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Integration of primary health care services: perceptions of Australian general practitioners, non-general practitioner health service providers and consumers at the general practice–primary care interface

Donna M. Southern*, Doris Young, David Dunt, Natalie J. Appleby, Roy W. Batterham

Department of General Practice and Public Health, The University of Melbourne, 200 Berkeley Street, Carlton, Vic. 3053, Australia

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Abstract

Introduction. In conjunction with GPs reporting on their own practice experiences, the experiences of non-GP health professionals and consumer representatives working at the primary care–general practice interface provide valuable considerations for exploring concepts for the development of a GP Integration Index relevant to Australian General Practice.

Objectives. To identify concepts that GPs, non-GP health service providers and consumer representatives perceive to be important in facilitating a well integrated approach to delivering primary care, and how these are perceived to be occurring in practice.

Method. Group discussions about GP integration were elicited using concept mapping with four groups of GPs and seven groups of health professionals and consumer representatives, purposively selected for diversity in demographic location and practice setting from three Australian States. From Victoria, 19 GPs from two different types of practice settings, 12 Consumer Representatives from 10 separate organisations, 17 Hospital Administrators from 16 major public and private hospitals, 18 specialist doctors representing 12 specialist organisations and 13 Community Service Providers. From Queensland, 13 rural GPs and 22 Nurses representing 10 separate nursing groups were selected. From Western Australia, 19 GPs representing a mix of solo practice, group practice and hospital settings, and 40 Allied Health providers representing various private practitioners and hospital and community centre based allied health practitioners. Concept mapping results from the groups were pooled and analysed using a descriptive meta-matrix to identify overarching themes.

Results. Eight overarching themes were identified from consolidated concept maps: GP role; quality outcomes; practice management/accessibility; communication and networks; health care system politics; education and knowledge; personal attributes and attitudes; and lifestyle. Within these major themes, clusters of concepts rated as at least 'important for patient care' included various non-clinical aspects of primary care delivery. There was emphasis on a patient—centred and holistic care approach. Strongly advocated by all groups was the need for teamwork between GPs and other health care professionals involved in primary care of the patient.

Conclusion. The use of concept mapping was successful in ensuring that the breadth of the topic was explored in its entirety among these groups, contributing to the identification of the dimensions of the concept of GP-integration. Findings from these groups will be pooled and subjected to structural equation modelling processes, to develop a general practice integration index relevant to the Australian setting.

Keywords: General practitioners; Primary health care; Integration index

1. Introduction

In the current climate of increasing resource scarcity, health care systems worldwide are challenged to provide quality, cost-effectiveness and equity in health care (World Health Organisation, 1996). The focus of Australian Government, as with many others, is on accountability and efficiency in health service provision, targeting the health care workforce and in particular primary care providers—General Practitioners (GP), to stimulate primary care led-reform (Australian Health Jigsaw, 1991; Powell Davies et al., 1997).

Due to the medical referral system, GPs have a uniquely central role in the Australian health care system. They are most often the patient's first point of contact with the health care system, and have a continuing gatekeeper role (Department of Health and Family Services, 1996). GPs generally operate as small businesses and are remunerated on a fee for service basis either by the patient or via reimbursement through the government insurer. Conversely, most non-GP health providers such as for example, nurses and various

* Corresponding author. Tel.: +61-9344-9722; fax: +61-9347-6136.
E-mail address: d.southern@unimelb.edu.au (D.M. Southern).

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allied health professionals are salaried, and none have an equivalent authority to refer.

Consequently, in health care systems with GPs, many primary health care initiatives aimed at promoting integrated health care delivery, or increasing its productivity and efficiency, target general practice (Australian Health Jigsaw, 1991). At an international level, general practice is responding to the pressures of health care reform (Fabb and Boelen, 1997; Jenkins-Clarke, Carr-Hill, Dixon, & Pringle, 1993; World Health Organisation, 1996). GPs are being exposed to up-skilling programs and substitution practices to better manage more informed consumers and the various changes to the health care systems in which they work (Bollen, 1996; Brand, 1996; Powell Davies et al., 1997). In the US, for example, the development of AIDs, new technologies, a larger aging population, increases in the uninsured, nursing shortages, reconstitution of the physician roles and those of allied health providers have represented major changes in the health care environment (Shortell, Morrison, & Friedman, 1990).

In Australia, change has not developed to the same degree as in the US. The increasing pressure for cost effective services and for a system which can produce quality health outcomes has promoted structural and system changes to the health care system to address many of the problems which have already emerged overseas (Australian Health Jigsaw 1991; Powell Davies et al., 1997). Integrative initiatives have emerged over the last decade in response to such pressures.

These integrative initiatives include: the recent introduction of additional GP remunerative items claimed from the government insurer which reward increased involvement with other health care professionals. Also in existence are incentives programs providing funding for GPs to: provide after-hours care to their patient population; to improve their computer systems; and participate in the teaching of medical students. Various disease-centric Shared Care programs have emerged, as have GP hospital integration schemes, and Hospital in the Home arrangements (Harris, Fisher, & SM, 1993; Montalto & Dunt, 1993) Information technology options have also been developed linking GPs with other services, including hospitals (Liaw, Lawrence, & Rendell, 1996).

In terms of systemic reform, a national trial aimed at service integration has recently been instituted to explore different models of health system delivery. The National Trial of Coordinated Care centres on the GP as the care coordinator, and involves the development of individualised care plans by GPs for patients with complex care requirements, and which are designed to draw on a broader range of service providers (Commonwealth Department of Health and Aged Care, 1999).

The growing shift towards community based care, which requires better integration and coordination of a more diverse selection of health services poses many challenges. The coordination of services for chronic care has become increasingly complex as more treatment options emerge and consumers demand more choices. GPs now coordinate patient care amongst these different service options, and become increasingly adept at meeting the demands of better-educated, informed health consumers with a virtual universe of health information at their fingertips (Bollen, 1996; Brand, 1996; Powell Davies et al., 1997) The combination of such pressures will require an information sharing and teamwork approach to patient care, between all parties—GP, non-GP health providers and the consumers.

At an international level, integration of services has been embraced conventionally as a 'panacea' for health and social services delivery problems. (Moore, 1992) However, the notion that 'working together' improves resource availability is arguable and when delivery systems are fragmented, it is impossible to accurately assess the availability of resources (Moore, 1992). Increasing integration of services may promote further rationing due to limited resource availability. It is therefore important to provide evidence of improved efficiency, cost-effectiveness and patient health outcomes, given the promotion of integrative strategies for primary care reform.

In Australia, General Practice is identified as an appropriate starting point to implement integrative strategies due to the medical referral system. GPs tend to be the first point of contact for patients seeking health care (Department of Health and Family Services, 1996). The effectiveness of such strategies in the general practice setting therefore needs to be evaluated, and in addition general practice also needs to demonstrate that it provides high quality, accessible and cost effective care. (Knight, 1996) In recognition of the need to evaluate the effectiveness of integrative strategies as they are being introduced into the general practice setting, the Commonwealth Government has commissioned the General Practice Evaluation Program (GPEP) with the task of evaluating the integration of General Practitioners with the wider health care system.

The challenge of measuring the success of integrative strategies lies in the nebulous and abstract nature of such a concept. In order to evaluate a dynamic phenomenon such as integration per se, we must first be able to define it and then measure it in order to assess to what degree it has taken place. Only then can we identify replicable aspects of successful integrative strategies and meaningfully determine their relationship to health outcomes. Defining the concept is the initial groundwork in the development of an integration index. This work utilises concept-mapping methodology, a form of structured group inquiry with various general practitioner and other health service professional groups in order to clarify what constitutes a well integrated general practitioner. Concept mapping was undertaken with four diverse groups of GPs and 11 groups of non-GP health professionals and consumer representatives, representing a variety of stakeholders to the topic.

This paper reports how GPs and those in disciplines that interface with general practice perceive the integration of

the general practitioner's role into the wider health care system.

2. Method

The concept mapping method (Trochim, 1989) was utilised for the sessions of structured group inquiry. This method, which incorporates the nominal group technique (Owen & Rogers, 1999) in eliciting group preferences and judgements, enables the breadth of an issue to be explored in its entirety whilst ensuring participants contribute equally. It also provides immediate feedback to the participants in the form of a printed concept map, which is a summary of the total group discussion. A portable computer installed with the Concept System Software© (Trochim, 1987), a printer and two facilitators are required to run the sessions. A detailed explanation of the concept mapping method is provided elsewhere (Southern et al., 1999; Trochim, 1989); however, the steps involved in running the concept mapping sessions are briefly outlined below.

2.1. The focus statement

The following focus statement:

> "Thinking as broadly as possible, generate statements that describe the role and circumstances of a general practitioner who is well integrated into the health care system"

was devised by the research team, and tested within a pilot concept mapping session, comprising a broad cross-section of health care professionals including GPs, prior to the study. The focus statement was deemed to be valid by these participants.

2.2. Brainstorming session

The participants in each group brainstorm independently and write down short statements in response to the focus statement (above). The following definitions were used to assist the participants with brainstorming:

- Integrated—works in well with.
- Role—what the GPs do.
- Circumstances—the situation in the community and the health system which affects how GPs work.

2.3. Transcription

A facilitator types the participants' statements into the software program. It is necessary to condense longer statements into multiple shorter statements.

2.4. Sorting statements

All statements produced during the session are pooled and printed onto small cards. Each participant then manually sorts the statement cards into separate piles of related themes, in a fashion that makes sense to them. This 'sort data' is then collected and entered into the computer program.

2.5. Ratings procedure

To determine how important the participants think the statements are in relation to patient care, they rate each statement using the following ordinal four-point scale of increasing importance and then again according to how consistently the statements are perceived to be occurring in practice:

- Rate each statement according to how important you think it is for patient care?
  - (4) Vital for optimal patient care.
  - (3) Important for optimal care.
  - (2) Would contribute to optimal care.
  - (1) Not a significant issue in patient care.
- How consistently do you think each statement happens at the moment?
  - (4) This happens nearly all of the time.
  - (3) This happens acceptably often.
  - (2) This does not happen as often as it should.
  - (1) This happens rarely or not at all.

The ratings data is processed separately for each set of 'importance' and 'occurring' data.

2.6. Statistical processes

The concept mapping software package performs all required statistical analyses. The concept maps are produced from the group sort data. A binary similarity matrix is produced from the sort data using a non-metric multidimensional scaling analysis (MDS) (Kruskal & Wish, 1978). The binary similarity matrix is then partitioned using hierarchical cluster analysis with Ward's algorithm (Everitt, 1980). From all of the sorted sets of statements by each participant, this statistical analysis produces one set of clusters, in the form of a concept map, for the group. The concept maps illustrate the range of ideas identified by each group. The location of a cluster on the map is determined by how similar it is to the other clusters around it. In general, clusters containing conceptually similar statements are mapped closer together, and clusters conceptually less related sit further apart. An example of one concept map is provided in Appendix B. (All concept maps are available upon request from the author.)

2.7. Cluster labelling and member checking

Cluster borders are determined by hierarchical cluster analysis. The participants are then provided with a list of the statements sorted according to the cluster analysis and

Table 1
Selection strategies used for concept mapping groups

State	Group	Selection strategy
Victoria	Consumer representatives	Contacts were obtained from the Health Department, and the yellow pages telephone directory. Consumer groups targeted were those dealing with either: specific illnesses; specific cultures; elderly and mental health. Organisations dealing with broadband consumer health issues were also targeted
	Hospital administrators	Mailing list of all major hospitals obtained from Health Department. All hospitals mailed for initial contact, and snowball sampling then used. Senior Administrators at managerial or coordinator level involved with Community or Ambulatory Care were contacted
	Specialist doctors	Australian specialist colleges were requested to nominate at least four specialists (who deal with GPs) to participate. These specialists were then invited to attend, or if unavailable to nominate a substitute
	Community service providers	All listed Community Health Centre CEOs, aged care assessment teams (ACATs), and psycho-geriatric assessment teams (PGATs) were invited to attend. The Royal District Nursing Services (RDNS) head office was contacted for a listing of all regional RDNS managers and one person from each region was invited to attend. Local Government councils were also contacted for relevant government representatives involved in health policy planning
Queensland	Nurses	Queensland Health Department was contacted to obtain nominations, then a Snowball sample was obtained
Western Australia	Allied health providers	Divisions of general practice provided contacts of Allied Health Professionals. Snowball sampling was then used. Allied Health Professionals included: occupational therapy; physiotherapy; podiatry; speech pathology; pharmacy; social work; allied health managers; dietitians
Victoria, Western Australia, Queensland, Tasmania	General Practitioner Groups	Contact details of practicing GPs were provided via divisions of general practice in each target state

label each cluster according to the statements it contains. At this stage, participants can decide if particular statements in clusters should be moved based on the statement meaning, and also whether individual clusters contain more than one idea and therefore should be divided. The group also identifies larger groups of like clusters and labels these—these are referred to as the thematic domains. To ensure the credibility and trustworthiness of the concept map, participants undertake member checking (Kuzel, 1991; Patton, 1990) by studying the map and its contents to determine how well it reflects the group opinion. The total session time is approximately 4 hours.

2.8. Consolidating concept mapping results

To consolidate the themes identified by each concept mapping group, a descriptive meta-matrix was produced, where all clusters and the appropriate thematic domains were entered into the matrix (Huberman & Miles, 1983; Miles & Huberman, 1988) (Appendix B). Similar meaning clusters across groups were identified and grouped together under appropriately grouped thematic domains, by members of the research team (DS, NA). To overcome the problem of semantics where necessary, (similar cluster names used by different groups to describe subtly different issues, and conversely very similar-meaning clusters being labelled differently) the meaning of the clusters was clarified at the level of individual statements, through discussion with the wider research team. 'Over arching themes' were identified from the similar thematic domains and re-labelled by the research team. Overarching themes are used only as the topic areas to present the concept mapping findings.

2.9. Sample selection

A broad selection of participants aimed to enable the breadth of the topic 'GP Integration' to be covered in its entirety. Purposive sampling (Patton, 1990) was used to select single disciplines from the primary health care industry, with the aim of obtaining as diverse representation as possible, specifically for health sector, demographic location and practice type. The specific professions were chosen on the basis of known interaction with general practice, and their placement within the health care system to enable informed discussion about potential barriers to integrate with GPs. Demographic location was also an important factor due to the known practice differences between rural and metropolitan health professionals in Australian primary care delivery (Commonwealth Department of Health and Family Services, 1998). In addition, practice type such as solo GP, group practitioners, or Community Health Centre (CHC) based practitioners also experience differences in the mechanism of health care delivery (Commonwealth Department of Health and Family Services, 1998). In order to capture the breadth of issues relating to integrated general practice, selection of these groups was essential. Selection strategies are provided in Table 1.

Table 2
Participating health service provider groups

Group	Organisations	Participants
Victorian consumer representatives (CR)	Ten separate organisations targeting specific illnesses, cultures, elderly, and mental health. Broadband consumer health issues were also included	12
Victorian hospital administrators (HA)	Sixteen major public and private hospitals	17
Victorian specialist doctors (SD)	Twelve medical specialist organisations/affiliations	18
Victorian community service providers (CSP)	Community health centre executives; Aged Care Assessment Team; Psycho-Geriatric Assessment Team; Regional Nursing managers	13
Queensland Nurses (N)	Ten separate nursing groups	22
Western Australia allied health providers 1 (AH)	Various private practitioners and hospital/community centre based allied health practitioners	19
Western Australia allied health providers 2 (AH)	Various private practitioners and hospital/community centre based allied health practitioners	21
	Total	122

3. Results

3.1. Participants

We employed concept mapping with four GP groups and seven non-general practitioner health service providers, health service administrators and consumer representatives during May and June 1996. The numbers of participants in each group, the practice setting and demographics are presented in Tables 2 and 3.

3.2. Conceptualisation of general practice integration

The overarching themes identified across each concept mapping group are not mutually exclusive, as clusters naturally overlap across themes. The overarching themes identified include—GP role definition, quality outcomes, practice management and accessibility issues, communication and networks, health care system politics, education and knowledge, personal attributes and attitudes, and lifestyle. For summary purposes, the cluster rated highest in 'importance for patient care' was chosen to represent each of these larger themes as presented in Tables 4 and 5.

Table 3
Participating general practitioner groups

Practice setting	Geographic description	Participants
Solo practice—GPs who practice single-handedly (Solo GP)	Urban/outer suburban Victoria	9
Community Health Centre based GP (CHC GP). CHCs are typically comprised of a number of GPs and allied health providers, e.g. physiotherapists, dieticians, nurse practitioner. This model is most typical in the State of Victoria, few other states have GPs and allied health co-located	Urban/outer suburban Victoria	10
Medical centre and hospital based (MC and H GP)	Rural/remote Queensland	13
Solo, group practice and hospital based-GPs from a mixture of practice settings comprised this group (GP)	Urban/outer suburban Western Australia	19
	Total	51

3.3. General practitioner role definition

Two issues ranked high in importance, which relate specifically to defining the GP role—identification of the boundaries of the GP role per se and provision of holistic patient care. The first important issue, identified by two groups (CR, SD) is about defining the boundary of GP role and the GP being secure within their role and comfortable to refer the patient on to other health service providers or practitioners where appropriate. These clusters were rated between 'important' and 'vital' for patient care by both groups, and as occurring between 'rarely', and 'not as often as it should'. Highly ranked statements comprising these clusters included,

> A well integrated GP will have a willingness to refer patients to another agency (CR)

> Ability and confidence to make full use of the various health services available (CR)

> Defines own role and is comfortable with it and is also aware of and comfortable with their own limitations (SD)

The second important issue identified as part of the GP role is the provision of holistic patient care, rated as highly important by two non-GP groups (HA, N) and one GP group, and as occurring between 'does not happen as often as it should' (N) and 'nearly all of the time' (HA, GP). The holistic role is described by statements comprising these clusters, such as:

> Comprehensive management of patient care (HA)

Table 4
Overarching themes identified by 'non-GP' concept mapping groups

Overarching theme	Highest rating cluster within overarching theme					
	Consumer rep's (CR)	Hospital administration (HA)	Specialist doctors (SD)	Community service providers (CSP)	Nurses (N)	Allied health groups 1 and 2 (AH)
GP role	Role identification (refers on; works with other health services) 3.40,[a] 1.92[b]	Holistic approach 3.27,[a] 2.46[b]	Professional confidante; knows own role and limitations; multifunctional 3.17,[a] 2.59[b]	Policy planning role 2.71,[a] 1.42[b]	Holistic care 3.69,[a] 1.72[b]	1. GP as initiator/ coordinator of care. 3.01,[a] 2.37[b]
Quality outcomes	Patient information and consent 3.50,[a] 1.77[b]	Quality patient care, good clinical records 2.85,[a] 1.62[b]	Patient orientated (holistic approach) 3.28,[a] 2.61[b]	Appropriate referral (knows when to refer on) 3.62,[a] 2.38[b]	Evidence based practice 3.20,[a] 2.04[b]	1. Holistic care provider (continuum of care) 3.03,[a] 2.01[b] 2. Holistic, broad patient focus 3.34,[a] 2.35[b]
Practice management and accessibility issues	Use of translators for NESB patients 3.21,[a] 1.34[b]	Ethical, accessible, health promoter and information provider 3.05,[a] 2.09[b]	Modern practice management and records system, information technology 2.93,[a] 2.42[b]	Responsiveness to other authorities (access, legal, requirements in treatment processes) 3.58,[a] 2.58[b]	Practice issues reflect community needs (home visits, after hrs care, flexible hrs and payment, recall systems) 2.63,[a] 1.70[b]	1. Practical aspects of general practice (physical accessibility, home visits) 3.14,[a] 2.24[b] 2. Patient access (available, legible writing, speak second language/use qualified interpreters, timely referral) 2.21,[a] 1.77[b]
Communication and Networks	Multi disciplinary team 3.01,[a] 1.83[b]	Liaison/networks 2.80,[a] 2.04[b]	Communication skills 3.29,[a] 2.50[b]	Collaboration (discusses patient management issues) 3.47,[a] 2.07[b]	Referral, collaboration, communication, teamwork 3.41,[a] 1.84[b]	1.Team worker 3.40,[a] 1.96[b] 2. Team player 3.33,[a] 2.14[b]
Health care system politics	Professional development and support for GP role, funding. 2.75,[a] 1.88[b]	Resources (well equipped office, fees to cover health promotion/coordination) 2.44,[a] 2.28[b]		Health system awareness (understanding of other services and how to access them) 3.38,[a] 2.03[b]		2. Resources and financial arrangements, remuneration structures 2.64,[a] 1.55[b]
Education and knowledge	Community education 2.67,[a] 1.71[b]	Personal attributes, CME, publications, knowledge base 2.45,[a] 2.04[b]	Continuing medical education (CME) for GPs 3.29,[a] 2.30[b]	Health promotion/education of patient and community 3.01,[a] 1.74[b]	CME and self development 2.61,[a] 1.96[b]	2. Professional development (up to date with research etc.) 2.95,[a] 2.22[b]
Personal attributes and attitudes	Respects patients rights 3.38,[a] 1.79[b]		Personal skills which impact on accessibility and care 3.12,[a] 2.40[b]	Sensitivity and respect for all players 3.64,[a] 2.44[b]	Personal attributes 2.83,[a] 1.90[b]	1. Appropriate approach and attitudes (open-minded to alternative treatments) 3.28,[a] 2.26[b] 2. Awareness (and receptive to) other providers 3.30,[a] 1.98[b]
Lifestyle	GPs own well being 2.42,[a] 2.58[b]		Self/job satisfaction 2.83,[a] 2.33[b]		Quality focus (self care) 2.79,[a] 1.53[b]	

[a] 'Importance' ratings: 1 = Not significant in patient care; 2 = Contribute to patient care. 3 = Important for optimal care; 4 = Vital for optimal care.
[b] 'Occurrence' ratings: 1 = Happens rarely/not at all; 2 = Doesn't happen as often as it should. 3 = Happens acceptably often; 4 = Happens nearly all of the time.

Table 5
Overarching themes identified by GP concept mapping groups

Overarching theme	Highest rating cluster within overarching theme			
	Solo GPs—Victoria (Solo GP)	CHC-based GPs—Victoria (CHC GP)	Medical centre and hospital based GPs—Queensland (MC and H GP)	GPs from solo, group and hospital based settings—Western Australia (GP)
Role Definition	Gatekeeper 3.14,[a] 2.59[b]	Core activities 3.08[a] 2.52[b]	Holistic and proactive/evolving 3.07,[a] 2.92[b]	Accessible 3.50,[a] 3.15[b]
Communication and Networks	Hospitals 3.07,[a] 1.82[b]	Patient knowledge 3.02,[a] 2.27[b]	Communication skills/networks 3.00,[a] 2.36[b]	Local referral 3.35,[a] 2.76[b]
Health Care System Politics	Resources/Remuneration structure 2.71,[a] 1.24[b]	Constrain role flexibility, e.g. paid strategic planning 3.28,[a] 2.00[b]	Resource use, e.g. state versus commonwealth funding issues 2.81,[a] 2.59[b]	Economics and Politics, e.g. local health policy involvement 2.75,[a] 1.93[b]
Education	GP Back-up services, e.g. Who's role to educate public? 3.02,[a] 2.29[b]	Education of GP 3.05,[a] 2.35[b]	GP as educator, e.g. Part of a flexible role 2.13,[a] 2.36[b]	Information provider, e.g. part of a broader role 3.24,[a] 2.65[b]
Lifestyle	What GPs need, e.g. Reduce GP load, reduce paperwork 2.87,[a] 1.92[b]	Constrain role 3.28,[a] 2.00[b]	Personal Lifestyle, e.g. Balance and flexibility 2.62,[a] 2.23[b]	Responsible and self efficacious, e.g. Accessible/on call 2.97,[a] 2.41[b]

[a] Importance ratings: 1 = Not significant in patient care; 2 = Contribute to patient care. 3 = Important for optimal care; 4 = Vital for optimal care.
[b] 'Occurrence' ratings: 1 = Happens rarely/not at all; 2 = Does not happen as often as it should. 3 = Happens acceptably often; 4 = Happens nearly all of the time.

> Recognise that the clients are the core business of health and also a member of the multidisciplinary team (N)

> Authority of training used to provide the best care for their patients in their context (MC&H GP)

All GP groups identified the concept of the GP having a central care-coordinating role. In addition, all GP groups identified roles for the GP beyond 'traditional' or 'core' clinical activities, which were present as individual statements throughout the concept maps. Such statements were also identified within the overarching themes 'Health Care System Politics', and 'Education' (Table 5). The GP as 'educator' of their local community on health issues, and teaching medical students was identified most often. Also, identified were broader community roles such as involvement in local health boards and contributing to local health planning and policy. Statements related to GP roles beyond clinical activities included:

> Often involved with extra curricular activities (e.g. Boards of health organisations) (MC&H GP)

> Involved in health promotional activities in community (primary and secondary prevention) (MC and H GP)

> An educator of patients and improves standards of public health by involvement in preventative programs (CHC GP)

> Willingness to be involved in teaching (medical students, nurses, first aid groups, etc) (GP)

3.4. Quality outcomes

The overarching theme Quality Outcomes emerged from GP Role, where non-GP groups made the semantic distinction between 'GP Role' and the perceived 'outcomes' of a well integrated general practice. The 'Quality Outcomes' clusters and those grouped under 'GP Role' are not mutually exclusive, with similar clusters being identified across these themes by different groups. For instance, 'holistic approach/patient care' again emerge as highly important outcomes (SD, AH1, AH2), as does the GP role-boundary issue as expressed by the cluster 'appropriate referral' (CSP) (Table 4).

The second highest-ranked 'quality outcome' is identified by the CR group, as patient information and consent. This issue was rated between important and vital for optimal patient care, and as occurring below 'as often as it should'. Statements comprising this cluster include:

> A well integrated GP gives information about medication (CR)

> Gives enough information about possible side effects of any medications (CR)

> Care to inform patients and gain informed consent (especially for those of Non-English Speaking Background) (CR)

3.5. Practice management and accessibility issues

This overarching theme is comprised of themes revolving

around practice management issues which impact on the GP's availability, access to information, and efficacy of imparting appropriate information to the patient and other relevant health professionals.

Highly rated clusters included those relating to the responsiveness of the GP to other authorities (CSP), the use of language-translators, particularly for patients of non-English speaking backgrounds (NESB) (CR), practical aspects of general practice affecting patient access (AH1), and an ethical and accessible approach to conducting general practice (HA). Of these clusters, rated as occurring least—between rarely to not as often as it should (CR) is the use of qualified language-interpreters in general practice, for patients of NESB. Statements in this cluster include:

> Should use interpreters when working with people of NESB (CR)
>
> Provide translated information about medication usage and side effects (CR)
>
> GPs should provide translated information about their patients' disability (CR)

GP groups identified issues relating to their accessibility by patients as including the physical location of the practice, and co-location of allied health services within the general practice, particularly with regard to patients with a physical or intellectual disability. These fell within the overarching theme of 'Role Definition' (Table 5) and were rated as being 'important for patient care' and as occurring 'acceptably often'.

3.6. Communication and networks

Teamwork, collaboration, communication and networks are common clusters across all groups and comprise the overarching theme 'Communication and Networks'. The majority of groups rated their respective clusters between important and vital for optimal patient care. All rated their clusters as occurring below acceptably often. GP groups expressed communication issues within the contexts of being able to create an environment for both formal and informal local networks with other health care providers, having timely access to relevant information on patient care, knowledge about the local services, and knowledge about the broader health care system. A cross-section of highly rated statements from this overarching theme include:

> An updated knowledge of current health and community services available (CR)
>
> Plays a major role in the (hospital) discharge planning process (HA)
>
> Excellent communication skills with all layers (patients, specialists, other GPs) (SD)
>
> Refer and be prepared to defer to allied health professionals (SD)
>
> A willingness to discuss patient management issues (CSP)
>
> Liasing and communicating with all other members of the health care team (MC and H GP)
>
> Should have a good knowledge of available ancillary services, e.g. Nurse services, Meals on Wheels etc. (MC and H GP)

Further to the above issues, GPs emphasised the importance of timely access to relevant information on patient care. With regard to the information flow between GP and hospitals, the following statements were produced, which were rated as happening between rarely and not as often as it should:

> GPs receive good feedback from the hospitals about their patients (Solo GP)
>
> Better links with hospitals and specialists (CHC GP)
>
> Affiliation with hospitals (GP)

3.7. Health care system politics

This overarching theme is comprised of issues that are beyond the realm of control by the GP but which impact on the way they conduct their practice. The majority of clusters in this overarching theme relate to the acquisition of resources and funding to cover health promotion and coordination activities, professional development etc. (CR, HA, CSP, AH2, GP). There was a focus by GP groups on remuneration structure and funding, and solo practitioners rated remuneration structure between 'contributes to' and 'important for' patient care (Table 5). Also identified by GP groups was the need for paid roles outside of clinical work, which rated as important but occurring as below acceptably often. Among GP groups was a perceived need for knowledge of bureaucratic processes and government agendas, which may impact on general practice. Typical highly ranked statements from clusters comprising this overarching theme include:

> Well integrated GP should be professionally supported and remunerated for working in an integrated way (CR)
>
> Fees and payments need to adequately cover health promotion and disease prevention activities (HA)
>
> Knowledge of government and health department policies and priorities, particularly in relation to remuneration and for example, co-payments (GP)

3.8. Education and knowledge

Common to all groups was the identification of the need for GPs to continually update their medical knowledge and foster professional development. This theme was rated highest by Specialist Doctors between important and vital for optimal care, and by GP groups as 'contributing to' patient care. All groups rated it as occurring below acceptably often. For example:

> Concerted effort to take part in ongoing continuing education (AH1)
>
> Keeps abreast of new medical/research developments that might affect his patient (AH2)
>
> Maintains up-to-date medical information on particular chronic conditions (CR)

A related theme is the identification of an educative role for the GP. This was identified by all groups, and rated highest by the Community Service Providers as 'important for optimal patient care' but occurring below as often as it should. However, there were particular views held by the GP groups about the obligation of GPs to keep the community informed about health issues, and to educate individual patients about relevant health issues.

For instance, solo GPs suggested that it is perhaps someone else's role, such as the media, to educate the consumer and community at large about health issues, and placed this issue within a political context. However, the remaining GP groups accepted a community educator role to some degree, as constituting part of a broader role (Table 5). For each group, this area was rated as happening below acceptably often.

Typical statements include:

> Involvement in education of both the client (patient) and the community (CSP)
>
> Recognises the need to develop skills to work across services (HA)
>
> Actively involved in student education (not just medical students) (HA)
>
> Media educates public about how the health system works (Solo GP)

3.9. Personal attributes and attitudes

Statements addressing the GPs' interpersonal skills and their attitudes toward working with other health professionals, patients, and carers featured throughout many clusters in each concept mapping group. In addition, this topic was identified as a discrete cluster by all non-GP groups (except HA) and these are represented in Table 4. Clusters representing this overarching theme were mostly rated at least 'important for optimal care' and as occurring below acceptably often.

Typical statements within these clusters are:

> Is sensitive to the cultural background (CR)
>
> Understands and acknowledges patients rights and the need for self management (CR)
>
> Able to learn from mistakes (SD)
>
> Allows sufficient time for consultation to encompass overture, consultation, conclusion and advice (SD)
>
> Basic respect to other people—patients, patients family, other service providers (CSP)
>
> Loses the ownership perception (N)
>
> Good knowledge of the role and scope of a variety of health practitioners (AH2)

3.10. Lifestyle

Three non-GP groups (CR, SD, N) and all GP groups acknowledged the need for the GP to be able to debrief about distressing aspects of practice and maintain a balanced lifestyle, to sustain their own mental health. This topic touched on issues about the isolation of the rural GP and the constant competing demands imposing on GPs' personal time.

Such clusters were rated as at least 'contributing to patient care', and as occurring less than acceptably often by these groups. Typical statements comprising the clusters in this overarching theme include:

> Community recognises the isolation of the rural GP and helps appropriately (CR)
>
> Has significant satisfying interests outside of the medical practice (SD)
>
> Recognises self care needs for debriefing (N)
>
> Considers own physical and mental health (MC and H GP)

4. Discussion

4.1. Conceptualising general practice integration

The elements of the 'well integrated' GP role identified by the GP concept mapping groups include the clinical aspects of patient care incorporating a holistic and accessible approach, a central coordinator or a gatekeeper role, a role in local community decision making, and as community

educator. In addition to these basic elements of role, good communication with patients and local health service providers and networking skills were also identified.

Non-GP health care professionals and consumer representatives focused on the non-clinical aspects of primary care delivery with emphasis on a patient-centred, or holistic approach. Strongly advocated by all groups is the need for a teamwork approach to primary care delivery in which the role of the GP and other professionals are complementary, assisting the primary goal of improving patient health outcomes.

This research study attempts to define integration in its elements from the perspective of the individual GP, as reported by the GPs themselves and from the perspectives of health care professionals who interface with general practice. Therefore, a process of theory discovery using concept mapping was employed, rather than theory verification.

Although integration has been studied and defined in relation to health care delivery system structure, (Devers, Shortell, Gillies, Mitchell, & Erickson, 1994; Gillies, 1993; Walker, Adam, & Lewis, 1997) research to date has focused on a framework of 'systems integration', built up from literature review, and focus group inquiry. For the purposes of this study, a systems integration framework is useful only for classificatory purposes.

Also, the individual practitioner perspective is essential for identifying the important elements that impact on working relationships involving GPs and in particular which affect GPs' own personal working styles that facilitate an integrated approach. The importance of individuals working styles on interaction with health care team members is highlighted by a study on skill-mix in primary care in the United Kingdom (Jenkins-Clarke et al., 1993). This work by Jenkins-Clarke et al. strongly suggests that independently of practice structure characteristics, environment and patient types, particular GP 'working-styles' develop which are important to identify and monitor. The authors attribute a component of the variability of the practice consultation to structural and environmental characteristics within the practice; however, there was a large variation between practices, which was not obviously associated with any such characteristics of the practices (Jenkins-Clarke et al., 1993).

In addition to the GP perspective, the experiences and opinions of non-GP health professionals and consumer representatives from the primary care—general practice interface provide valuable insights about the linkages of general practice services with other primary health service providers.

4.2. Key issues identified

Whilst both the non-GP and the GP groups identified the need for better communication and teamwork with other health care providers, GP groups also rated highly the need for a definable role with clear boundaries and scope for adequate remuneration for coordination activities. These issues are not confined to the Australian health care setting, and have been identified as major issues globally (Bond et al., 1987; Shelton, Schraeder, Britt, & Kirby, 1994; World Health Organisation, 1996). In particular, confusion over the changing general practitioner role is a global issue, which has been topical for some time (Fabb and Boelen, 1997; Jenkins-Clarke et al., 1993; World Health Organisation, 1996).

The elements of the 'well integrated' GP role identified by the GP groups include the clinical aspects of patient care incorporating a holistic approach, a central coordinator or a gatekeeper role, a role in the local community, and as educator. In addition to these basic elements of role, networking skills and good communication with their patients and involved local health service providers were also identified. These elements are also identified as critical components of an effective and efficient GP role (Shelton, Schraeder, Britt, & Kirby, 1994).

Furthermore, items related to GPs' knowledge about their patients and the establishment of a trusting doctor–patient relationship have been identified as leading correlates of three important outcomes of care: adherence or compliance; patient satisfaction; and improved health status (Safran et al., 1998). Together, the elements of GP role described above, plus communication skills form the essential criteria identified at a global level by the World Health Organisation for the 'five-star' doctor of the future. (World Health Organisation, 1996).

Other aspects of the 'well integrated GP' role identified by the GP concept mapping groups, related specifically to local issues such as involvement in local health politics. Some local influential factors identified as contributing to the GP's ability to stay integrated include resource availability, remuneration structure and broader health system issues. Factors such as remuneration structure in particular have been well documented as influencing practice styles. (Bollen, 1996).

4.3. Limitations of the study

Methodological issues to be addressed include the selection of participants, the concept mapping procedures, and data reduction processes.

4.3.1. Selection of participants

Maximum coverage of the breadth of issues was achieved, as it was evident that no new issues relating to the topic were being generated. However, a selection bias exists in favour of those participants interested in the topic of GP integration and available to participate. The impact of this selection bias on the development of a generalisable measurement tool, will be resolved to a large degree in the next stages of the development process. A pilot 'integration index' will be derived from the themes identified in the concept maps, and largely consist of pooled concept mapping statements produced by all of the participants. The draft index will be piloted to a national

sample of more than 1000 randomly selected GPs, who will be requested to respond to the items in the index, by rating them on an ordinal point scale. This process will greatly increase the generalisability of the final instrument.

4.3.2. Concept mapping procedures

There are several issues relating to conducting the concept mapping sessions, such as the length of the method (4 h), the selection of the number of clusters within each concept map and the consolidation of findings, or data reduction stage.

The clusters generated through hierarchical cluster analyses, are very sensitive to the clustering algorithm and selecting the most appropriate number of clusters can be confounded by constraints on session time. Other studies report conducting the concept mapping session in two separate sessions to allow consideration of the most meaningful number of clusters (Kieth, 1989; Trochim, Cook, & Setze, 1994) however, these studies consisted of fewer groups and were less constrained by the availability of participants.

Methodological concerns relating to session time have also been expressed by others. (Trochim et al., 1994; Valentine, 1989) Shortening the session time, reducing time spent on either statement generation or sorting and rating steps may affect reliability of the maps. Ideally more time could be spent on determining the number of clusters, but this must be offset by participant availability. Also, spending enough time brainstorming is critical to ensure that the full range of ideas is captured.

Consolidation of the 11 concept maps was very challenging, requiring subjective decision making by the research team. A descriptive meta-matrix (Huberman and Miles, 1983; Miles and Huberman, 1988) was developed, and studied in conjunction with the spatial characteristics of the concept maps to produce the overarching themes. Studies by others (Knox, 1995; Valentine, 1989) report pooling the generated concept mapping statements from multiple groups into a single set of common statements, which are then sorted by the study group. The use of a common item pool may eliminate some subjectivity. However, these studies were comprised of fewer groups, and therefore less constrained logistically. In retrospect, this approach might have been adapted and applied remotely by mail to individuals to generate statement items prior to conducting the concept mapping sessions. However each group would still have added their own statements during the sessions, generated due to the dynamic of group discussion. Also, there was no provision to revisit each concept mapping group at the end of the data collection phase to have them re-sort the pooled item set.

For the purposes of developing a measurement index, this data consolidation process is provisional, and the emerging integration domains are preliminary. The concept mapping findings are to be used to hypothesise the factors of the measurement index, which will then be subjected to further structural equation modelling and where required, re-specification of the integration index domains.

5. Future directions

The use of concept mapping was successful in ensuring that the breadth of the topic was explored in its entirety and allowed the identification of different dimensions of the concept of GP-integration, providing a starting point to validly define its elements.

The future development of a measurement tool from this work will assist with maximising our knowledge about how health policy reforms, programs and initiatives promoting integration between GPs and other health service providers, will impact on general practice. Eventually, this information may be translated into benefits for the consumer. We envisage such a measurement tool also providing valuable information for evaluating the success of future programs and projects specifically related to GP integration.

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Appendix A

See Fig. A1

No.	Cluster name	Importance	Occurrence
4	Gatekeeper	3.38	2.93
2	Responsibilities	3.22	2.56
3	Clinical role	3.14	2.59
6	Hospitals	3.07	1.82
5	GP back-up services	3.02	2.29
1	Community and others	2.95	2.16
8	What GPs need	2.87	1.92
9	Resources	2.71	1.24
10	Educating patients about the system	2.56	1.33
7	Complementarity	2.33	1.22

(Cluster ratings sorted by importance to patient care).

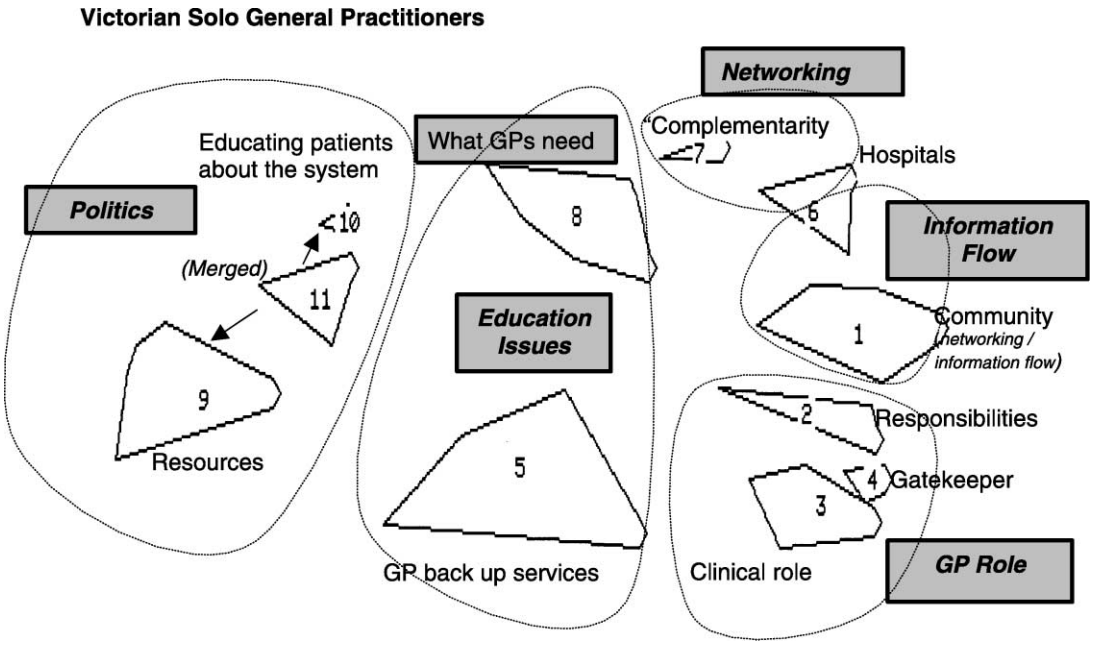

Fig. A1.

Appendix B

Meta-matrix (abridged example)

Thematic domain labels	Cluster labels	Concept mapping groups[a]										
		1	2	3	4	5	6	7	8	9	10	11
Infrastructure and resources	Access to health resources									√ *(11)*		
Roles, holistic patient focus, accessibility	Accessibility	√ (12)	√ (13)				√ (7)					
Liaison and communication	Appropriate approach and attitudes	√ (2)										
Client focus/outcomes	Appropriate referral							√ (2)				
Public health view	Aware of community and educates community								√ (9)			
Awareness of health service policy and planning	Awareness and understanding of service providers							√ (1)				
Knowledge	Awareness of other providers		√ *(3)*									
Doctor characteristics	Big picture						√ (15)					

[a] Groups: 1: WA allied health (1); 2: WA allied health (2); 3: Qld Nursing; 4: Vic CHC-GPs; 5: Vic Hosp admin; 6: WA GPs; 7: Vic Community Service Providers; 8: Vic Consumer groups; 9: Qld rural GPs; 10: Vic solo GPs; 11: Vic Specialists. Cluster numbers are indicated in parenthesis. All of the concept-mapping clusters were listed in the matrix, with the corresponding thematic domain labels. The matrix is composed of the cluster labels by row, and the concept mapping groups (1–11) by column. The presence of a cluster in a concept-mapping group is indicated in the matrix with a tick, and the corresponding cluster number in parenthesis. The thematic domain labels are listed on the left-hand side of the matrix. Following this process, all of the cluster labels were grouped into like themes and placed under the most appropriated thematic domain labels. These groups of thematic domains were condensed into a single label and re-named as an 'overarching theme' with reference to the cluster meanings. The overarching themes are only used for broad topic areas to present the concept mapping findings.

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