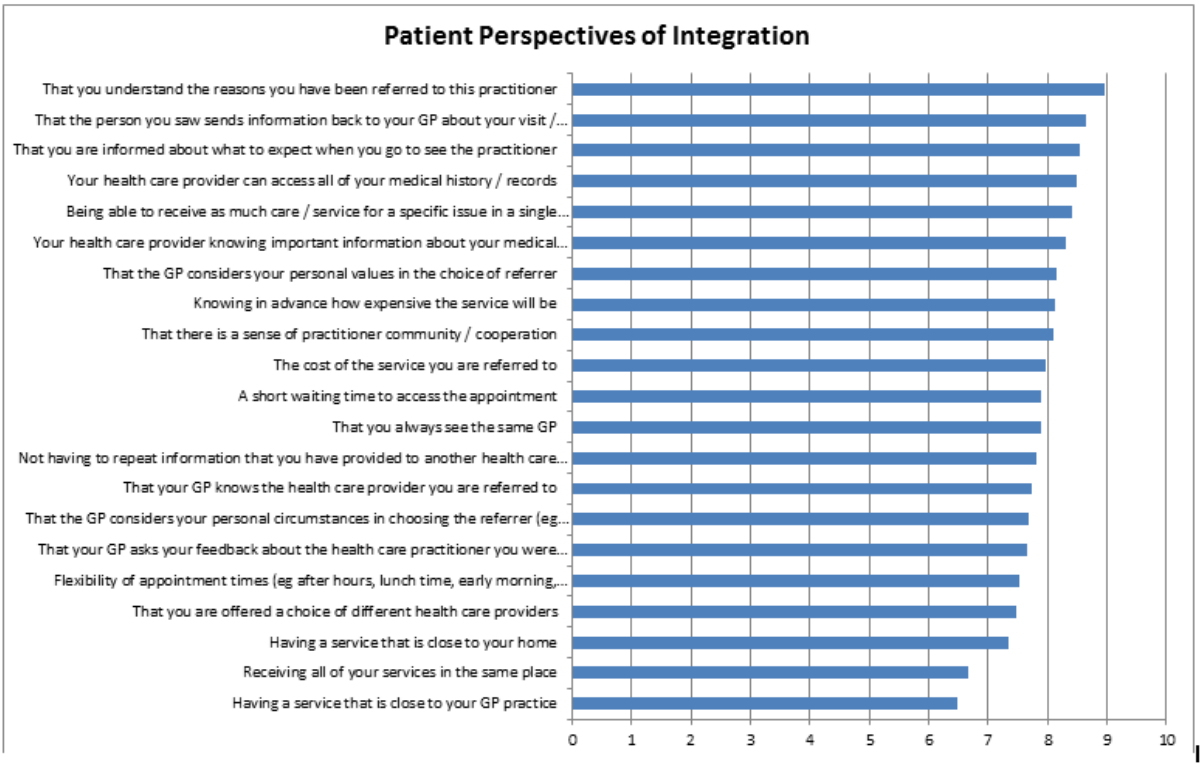
Of 50 eligible patients, 32 responded; 2 (6%) identified as ATSI, 66% were female, age range 18 – 86 years (mean 50.3 years). All but four respondents were from the Lismore postcode; few had to travel far to access the service.

Non-respondents were not required to give a reason for their non-response; however the receptionists forgot to ask some patients, and deemed that others were too unwell to be asked to participate.

The error bars show one standard deviation either side of the mean result. In other words, 95% of the results were within the boundaries of the error bars. The sample size is relatively small (32), so the standard deviations are quite wide. The number of ATSI identifying participants (2) was too few to warrant separate coverage of their perspective.

The results are summarised in Figures 9 and 10 and are discussed below in section 3.3.

Figure 9: Patient perspectives of integration results (n=32)



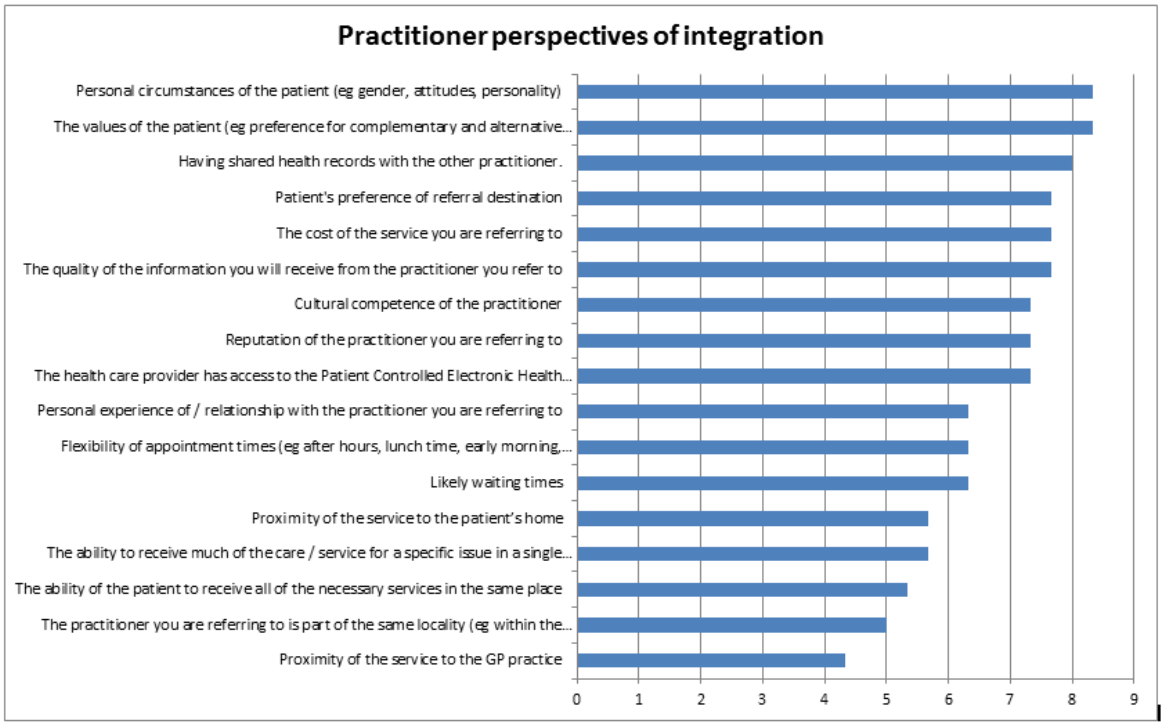
Practitioner perspectives of integration

Seven (out of a possible twelve) responses were received to the practitioner perspectives of integration questionnaire, and one practitioner suggested that he had been coerced to provide the findings, so his results were omitted. Consequently, with six useable responses to the questionnaire these results must be viewed with caution.

Interestingly, the practitioners placed the least importance on physical access to services and the greatest importance on patient preferences, values and attributes and communication between practitioners.

The practitioners suggested an additional item for consideration, which was the “Professional orientation of the practitioner”.

Figure 10: Practitioner perspectives of integration



Discussion

While this is a small sample, and requires further verification, the Patient Perspectives on Integration survey suggests that patients value all of the items identified in the patient-centred care literature [14]. Importantly, five of the six most highly valued items related to communication between the patient, GP and the person to whom the patient was referred. Patients want to know why they are referred to someone, what to expect when they are referred, and they want to know that the person they are referred to receives the relevant information from the GP. There was a strong preference in this group for the person referral practitioner to have access to the patients’ medical records.

The cost of the service was not given a high priority. This may be because the majority of the patients at the LGPSC are “bulk billed” (receive free health care at the point of service), and were only referred to bulk billing specialists.

Interestingly, one of the important items in this scale was “Being able to receive as much care / service for a specific issue in a single appointment (rather than multiple visits / appointments)”, suggesting a high level of preference for the “one-stop-shop” as opposed to multiple clinical transactions. This could be addressed either by having multi-skilled practitioners who are able to deliver several aspects of care in a single appointment, or by having multiple services available in a single location.

Another important point warranting further investigation is the importance of continuity with the same GP. This was rated highly by all participants, but was not the most important aspect of care. GP continuity is a key component of the patient-centred medical home, however as the previous chapter demonstrated, patients who see different GPs are exposed to a wider referral network.

The least important (however still important) items were the physical accessibility of the service. This may be because many of the participants were from the local region. Interestingly, several of the recent local strategies to enhance integration (focused on the patient-centred medical home model) have prioritised access through co-location of services, although these studies have found that co-location also increases communication, file sharing, and interprofessional relationships.

We did not have the capacity within the time-frame of this project to administer this tool further. Additionally, we believe that it is important to take the revised tool to a wider health service using population, rather than simply rely on the patients from a specific clinic. Perspectives on integration may vary with factors such as stage of life, or chronic disease.

Half of the practitioners based at the LGPSC completed the Practitioner version of the survey after a number of reminders from the practice manager. Responses mirrored the patients' perspective to a large degree, emphasising communication and patient values and valuing proximity and multiple clinical transactions in one location less highly. This contrasts with the behaviour captured in audited medical records where GPs showed a preference for referring to co-located and proximally located health professionals.

Conclusions

Based on the findings alone (with the acknowledged weaknesses of the sample size), this study suggests that for good quality integration to take place, the following needs to occur;

- The GP needs to communicate clearly with the patient about the purpose and their expectations of the referral.
- There needs to be a high quality communication pathway between the GP and the practitioner to whom they refer the patient. Ideally, this will include access to patient records (such as an electronic health record); a clear explanation of the patient's needs; and a flow of information back to the referring GP.
- The GP needs to "match" the needs and expectations of the patient with the appropriate referral destination.

Referring practitioners would benefit from having the following information available for the patients;

- The cost of the service they are referring the patient to
- The waiting times and availability for that service
- Issues to do with physical accessibility to that service (e.g. parking, disabled access)

3.3. QUALITATIVE DATA ANALYSIS

Aim

The purpose of the qualitative data collection was to:

(a) Help understand the socio-political context of health care integration within the North Coast region and

(b) Provide insights into the systems and processes that support integration between and within organisations.

Method

Semi-structured interviews

Qualitative data collection involved semi-structured interviews with selected key stakeholders. We also undertook a review of local board memberships to determine the spread of influential relationships.

A structured interview schedule was used to interview participants (Appendix D). Interviews were recorded, but not transcribed. Instead, contemporaneous notes were taken, and used as the basis for the analysis. Where necessary the recordings were accessed for clarification or confirmation.

Because the interviews were largely designed to provide contextual data for specific organisations, the results are largely a synthesis of the findings from the key participants and are presented to help provide a better understanding of the contexts for integration around the micro-meso-macro structures described earlier.

Because of the small town nature of this research, and local and regional sensitivities, the participant's identities have been protected and only general themes reported here.

Results

Interviews were held with senior managers (n=5), practice managers (n=2), project managers (n=1) and one other clinical advisor (n=1) from the LGPSC, the North Coast Primary Health Network, the North Coast Local Health District, and Southern Cross University Health Clinic.

In addition, structured (written) responses were received from 13 participants: 2 pharmacists, 2 chiropractor and acupuncturists, 3 chiropractors, 4 physiotherapists, 1 osteopath, 1 occupational therapist. Only two of these participants were directly involved with the LGPSC. Participants had spent an average of 12 years working in the North Coast region (range 0.5 – 30 years); most (n=8) worked from a single location; worked full time (n=7); the largest proportion were sole private practitioners (n=6), 2 were co-located with other practitioners; and the pharmacists were based in community pharmacies.

Ten of the respondents employ modalities that focus on musculoskeletal problems (physiotherapists, chiropractors and osteopaths) with pharmacists and an occupational therapist providing the other responses. Two of the respondents work in the same postcode as the LGPSC, and eight within a 50km radius.

Respondents were asked to identify up to six practitioners they were well connected to through referrals. Referrals were received from health care provider 1 at least once a week; from health care provider 2 from weekly to 2 – 3 times per month; and other practitioners less than monthly. The respondents listed twenty eight different practitioners to whom they refer or receive referrals, half of whom were GPs, as well as two exercise physiologists, two pharmacists and an Indigenous Health Centre, one radiologist, osteopath, multidisciplinary clinic and a massage therapist. The LGPSC was named once in this part of the survey.

Participants were asked to identify the way that they interacted with these practitioners, apart from exchanging referral information. Survey respondents said that they exchange written reports or notes about patients with practitioners they identified as linked to them by referrals. This was the most commonly reported form of collaboration and was reported 21 times. Collaboration extended to case planning using a shared care plan document (six reports) and discussion of findings and management strategies (11 reports), while the referral was reported as the only link 14 times.

None of the respondents identified that they were involved in shared board appointments, joint service planning or programming (e.g. staff co-location); policy development; or joint initiatives between health care sectors (e.g. Headspace).

Other integrated models of service delivery were identified including: provision of a falls prevention program; working with the local council; providing services to a local meat works; providing health screening in a retail outlet and working with a local medical practice. Other examples of collaboration given by respondents was ‘diagnostics and future referrals’, ‘co-osteopathic management’ with a GP and an exchange of information about ‘drugs’. In the section asking specifically about connections with the LGPSC, two respondents reported that they receive referrals at least 2 – 3 times a month from GPs at the clinic, but the relationship is purely through the exchange of referral letters. There is no joint planning or delivery of services.

Respondents were asked whether they face difficulties making referrals within the local region. They identified the following challenges:

- Difficulties accessing patients due to conflicting contracts in nursing homes.
- Trouble with local radiology clinic accepting referrals.
- Medical practitioners having a negative opinion of chiropractors and not wanting to refer or collaborate on patient management. The majority of chronic disease management referrals are patient driven.

One community based organisation was asked to identify their vision for a well-integrated service. They identified the key components of integration as the patient having access to a holistic assessment with appropriate referrals to a co-located multidisciplinary team, with service delivery guided by a care plan to inform appropriate referrals.

Close relationships between other agencies was seen to be driven by communication, honest dialogue, personal relationships, and respect. This group described their linkages to other organisations, which were forged at meso and macro levels through receiving and directing referrals between agencies; through joint research projects; shared board membership across

agencies; the provision of student clinical placements; and holding joint (interprofessional) student training clinics in situ.

This group had had a previously close working relationship with the LGPSC with a Memorandum of Understanding, however the relationship broke down when the community organisation said the LGPSC failed to deliver what they had promised, did not communicate, and did not comply with their funding model. Several of these changes occurred prior to the cessation of the Super Clinic model.

The LGPSC perspective

The LGPSC identified several internal structures and processes to support integration. In particular they have established several systems to identify and track patients on CDM plans and Team Care Arrangements (TCAs). These include identifying people who may require care plans, tracking changes in biometric data over time; and instituting reminders at appropriate times. They have a policy of trying to ensure continuity of care with the same GP for patients on CDM plans.

The combination of entrepreneurial initiative and good clinical care can be seen in the development of the LGPSC record management system, which has been organised to ensure patients do not miss appointments when they are due. They also keep a specific timeline for each patient that can be linked to specific health education initiatives.

One of the business managers explained the shift in the clinic's priorities toward patient education, viewing it as integral to the financial success of the business. Lack of health literacy is perceived as a problem in the local community, particularly the Aboriginal community, and was thought to play a part in the lower referral rate for Aboriginal patients found in the file audit. When a patient clearly indicates they will not attend a referral appointment (for example with a dietitian) the GP may not make the referral. Improving compliance with lifestyle and pharmaceutical regimes, as well as regular return appointments is good for the patients and good for the LGPSC. The practice manager had recently attended a conference on patient education and was using several initiatives within the practice to support education and health promotion. For example the practice nurses were trained to use Best Practice (practice management software) to graphically represent specific health indicators, such as HBA1c for people with diabetes. This enables nurses to see quickly whether there is a change in that indicator and recommend an intervention. Nurses are encouraged to show the graphic to the patient and explain its significance, reinforcing the message that regular monitoring has a genuine place in health care.

The practice has developed a series of flowchart and checklist protocols, specifically for patients on CDM and TCAs, based on the Medicare publication called 'Questions and Answers" [6]. For example, these protocols are used to establish whether patients meet the eligibility criteria to be placed on a Team Care program.

Within the practice, GPs can access information about a referral practitioner in two ways. There is a drop-down menu within the practice software which lists specialisations e.g. optometrist. All of the relevant practitioners under this specialism who are listed on the LGPSC system will be presented as an option to the GP. This system is updated approximately annually, but requires a great deal of upkeep from the practice perspective. Alternatively, GPs can name a specific practitioner or business in a search engine associated

with the software. GPs might enter the business name even when they are familiar with the individual practitioners if it is a bulk billing practice and that is the main criteria for the patient. They have established systems to ensure informed financial consent is considered and to identify whether there is some urgency or a long waiting list.

Cost is an important criterion for many referrals. For instance, one local radiology service provides very good reports, but does not bulk bill, whereas a competitor in a nearby town are less good, but it is a bulk billed services. This often determines the referral criteria, particularly for Aboriginal patients.

The GPs in the LGPSC have different levels of knowledge and experience with the referral practitioners. One of the GPs had lived in the local area for a long time and used to work in the local hospital, so knows many of the medical specialists locally, whereas the overseas trained doctors rely more on patient recommendations.

One of the challenges of the referral system within the LGPSC is that GPs engage with it in different ways and at different levels. For instance, the practice manager is not systematically informed when she should add new person to drop down menu; some of the GPs continue to use paper based referrals instead of the electronic system, which limits the ability of the practice to capture the referral data. For example, the audiologist is from a company called Hearing Australia that provides a paper referral pad to GPs. LGPSC is one of their best practices in NSW, but GPs are failing to report referrals in Best Practice so misses are occurring.

The LGPSC does not have formal case conferencing systems, however 'coffee room' case conferencing is facilitated by co-location of practitioners.

Professional development events for nursing staff have been planned with experts from a local hospital, but when this plan fell through, the practice manager used her connections with a medical representative to bring in an expert from further afield. Hearing Australia is also running an 'in-house' for nursing staff.

Regionally, there have been a small number of initiatives to enhance primary integration, including a project involving the co-location of allied health practitioners in general practice which was supported by the Local Health District and the Primary Health Network. The LGPSC was not involved in this initiative.

The LGPSC initiated a development with the Southern Cross University clinic to support integration with allied health practitioners, but this did not go ahead.

System level integration from the practice perspective

When asked whether the LGPSC received any support from the Primary Health Network, their response was

"Who are they? I don't know what they do, except define their own positions. But the money doesn't get to the coal face. I get no support, have to put on everything myself." LGPSC Representative

They were unaware of their ability to access additional funding for nurses for patients on CDM programs.

"Medicare gives money to the Medicare Local and they have to distribute it. Don't see any of it. New government and it changes. We keep on doing what we do." LGPSC Representative

The Primary Health Network perspective

The Primary Health Network is chaired by a local GP, who has held several senior strategic roles in primary health care locally and nationally. The Chair of the Primary Health Network was involved in a collaborative bid involving several North Coast GPs to tender to provide the Super Clinic services within Lismore. Their bid was unsuccessful because it was won by their competitor, the LGPSC.

The CEO of the Primary Health Network also has a long history in the local area, with more than 15 years' working in senior management in health, including hospital management. Two members of the Primary Health Network board also sit on the Local Health District board.

The Primary Health Network has established several system wide strategies to support and promote integration including;

- A regional clinical council to guide health priorities and implementation
- Newsletters
- Clinical groups (networking for general practitioners and allied health practitioners)
- The introduction of a co-location pilot project
- A regional integration strategy in partnership with the Northern New South Wales Local Health District

The Primary Health Network emphasised the importance of the organisational culture on service integration. In particular, the need for clinicians to take on a broader role in the wider health system, as opposed to simply focussing on the delivery of clinical care. Clinicians have a role to deliver good patient care and this includes working on teams dedicated to quality improvement of the whole system. This means that the patient does not need to worry about who owns and operates these elements, but the system will facilitate their transition through, as needed.

The Primary Health Network representatives were asked to describe the qualities of a well-integrated health care system. They proposed that an integration strategy needs to ensure there is a shared vision, a shared narrative, reflected in the leadership and culture of the system. There was acknowledgement that they are moving forward with leadership and vision, but there are challenges to implementing cultural thinking, particularly in the Local Health District, where traditional cultures and ways of working are more apparent. There was acknowledgement that this is even apparent across general practice where traditional institutional hierarchies are not as apparent.

A further consideration identified was the misalignment of funding with drivers for integration. Health care delivery requires investment in clinical care, investment in teams and investment in the wider health care system, however individual care is funded under the fee-for-service funding model.

"Even in the public sector, only bums on seats count... and are not counted well. There is work to do to show how the information flows. Patient empowerment as a driver for integration doesn't get recognised or rewarded". Primary Health Network representative

We also asked the Primary Health Network to identify the effects of recent policy changes on integration, specifically, the changes to the Super Clinic funding and the review of the Medicare Locals. There was a perception that Super Clinics did not have a lot of impact, that they were badly chosen, poor models of implementation, and lacked opportunities.

"Most people would regard these as a failed policy. In some cases, they've built good services, some have leveraged opportunities, and built things that do a lot for integration and quality, but others have put other organisations out of business". Primary Health Network representative

They also perceived a problem with the way that regional primary health care organisations have been created. While the concept was seen as positive, there was no clear mandate.

"*The Medicare Locals were not appropriately empowered or resourced in a way that they could make a big impact". Primary Health Network representative*

The funding models meant that the Medicare Locals were competing with their partners, when they really needed to be a trusted intermediary between the public, private and not-for-profit sectors to be able to facilitate change. Instead, the Medicare Local had to compete against these organisations for funding and projects which undermined the system wide capacity to deliver integration.

The Primary Health Network perceived that the strongest relationships to support integration came from face-to-face working together to achieve shared outcomes, particularly the wellbeing of patients.

"There is a need to bring people together around what is good for the patient". Primary Health Network representative

Face-to-face relationships mean that providers take on responsibility for providing quality information, are more likely to follow-up, and complete their tasks. This relies on a good understanding of roles in the system and from knowing what other people do. Authentic relationships are difficult to engineer. They help to clarify what people do and what is expected of them.

It was recognised that the way the Primary Health Network approached integration created some initial tensions within the Local Health District, in part because of the different cultures of the two organisations.

"In their zealousness, they failed to understand the culture of the Local Health District. Medicare Local did not take the time to understand the culture of the Local Health District. This is a lesson for change management for everyone. The Local Health District needed to operate from a risk matrix point of view and give confidence to the staff to move forward". Primary Health Network Representative

The Local Health District perspective

The Local Health District stakeholders identified the most important drivers of integration as the need to change the model of care to gain more efficiencies and effectiveness from resources and to improve patient outcomes.

They suggested that an ideal integration model would include co-located services which would help drive changes to infrastructure and culture to support integration. However, in the absence of co-location they recognised the need for supportive structures to enhance service delivery, specifically: communication structures; clear understanding and respect of roles and responsibilities; clear scope of practice that can be delivered by either health professional; the IT support structures to facilitate decision making and communication; set of assessment / best practice tools / pathways that would be agreed upon between the health professionals (e.g. practice nurse, AHP, or Emergency department staff). These need to be supported by a clear understanding, trust and respect.

The Local Health District identified several challenges to achieving integration. One of the barriers to integration was the perceived differences between the culture of the health service and the private practice general practices. The fears of the Local Health District staff included the different cultures of the staff from a public system going into a private, small business enterprise, recognising general practice is a small business which has to have a focus on earning an income. This culture was seen as foreign to Local Health District staff.

The difference in culture was articulated in the different approaches to integration. The Local Health District relied on strong support and direction from their executive, and perceived that there was a strong push into new models of care.

"When they push into new Model of Care, they do it in a risk measured environment, so haven't exposed staff to a detrimental environment". Local Health District *Representative*

The impact of recent policy changes for the Local Health District was seen to include the potential for increased resources for integration; new hospital based funding models; and particularly the relationship between the hospital and community based service delivery.

This centralised approach to brokering change differed markedly from the more market driven approach used by the LGPSC.

Discussion

This chapter has attempted to describe the socio-political context in which the LGPSC operates. The data presented in this section has several limitations. First, it should be pointed out that we had great difficulties accessing the data for this section of the project. Initially, we faced quite a lot of resistance from local organisations to being involved in research that was specifically about the LGPSC. The poor response rate to the network linkage survey was also disappointing and may have been due to the method of dissemination; confusion around the concept of integrated care; or active resistance to being involved in this project. Consequently, the responses to the NLS cannot be said to be in any way representative of those working in the wider health region. However, they do provide some additional insights about clinical integration.

Macro level

At a systems or macro level, the key power-brokers in the Northern NSW region are the Primary Health Network (and their evolution from the Division of General Practice) and the Local Health District, which is state funded and provides hospital and community services. These organisations also now carry the responsibility for regional health care integration.

The strong historic relationships between powerful local stakeholders, versus the new player in town with different values and approaches to health care delivery has created tensions between the organisations which appears to have the effect of omitting the LGPSC from regional integration activities. However, several of the integration strategies are new, and even the Primary Health Network, the organisation with the primary responsibility for delivering “integration”, highlighted the challenges of overcoming differences in organisational cultures and the funding barriers to achieving integration.

The findings from the other community based providers and organisations suggest that from a clinical perspective, organisations and practices have developed their own, localised approaches to integration which are based, largely, on personal networks and relationships. The differences between the organisations are the types of networks they can access and the ways these influence their local integration practices. For example, cross board memberships create strategic relationships between organisations that may result in formal referral processes and pathways at the clinical level. It is likely that the LGPSC, being a relatively new provider in town, with a slightly antagonistic history with other organisations, has less access to these relationships than well-established organisations and individuals.

Meso level

The responses revealed patterns in professional and organisational integration in the region and concerns with current referral arrangements. Structures that facilitated meso level integration were examples of innovative solutions to health care delivery, such as providing joint clinics (community pharmacy in GP clinic), performing health care screening with industry, the provision of student placements, which formalised relationships and supervision structures that may otherwise have not existed.

Micro level

The LGPSC has implemented several strategies to promote clinical integration including structured systems to identify and support patients on chronic disease management and referral menus. The practice is also aware of the price-sensitivities of several of their client groups and the costs of the services to which they refer. While no formal case conferencing takes place within the clinic, co-location supports some opportunistic case conferencing.

Conclusions

This chapter has illustrated the complex relationships that impact on strategic alliances between individuals and organisations, and ultimately service integration in a small regional town. Even the largest, most established organisations which have shared board memberships, found that different organisational cultures hinder integration.

4. Person centred integration framework

This section of the report presents the integration framework. In capturing data on primary care integration, we recognised that the patient perspective was missing in our understanding of what constitutes a "good" integration model. This means that current integration models tend to use existing service organisation and structures as the normative framework, rather than consider new ways of delivering care that may be more in-line with the needs of the patient. There is some limited evidence on the patient perspective of integration which identifies several attributes of integration that are important to patients [14]. We have overlaid this patient-centred approach on top of a widely accepted primary health care integration framework [16] to develop a Person Centred Integration Framework. This framework incorporates the aspects of integration that patients value, while identifying the processes to support integration from the perspective of the clinician, the profession, the organisation and the system.

Supplement 1 presents the Person Centred Integration Framework (PCIF) alongside a detailed checklist for service providers to identify activities to support integration to align with each of the domains of the Framework. Most of the data in the checklist is derived from this project. We acknowledge that with further testing and validation, the PCIF checklist could be expanded.

4.1. PRELIMINARY FRAMEWORK VALIDATION

We presented our preliminary research findings, alongside the draft PCIF to a group of 13 key stakeholders from the LGPSC, the Primary Health Network, the Northern NSW Local Health District and the Southern Cross University Clinic. The half-day workshop was held on the 14th August, 2015.

The aim of the workshop was to consult with stakeholders to increase the clinical applicability of the framework; and present clinical integration data based on referral patterns alongside patient preferences and GP practices to:

- ascertain feedback as to whether these findings constitute true integration
- identify any factors missing from the framework
- develop the framework into a tool that can be of value to clinicians and to guide service development and delivery

Participant feedback

The participants endorsed the framework, and felt that it would be a useful approach to help guide integration from the patient perspective.

Feedback from participants reflected the service perspective of integration frameworks. Participants acknowledged that there is a complete lack of understanding and consensus as to what "good" integration looks like and this needs more discussion. However, participants suggested that there is potential to use the PCIF to develop some key performance indictors around patient-centred integration.

Another important point raised by the participants was the level of patient agency required to drive or engage in the integration process. They suggested that this requires increased health literacy, however it will also be contingent on the extent of dependency and complexity of the patient needs. The patient needs for and drivers of integration will largely be determined by their individual circumstances. Another aspect not captured in the PCIF is the level of engagement with other, non-health professionals in the delivery and support of patient health care needs, particularly family and carers.

Areas which need further exploration are the extent to which patients are 'normalised' to their current models of care. For instance, the participants perceived that physical accessibility of services is possibly more important than stated in the patient survey. This may be because the majority of the patients lived close to the service, for instance. Similarly, the LGPSC focus of the project was also highlighted as a potential source of bias, as the Super Clinic may attract specific types of patients who may not be representative of the wider population. Further validation of the questionnaire tools is required to explore these issues from a wider population perspective.

Changes arising from participant feedback included a more simplified overview of the PCIF supported by the full list of background assumptions that were subsequently formed into a service checklist (see Supplement 1).

The participants provided several opportunities for further uptake and implementation of the PCIF through their involvement in a regional integration framework led by the Local Health District and Primary Health Network (coordinated by workshop participants). In addition, the participants were supportive of future research to test and validate the tools, for which funding has been received.

5. Discussion

5.1. OVERVIEW OF KEY FINDINGS

We came into this study asking questions about a systems view of integration. What we have found is that the LGPSC has not been a part of the mainstream health care system within Northern NSW. Instead, it started from the perspective of an entrepreneurial business model, from the ground up, and evolved its own networks and principles to try to meet patient needs of low-cost, affordable, accessible healthcare. The fee-for-service model of private practice providers in the community necessitates this type of virtual network.

One of the challenges then is the mismatch between health service funding and health care priorities. Health care funding tends to be a fee-for-service model which goes directly to the delivery of patient care. From the micro perspective, this creates a business model which prioritises individualised, one-to-one care (as opposed to team based care). The system levers for change are, however, driven at an organisational level through the Primary Health Networks. However while they are able to address some of the meso and macro drivers for change, there is limited evidence that these can easily infiltrate patient care. This is effectively a top down approach to integration, yet integration is not being addressed well from the patient perspective.

From the perspective of Valentijn framework, it would appear that the LGPSC is well integrated at the micro clinical level, but not at the meso (professional and organisational) and macro system levels. Our audit data indicates professional integration between the GPs, co-located and proximal health practitioners for patients with chronic disease. This is best described as '*The coordination of person-focused care in a single process across time, place and discipline'[12]* since it is stimulated by patient care and extends as far as the patient requires, but no further.

Our evidence about meso level integration is limited by the problems we encountered with data collection. The audit demonstrates functioning referral networks between GPs, medical specialists and AHPs in the region and therefore evidences communication. The interviews reveal that attempts to build stronger inter-professional relationships and inter-organisational relationships have faltered.

We propose that the existing models of integration tend to focus on fusing existing systems together. By adopting the person-centred principles of integration it is possible to move towards a far more patient-centred approach that may function despite the wider systems context.

A further challenge of this study is that there is little understanding of what constitutes good integration. The values and priorities of the health care system regarding integration are not clear. For instance, there are no drivers within the Commonwealth funding models to support true team based care. Almost no dialogue focusses on the empowered patient who may be in a strong position to coordinate or integrate his or her own health care, and have a preference to do so.

This study set out to address the following objectives:

- To describe the nature and strength of integration of the LGPSC at clinical, organisational, professional and systems levels. Particular emphasis was to be paid to the nature of integration within ATSI communities, services and structures and models of care that support integration at the patient level.

We found that the LGPSC has strong processes to support integration at the clinical level. The clinic focusses on patient needs and preferences (particularly access to low cost care), and has a strong network of providers. The differential in referrals of Aboriginal patients in a clinic with strong connections to the community suggests this is an area that clinics need to monitor closely.

The LGPSC appears to be loosely integrated at the professional level. Factors that supported professional level integration were:

- Practitioners bringing their own referral networks to the clinic.
- Those without strong, established networks relied on patients and other practitioners to guide them about referral processes and destinations. From this perspective, the local connections and longevity of the GP within the region is an important facilitator of integration.
- Practitioner co-location is an important driver of professional integration which provides the added benefits of shared access to patient records; knowledge of and relationships with the GPs in the clinic; and some potential for the clinic to apply quality assessment principles.

All stakeholders interviewed reinforced the importance of personal connections and relationships to broker integration at all levels. Individual relationships and understanding between clinicians helps build trust and understanding of the joint roles of each of the practitioners. At a systems level, there was evidence from the community participants that cross-board involvement brought strategic and clinical benefits to their service delivery.

The LGPSC is poorly integrated at the systems level. This is, in part, due to the socio-political culture of the small town and the concentration of power amongst actors with long-standing roles and relationships, particularly with the medical profession. At a national level, the LGPSC has become more dis-integrated from mainstream structures and settings because of the disinvestment by the Federal Government in General Practice Super Clinics. There was also evidence from the Local Health District and the Primary Health Network that wider systems integration is a challenge for the whole region.

We can only speculate about the implications of this lack of systems integration. The LGPSC has benefitted from substantial Federal Government support to create a high quality, primary care practice facility. Ironically, because of these facilities and the diversity of clinical spaces, the LGPSC facility probably lends itself more closely to the ‘ideal’ model of the medical home than other, smaller, individual general practice settings. It is possible that the lack of systems level integration will limit the full potential of the LGPSC.

- To develop a framework for analysing and describing integration at clinical, organisational, professional and system level that is relevant to other primary care settings.

An unexpected outcome of this study is that despite system level ‘dis-integration’, it is still possible to achieve apparently high quality integration at the patient level.

The practice guide resulting from this project shifts the emphasis from a structural focus of integration to a far more person centred, functional focus, based on the principles of communication, accessibility and good relationships between health care providers.

Implications for practice (locally and nationally)

Integration should be about the way that the patient experiences their health care. There is no clear description of what “good” integration looks like, but from the perspective of the few patients we surveyed, it involves unambiguous, high quality communication between the patient and their respective health care providers about why the care is provided, and involves sharing sufficient information that the practitioners can perform their work effectively. Good integration involves relationships between health care providers that are, in part, a proxy for the quality care, but help to enhance trust and care management. Finally, good integration tailors the care appropriately to meet the needs of the patient.

The strongest examples of integration appear to arise at the clinical level, where clinicians and organisations have built personal networks, and in some cases more formalised relationships, to ensure that the patient is directed to appropriate referral destinations. This approach to integration is defined by having the GP at the centre of the referral, and directing the patient to other services. The main communication strategies appear to be written referral (electronic or paper based) between the GP and the referral practitioner. There is little evidence of communities of practice or more formal case conferencing between practitioners. This highlights the importance of personal relationships in forging integration. These findings also suggest that at a clinical level, the patient experience and referral patterns are dictated by the relationships between their practitioner and other health care providers.

Outside of the clinical interaction, integration becomes much more ad hoc. Clinicians do not appear to have an understanding of, or involvement with the wider regional health care system. The Primary Health Network has the challenge of attempting to influence the culture of integration within the wider health region, however the practice of integration is delivered largely within a private, fee-for-service economy.

The drivers for integration appear to be directed at regionally based organisations (Primary Health Network and Local Health Districts) who have no direct responsibility or accountability relationships with most of the regionally based general practitioners.

Every person will have different integration requirements, determined by a complex interplay of their own needs and capacity, as well as the environment in which they function. Integration implies a seamlessness of the system, negotiated between multiple practitioners (potentially across several sites). Co-location substantially increases the likelihood of referrals to practitioners compared with non-co-located practitioners. There is a need to engage patients more in referral decisions, obtain feedback and have systematic ways of matching a referral destination to attributes valued by the patients.

Implications for policy

Patients surveyed in this study valued practitioner intra-communication above practitioner co-location; with a particularly high preference for shared health records. The opportunities for shared record keeping need to be brokered at a policy level; alternatively, current technology means that it may be appropriate and possible for patients to be the owners and gatekeepers to their medical records.

This study was unable to explore true team integration. The context of the LGPSC (and indeed the funding model underpinning primary health care in Australia) is one of fee-for-service, brokered by the general practitioner. Under this model, health care is reduced to a series of individual transactions, rather than an overall team approach to health care. Policy drivers reinforce the individual, fee-for-service models, rather than truly integrated, team based care which can benefit from shared roles and competencies between practitioners. The original Super Clinic brief attempted to overcome these challenges, however the funding model did not evolve beyond individual fee-for-service. Apart from facilitating co-location (which is a strong broker of integration), it did not introduce mechanisms to enable interdisciplinary team work.

The regional “brokers” of integration, namely the Primary Health Network and the Local Health District bring their own history and cultures to the region which mean that they are important participants in this field, with a great deal of power, history and politics.

The current policy drivers for integration focus around models of health service and systems integration, however there is a need for patient involvement and ownership of integration.

Integration clearly is not a “one-size-fits-all” approach. Individual patient needs, levels of agency and dependency need to be taken into account. It is likely that patients who are more dependent, and with greater complexity of health conditions will have a greater need for integration than less complex, less dependent individuals. However if the basic, person centred principles of integration are embedded within health systems and policy, it should be possible to develop a personalized approach to integration. Similarly, the contexts in which individuals operate or function need to be considered. If basic needs are not met (such as housing / infrastructure / food etc) then providing referrals to multiple services is unlikely to be effective.

5.2. STUDY LIMITATIONS

This research was focused on a single site study in a regional town in NSW, Australia, so the findings are not necessarily replicable to other settings, however we believe that the concepts developed here will have wider applicability.

There were several challenges to implementing the original evaluation as planned. At a policy level, there were changes in government policy that effectively ceased support for Super Clinics, and at the same time the regional primary health care structures changed from Medicare Locals to Primary Health Networks.

We faced several challenges in bringing together the university, a small private enterprise and negotiating the small town political context.

At a clinical level, the sensitivities about data privacy and an increasing awareness of and perspective of vulnerability to criticism meant that our ability to access patient level records was substantially delayed, and we were unable to individually contact and interview patients.

Regionally, we encountered personal, political and cultural differences between organisations and individuals that both shaped the results, and limited our access to data and our ability to report these findings candidly.

These challenges had the effect of limiting the quantity and quality of data available.

Additionally, there is still a lack of clear understanding of what constitutes “good” integration from the patient perspective. Our tools should support this, however we lacked the capacity within this project to specifically address this issue.

6. Conclusions

This was a complex single case study of an organisation delivering primary health care. The LGPSC is not well integrated into the mainstream local systems designed to support integration. Yet despite the lack of clear system and organisational integration, it appears that it is possible to achieve service integration focussed around the patient and practitioner networks.

We propose that health care integration needs to start from the perspective of the patient, not the system; and that health care integration should be underpinned by four principles:

1. Communication between the patient and practitioner, and between the practitioners involved in patient care
2. Accessibility of services in terms of cost, appropriateness and geography
3. Clinician cooperation to coordinate care
4. Patient participation and involvement in their decision making around their care.

We propose that if these principles are in place, it is possible for patient-centred integration to develop, regardless of the wider organisational systems and structures. Systems level integration should aim to facilitate these principles.

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Supplement 1: The Person Centred Integration Framework

The Person Centred Integration Framework (PCIF) is a practice guide designed to enhance person-centred service integration in primary care. The PCIF draws on published literature and new evidence collected from the Lismore GP Super Clinic study to develop a person centred primary health care integration tool [21].

Integrated care is defined as *' a coherent set of methods and models on the funding, administrative, organisational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors. The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction and system efficiency for patients ... cutting across multiple services, providers and settings. (where) the result of such multi-pronged efforts to promote integration (lead to) the benefit of patient groups (the outcome can be) called 'integrated care'* [22].

The PCIF recognises that the patient perspective is often missing in our understanding of what constitutes a "good" integration model. This means that current integration models tend to use existing service organisation and structures as the normative framework, rather than consider new ways of delivering care that may be more in-line with the needs of the patient.

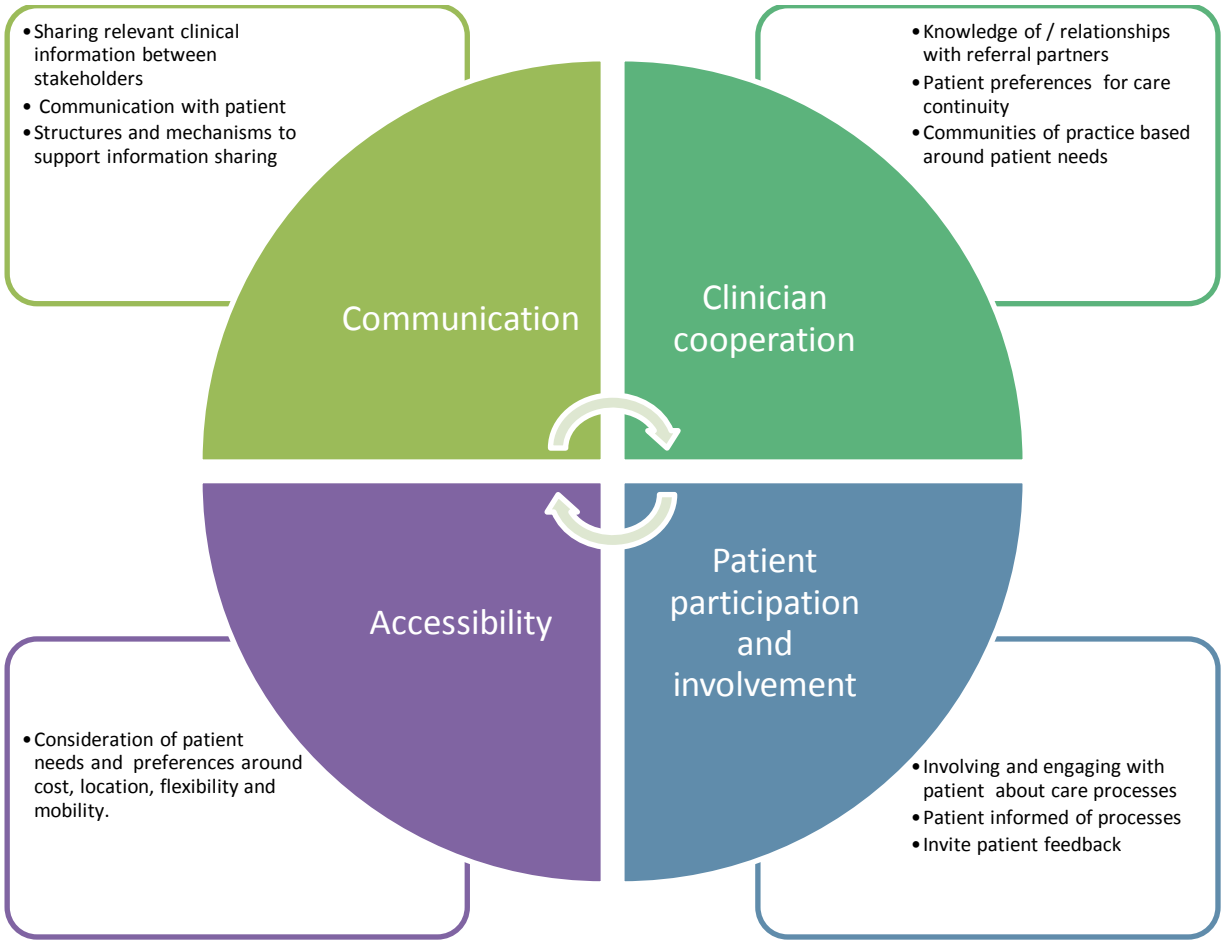
There is some limited evidence on the patient perspective of integration which identifies several attributes of integration that are important to patients [14]. We have overlaid this patient centred approach on top of a widely accepted primary health care integration framework [16] to develop a Person Centred Integration Framework. This framework incorporates the aspects of integration that patient's value, while identifying the processes to support integration from the perspective of the clinician, the profession, the organisation and the system.

The PCIF is focuses on four aspects of integration:

1. Communication
2. Clinician cooperation
3. Accessibility
4. Patient participation and involvement

Each of these aspects is expanded in more detail in the Person Centred Integration Framework checklist, which identifies considerations for enhancing person centred integration at the clinical, professional, organizational and system levels.

Person Centred Integration Framework



Person centred integration framework - Checklist

Patient	***Clinical***	***Professional***	***Organisational***	***System***
Aspects of integration that are important from the patient perspective	*The coordination of person-focused care in a single process across time, place and discipline.*	*Interprofessional partnerships based on shared competences, roles, responsibilities and accountability to deliver a comprehensive continuum of care to a defined population.*	*Inter-organisational relationships (e.g., contracting, strategic alliances, knowledge networks, mergers), including common governance mechanisms, to deliver comprehensive services to a defined population.*	*Rules and policies that promote horizontal integration (strategies that link similar levels of care) and vertical integration (strategies that link different levels of care).*
Communication				
1. Not having to repeat information that you have provided to another health care provider	Permission to share patient clinical information	Mechanisms to share clinical information	Shared clinical records	Common platform for sharing clinical information at system level
2. Health care provider with knowledge of important information about medical history	Sharing of clinically relevant information about the patient	Mechanisms to share clinical information	Shared clinical records High quality referral information	
3. That the health care provider can access all the patients' medical history / records	Health care provider has the information required to make relevant decisions / reduce duplication	Mechanisms to share clinical information High quality referral processes	Shared clinical records	
4. That the health practitioner referred to sends information back to the GP about the visit / condition?	Referral information sent to GP from clinician	Mechanisms to support timely feedback from referrals. High quality feedback	Structured referral processes and pathways	

Accessibility					
5.	The cost of the service the patient is referred to (affordability from the patient perspective).	Awareness of patient ability to pay		Clarity of funding models Knowledge and application of CDM models Referral database including address, hours of operation, costs (reimbursement or bulk billing)	
6.	Knowing in advance how expensive the service will be.	Information about costs / reimbursement / MBS funding	Transparency of costs / funding arrangements by clinicians	Clarity of funding models Knowledge and application of CDM models	
7.	Being able to receive as much care / service for a specific issue in a single appointment (rather than multiple visits / appointments).	Receiving multiple services at one point in time by a single or multiple practitioners	Interprofessional / transprofessional working Multi-skilled practitioner	Co-location Longer appointments Multi-service facility (including diagnostic and pharmacy interventions)	Team based funding models Team based care Team based reimbursement / funding models Multi-skilled practitioners
8.	Service close to patient's home.	Consideration of patient needs / locality	Knowledge of location of clinicians	Referral database including address, hours of operation, costs (reimbursement or bulk billing)	
9.	Having a service that is close to the GP practice.	Consideration of patient preferences / mobility / accessibility	GP awareness of referral locations	Co-location Referral database	
10.	Receiving all of the services in the same place.	Consideration of patient preferences / mobility / accessibility	Access to co-located services	Co-location of practitioners	
11.	Having a short waiting time (specify length of time).	Likelihood of accessing referral in timely way Communicating urgency to patient	High quality referral and booking systems in-house	Joint patient consultation (GP and other provider)	
12.	Flexibility of appointment times (eg after hours, lunch time, early morning, weekends).	Ability for patient to receive services at appropriate / convenient time	Knowledge of clinician hours of operation	Referral database including address, hours of operation, costs (reimbursement or bulk billing)	

	Clinician cooperation				
13.	That the GP knows the health care provider the patient is referred to.	GP provides personal recommendation / information about provider	Developing personal relationships between practitioners	Clinical networks; communities of practice; multidisciplinary teams; collocated services	Local and regional professional networks
14.	That there is a sense of practitioner community / cooperation.	GP familiar with services being referred to.	Interpersonal relationships between practitioners		
15.	Continuity of care: same GP.				
	Patient participation and involvement				
16.	Choice of different health care providers.	Patient consultation and understanding of circumstances	Choice of options provided	Referral database with range of practitioners who provide services for specific needs / conditions	
17.	Specific choice of health care provider by patient.				
18.	Patient values considered in the choice of referral destination.	Patient consultation and knowledge			
19.	Consideration of patient circumstances in choosing the referral destination (eg gender, attitudes, personality)?	Patient consultation and understanding of circumstances			
20.	Patient understands reasons for referral.	Communication with patient	Referral clearly linked to patient requirements		
21.	Patient informed of what to expect when goes to referral.	Patient informed about location, timing, specific requirements	High quality referral including information for patient	Referral database including details of likely intervention	
22.	The GP asks for feedback about the health care practitioner the patient was referred to.	Written or verbal feedback from patient about perceptions of appointment	Referral processes between practitioners	Referral database with ability to capture patient feedback / experience	Wider systems of quality reporting for health practitioners (eg Patient Opinion)