



This is the author's version of work that was submitted and accepted for publication in the following source:

Birks, M., **Mills, J.**, Francis, K., Coyle, M., Davis, J. and Jones, J., (2010). Models of health service delivery in remote or isolated areas of Queensland: a multiple case study. *Australian Journal of Advanced Nursing*, 28(1), 25-34.

This definitive version of this work is available at: Australian Journal of Advanced Nursing, Online,
http://www.ajan.com.au/Vol28/28-1_Birks.pdf

© Copyright **2010 Australian Journal of Advanced Nursing**

Notice: *Changes introduced as a result of publishing processes such as copy-editing and formatting may not be reflected in this document. For a definitive version of this work, please refer to the published source.*

Models of Health Service Delivery in Remote or Isolated Areas of Queensland: A multiple case study

Dr Melanie Birks, PhD, RN, BN, MEd, FRCNA

(Corresponding Author)

Senior Lecturer

School of Nursing and Midwifery

Monash University, Gippsland Campus, Churchill, VIC, Australia.

Ph: 03 9902 6634

Melanie.birks@med.monash.edu.au

Dr Jane Mills PhD, RN, BN, MN, MEd, Grad. Cert. Ed. (Tert. Teach), FRCNA

Senior Lecturer

James Cook University

School of Nursing, Midwifery & Nutrition, QLD, Australia

Ph: 07 4042 1548

Jane.mills@jcu.edu.au

Professor Karen Francis, RN, PhD, MEd, MHLth Sc PHC, Grad Cert Uni

Teach/Learn, BHlth Sc Nsg, Dip Hlth Sc Nsg, FRCNA, Fellow JBI

Professor of Nursing

Ph: 03 9902 6763

Karen.francis@med.monash.edu.au

Dr Meaghan Coyle, PhD, BHlthSc(Acup)

Research Fellow

Ph: 03 9902 6159

Meaghan.coyle@med.monash.edu.au

Ms Jenny Davis, RN, RM, Grad Dip Periop, Grad Dip Critical Care, BAppSci(Nsg),
BHIM(Hons)

Lecturer

Ph: 03 9902 6977

Jennifer.biggs@med.monash.edu.au

Ms Jan Jones, RN, RM, MCM, Grad. Dip. Mid., BN, MRCNA, MACM

Lecturer

Ph: 03 9902 7186

Janet.jones@med.monash.edu.au

ACKNOWLEDGMENTS

An Australian Government National Health and Medical Research Council Primary Health Care Fellowship funded the work of Dr Jane Mills on this study. NHMRC Grant ID: 431532.

The research team would like to acknowledge the Office of the Chief Nursing Officer, Queensland Health, which funded this study.

ABSTRACT

Objective: This paper reports on models of health service delivery in remote or isolated areas of Queensland.

Background: There is little research that investigates current models of health service delivery in remote or isolated areas of Australia.

Design: A multiple case study research design was employed that included interviews and focus groups.

Setting: Three types of health care facilities in remote or isolated Queensland.

Subjects: Thirty five registered nurses.

Results: Findings indicated that nurses and Indigenous health workers are predominantly resident and provide health services in this environment, while medical and allied health care services are usually provided by non-resident visiting specialists.

Conclusions: Findings suggest that meeting the needs of communities in remote and isolated areas of Queensland requires a change in the focus of health service delivery to accommodate a primary health care philosophy. The introduction of a new model of health service delivery is recommended; however this will only occur if resources are harnessed to prepare staff to reprioritise services offered.

Implications for Health Service Management: Supporting community partnerships with shared responsibility between health service providers and community members for increasing primary care prevention practices is advocated.

Key Words: Nurses; Remote Consultation; Rural Health Services; Health Care, Primary; Hospitals, Rural

INTRODUCTION

The delivery of health services in isolated and remote areas of Queensland is an ongoing concern for the Queensland Government. These geographical areas are characterised by small populations spread over vast distances with a significant proportion of Aboriginal and Torres Strait Islanders compared with national averages (Australian Bureau of Statistics 2007; Wakerman et al. 2006). A need to understand current models of health service delivery prompted this study. This paper reports on models of health service delivery in remote and isolated areas of Queensland and is part of a larger study into the role of nurses working in these locations. The three models of care identified are described and illustrated using a multiple case study design. Findings are discussed in the context of the contemporary literature regarding models of primary health care delivery in rural and remote areas.

BACKGROUND

Australian nurses have a long history of providing health care for communities in remote and isolated locations. These locations are naturally very diverse, both geographically and contextually, and the models of health service delivery utilised are adapted to meet local community needs. Many nurses in remote and isolated Queensland provide primary care, as they are the first point of contact with the health care system. Primary care services include both prevention and early intervention activities such as immunisation, health screening, family planning and treatment for non-threatening conditions such as coughs, colds and localised infections. If required, nurses working in remote or isolated areas refer clients to other health care providers for the provision of secondary level care such as confirmation or early detection of

disease, and/or therapeutic intervention/treatment of a problem. The third classification of health care, tertiary care usually involves long term treatment for disease or events that have resulted in physiological damage (Timby 2008) and is a large part of these nurses' role (Council of Remote Area Nurses of Australia 2008; Department of Health and Community Services 2008). At this juncture it is important to highlight the difference between primary care and primary health care. Primary health care has a more comprehensive brief than primary care, and incorporates universal access to resources, disease prevention and health promotion, community and individual engagement in self care, intersectorial approaches to health, and cost effective solutions to promoting wellbeing that incorporate all aspects of an individual's life and environment (Felix-Bortolotti 2009).

Interprofessional teams of health care workers servicing remote or isolated areas of Queensland are either resident (i.e. living in or near to the community in which they work), or non-resident (i.e. live away from the community). Team members include doctors, nurses and allied health professionals, e.g. physiotherapists, speech therapists and occupational therapists. Non-resident teams work alongside resident team members, providing specialist services in communities too small to support permanent services (Wakerman et al. 2006). Non-resident teams tend to 'fly-in/fly-out', and in Queensland these services are primarily provided by the Royal Flying Doctor Service (RFDS) and Queensland Health. Service provision by these organisations can be regular (e.g. general health checks, dental clinics, chronic disease screening and management), or emergency care or patient transfer.

A basic assumption of study was that models of health service delivery and models of care are inextricably linked. Our construct of models of health service delivery is that they are formulated from an assessment of community need, current infrastructure,

staffing mix, delivery modes, policy and resources. The practice of staff working in health care teams defines the models of care provided within the service. How activities are prioritised, labour is divided, staff are rostered, supportive relationships are developed, information is communicated, as well as the levels of knowledge and skills of individuals, influences the way in which health care professionals practice in providing care both individually and as part of a team. The configuration of models of health service delivery can either enhance or detract from the implicit model of care delivered and the functioning of staff who practice within it. Key to developing contemporary models of care is the translation of policy and evidence into the practice of health services.

METHODS

The research described here is part of a broader investigation into the role of the registered nurse working in remote or isolated regions of Queensland (Mills et al. 2008). Queensland Health commissioned the study and approval was secured from the ethics committee of the researchers' employing university prior to commencement of the study.

Thirty-five registered nurses participated in this study, which utilised a combination of individual interviews (23) and focus groups (4) for the purpose of data collection. A multiple case study design was employed to examine the role of these nurses who worked in diverse geographical locations of South West Queensland, Central and Central West Queensland, Townsville and Mt Isa, Cape York Peninsula and the Torres Strait Islands. Multiple case study design permits identification of similarities and differences between and amongst cases, both individually and as a combined entity (Stake 2006). In examining the models of health service delivery employed by

nurses working in remote and isolated areas of Queensland, three cases were identified in the planning stage of the study:

1. Case One – Primary health care clinics in Indigenous communities
2. Case Two – Primary health care clinic with overnight bed capacity in Indigenous communities, and;
3. Case Three – Outpatients clinics/small acute services in non-Indigenous communities.

Data generated with participants during the interview process was analysed and initial themes constructed using a team approach. The initial themes were reviewed by an expert panel and refined through subsequent analysis. The results of this process provided an overview of the models of health service delivery utilised by registered nurses working in remote and isolated areas of Queensland.

FINDINGS

Participants in this study identified three models of health service delivery currently operating in remote or isolated areas of Queensland:

1. Torres Strait Islands Model of Primary Health Care
2. Enhanced Model of Primary Health Care
3. Interventionist Model of Secondary Health Care

Participants in Case One and Two facilities used a combination of either the Torres Strait Islands Model of Primary Health Care or the Enhanced Model of Primary Health Care and the Interventionist Model of Secondary Health Care, while

participants in Case Three facilities used the Interventionist Model of Secondary Health Care almost exclusively.

Torres Strait Islands Model of Primary Health Care

Indigenous communities in the Torres Strait Islands appeared to have much more control over and input into models of health service delivery in their local environment. A Case One participant summarised the division of labour in these primary health care teams as consisting of an:

Indigenous Manager, then Indigenous Health Workers and the RN on the bottom.

In this model of health service delivery the role of the registered nurse is one of coach and resource for the primary health care team – providing knowledge and skills that can be accessed in times of doubt or need.

You're like the hub of the wheel supporting all the spokes that go out to the people.

For nurses working in the Torres Strait Islands Model of Primary Health Care, a condition of their employment is the provision of a 24/7 on-call emergency response service. For Case One participants employed under such an arrangement, hours of work were focused around this on-call requirement. Being on-call was identified as a major stressor for these participants who believed they were viewed as being available on-call even when off duty. In theory the on-call roster is shared amongst the resident team, however the registered nurse is often called out because of their role as a resource person.

Not all participants working within the Torres Strait Islands Model of Primary Health Care considered this model to be working as well as it could. This was particularly the

case in relation to a perceived need to provide more primary health care as opposed to primary care. One Case One participant stated that:

[The model's] not primary health care, it's primary care and very biomedical, focused on screening, not much follow up, virtually no health promotion and not much prevention.

The efficiency of the Torres Strait Islands Model of Primary Health Care in addressing the primary health care needs of the community appeared to relate to how well the registered nurse was able to develop preventative health care strategies. One participant stated:

The number of call-ins that you get... is a pretty good indicator of the overall health and wellbeing of the community, so you go to a place that's got a really good primary health care program and people's chronic diseases are well managed, you're only getting called out for those incidental acute sort of things that come up. Generally people with well-managed chronic diseases tend to have more insight into their health problems... so they're more likely to manage smaller things at home and come and see you in business hours.

Another key issue identified for the Torres Strait Islands Model of Primary Health Care was the number of Papua New Guinean Nationals who crossed the border to access health services. This invisible demand placed on limited resources created significant pressure on a model of health service delivery that is essentially only designed to meet the needs of a small local Torres Strait Islander community.

Most of the resources and medications go across the border [to PNG] so you're not doing anything for the community which you're operating in... It's

necessary because any public health concerns they have over there are public health concerns here too.

The Torres Strait Islands Model of Primary Health Care appears to have had mixed success in implementation. Transition of the registered nurse from their traditional role as manager, to being managed, influences the effectiveness of the model of service delivery in operation. One Case One participant said:

More primary health care is more effective than just responding to acute episodes. This model will work if people will let it, [however it] needs good managers with good management skills.

Generally speaking, however, participants in Case One felt that to date the implementation of the Torres Strait Islands Model of Primary Health Care with its emphasis on community assessment, input and control had resulted in more positive health outcomes for the community.

I think the model of care, it's not operating as well as it could be, but it's more conducive to actually getting things done and it's actually improving people's health outcomes, [more so] than what I'm normally used to.

Enhanced Model of Primary Health Care

Case One participants identified the Enhanced Model of Primary Health Care in Indigenous communities as one that prioritised preventative health promotion and education. However, all Case One participants working in Indigenous communities spoke of their actual model of service delivery and care as being a combination of primary, secondary and tertiary approaches underpinned by an Interventionist Model of Secondary Health Care. As one participant put it, registered nurses in Case One currently provide a 'Bandaid service' to local communities.

The enhanced model of primary health care is the one we are trying to push for the communities – you're never going to do away with acute care services though, it needs to be here – I wonder sometimes if it will split where we have these [currently] visiting teams who provide chronic disease management and prevention [on a] permanent [basis] in the communities – where registered nurses are providing acute care services out of the clinic but attached to the clinic is a primary prevention health care model.

The advent of visiting specialist health professional teams has impacted on how Case One and Two participants viewed primary health care and their role within the broader health care team. Participants voiced a belief that while enhancing primary care was important it was somebody else's responsibility. The business of local registered nurses was to provide primary and secondary care to community members while also managing the administrative and liaison work of the centre. Participants regarded the provision of primary care as both a burden and an obstacle to being able to manage their time and workload. Concomitantly, there was recognition that as a resident health care professional, the registered nurse was more in tune with the local community and better placed to actually do this work than the visiting non-residential teams.

What has taken some of the burden of the prevention and promotion of health away from us, is our visiting teams. We have good support and they have that as part of their role. They are starting to run programs in the community and that's relieved us I guess, though [that is] not necessarily a good thing because they tend not to get so involved.

Within the Enhanced Model of Primary Health Care discussed by Case One and Two participants, a strategy called 'house health promotion' was identified. This involved

Indigenous health workers visiting people in their homes to conduct screening, one-on-one health promotion and education. Target areas for house health promotion were smoking, alcohol and other drug use, exercise and nutrition. Case One participants in the Torres Strait Islands Model of Primary Health Care gave similar examples of house health promotion. This Case One participant however, spoke of how living and also working in an Indigenous community can be a barrier to undertaking primary health care activities:

I think it's how you're perceived by the community that's going to have an impact on the sorts of activities you can provide that will work – they'll say 'when is that ATOD's [Alcohol, Tobacco and Other Drugs] man coming?'... It seems that visiting people can provide a different service, people may feel more comfortable about disclosing to a stranger than they do to somebody they see in the store, walking on the beach, that they see when they come in to the clinic.

Findings generated with participants in Case One and Two suggest that the Enhanced Model of Primary Health Care is perceived as being something distinct from, or to be employed in addition to, a traditional Interventionist Model of Secondary Health Care. In Case Two, implementing a model of health service delivery that is supported by the tenets of primary health care does not appear to be as strongly driven by the community as it was in Case One facilities in the Torres Strait Islands.

Interventionist Model of Secondary Health Care

An Interventionist Model of Secondary Health Care was clearly the predominant model of health service delivery in Case Three and to a great extent in Case One and Two facilities in Aboriginal communities. There was less evidence that this was so in

Case One facilities in the Torres Strait Islands. Resistance was noted however from some participants reluctant to transition to the Torres Strait Island Model of Primary Health Care, as the traditional division of labour is reconfigured to remove the registered nurse from the top of the hierarchy of power.

The greatest hurdle for many RANs [in adapting to the Torres Strait Islands Model of Care] is that they are not in a management role.

Closely aligned with a traditional bio-medical model of care, the Interventionist Model of Secondary Health Care considers the health professional to be an expert, providing interventions to meet the needs of individuals with emergent and potentially life-threatening (secondary) or chronic (tertiary) conditions. In remote or isolated areas of Queensland registered nurses are usually the first point of contact for patients and clients, as compared with metropolitan areas of Australia where the general practitioner is usually the first point of contact. The main difference between the Interventionist Model of Secondary Health Care, and the two models presented previously, is the prevailing philosophy. Rather than working ‘with’ a community, in an Interventionist Model of Secondary Health Care, health professionals work ‘on’ a community. Implicit in this approach is that instead of providing a proactive service aimed at meeting identified community need, health professionals are reactive to individual clients’ health care crises.

In Case Three, participants strongly identified with the philosophy of the Interventionist Model of Secondary Health Care. Key to this identification was the notion that registered nurses substituted for the general practitioner as initial care providers in their communities. This was particularly the case for participants whose registration was endorsed for rural or isolated practice.

Rural and isolated practice endorsed nurses can supply antibiotics and other medications and now that people know that, they come here rather than going into town, to the hospital or GP [general practitioner].

Because I can give people antibiotics, that's what I spend half the day doing.

DISCUSSION

Three distinct models of health service delivery are currently in operation in remote or isolated areas of Queensland. They share some similarities but are notably different in staffing mix, community context and leadership. These models are the Torres Strait Islands Model of Primary Health Care, the Enhanced Model of Primary Health Care and the Interventionist Model of Secondary Health Care.

Participants in this study suggested that the Torres Strait Islands Model of Primary Health Care allows for more community control and input in the operation of the service than the other models. Community participation in health care can improve sustainable health outcomes for individuals, families and the community (Kim-Godwin, Clarke, and Barton 2001; Church et al. 2002), and can develop environments that encourage healthy living (Hoodless, Bourke, and Evans 2008).

In areas where the Torres Strait Islands Model of Primary Health Care is used, the health care team usually comprises a registered nurse and one or more Indigenous health workers. There is usually an Indigenous health service manager employed on the team, who leads the operation of the service. Indigenous health workers are the first point of contact for community members and undertake the bulk of hands-on work, while the registered nurse supports the team, both coaching and guiding them in their practice as well as acting as a clinical resource person.

Services in all of the models of care are provided around the clock with team members rotating through the on call roster. In reality however, the registered nurse often attends emergencies as they are always either the first or second person on call and are often required to provide clinical expertise in support of other team members. Similar findings have been reported by both Weymouth et al. (2007) where nurses report being on call for extended periods of time, and Yuginovich (2007), where one nurse reported being on call for 100 days with no break. It has been suggested that nurses in small remote or isolated communities are effectively on call 24 hours a day, seven days a week, irrespective of rosters (Hanna 2001; Cramer 2006) and that this constitutes a major source of stress in this group of nurses (Lenthall et al. 2009).

Participants suggested that the provision of effective primary health care to a community is reflected in the number of emergency call-outs recorded. Two key factors were identified that can influence the amount of after hours work. Firstly, where the level of primary health care provided is high, the community tends to self-manage chronic disease after hours. D'Souza et al (1998) found that patients who received an asthma self-management plan were less likely to need emergency visits to general practitioners, attendance at hospital emergency departments and hospital admission compared with those who received standard care. In patients with chronic obstructive pulmonary disease similar results were reported (Bourbeau et al. 2003). Secondly, effective communication between nurses and the community about what constitutes an after hours emergency can further reduce after hours work. Strategies have been described in the literature to assist nurses in educating patients to determine whether their illness is an emergency, and how to contact emergency services (Department of Health and Families 2008).

Lessons from the Torres Strait Island Model were that the ability to provide effective primary health care is dependent on the capacity of the resident health care team, with non-resident specialist teams visiting to provide specific services. Success relies on: the successful transition of the role of the registered nurse from one of manager to one of coach and guide; the competency and skill level of the Indigenous health workers and the abilities and skills of the Indigenous health service manager.

Genat (2006) believes that the practice of Indigenous health workers should be the primary vehicle through which health care is delivered in Indigenous communities. He suggests that the knowledge of Indigenous health workers is undervalued and a change in organisational structure is required in order to recognise this specialist knowledge. Indigenous leadership of health care services would facilitate a more client centered, holistic and culturally safe service (Genat 2006; Eckermann et al. 2006). In addition, Wilson and Grant (2008) remind us that it is the recipient who determines whether the service and care provided is culturally safe, not the provider of the service. In this study, the Torres Straits Model of Primary Health Care was found to closely align with this philosophy of care.

The Enhanced Model of Primary Health Care, whilst espousing the ideals of preventative health promotion and education is in reality more of Band-aid service, with a mix of primary, secondary and tertiary health care provided by health care teams. The role of the registered nurse in this model is to lead health care teams while providing mostly secondary level care. These nurses liaise with local primary health care centres and manage administrative work. Both Yuginovich (2007) and Hanna (2001), argue that remote area nurses are limited in their ability to provide primary health care by a lack of time and support. This is demonstrated in the Enhanced Model of Primary Health Care where it falls to Indigenous health workers to carry out

home visits for the purposes of screening and health promotion. In some ways, this activity of Indigenous health workers is supported by the previous argument proffered by Genat (2006), however the Enhanced Model of Primary Health Care does not include Indigenous health managers in health care teams, rather, the registered nurse assumes this leadership position, delegating primary health care activities to Indigenous health workers.

The delivery of primary health care was recognised by participants working in the Enhanced Model of Primary Health Care as important, but became a lower priority when their workload became too difficult to manage, a finding supported in the literature by Hanna (2001). In this scenario, registered nurses view the provision of primary health care as a burden and an obstacle to providing what is considered higher priority health care. Whilst recognising that the registered nurse is well placed to provide primary health care, participants working within the Enhanced Model of Primary Care saw it as someone else's responsibility. This attitude was tied to the influx of non-resident members of the team who flew in to undertake health promotion and chronic disease management activities. Being a member of the same community was also seen as a barrier to planning and implementing primary health care activities, because of the identity the registered nurse has within the community. For nurses living in rural, remote or isolated areas of Australia, having multiple senses of self can sometimes lead to role conflict (Mills, Francis, and Bonner 2008).

The Interventionist Model of Secondary Health Care positions health professionals as the experts. In remote or isolated areas of Queensland, this means the registered nurse is usually at the top of the hierarchy of power. Such an arrangement reflects the traditional bio-medical model of health care (Germov 2009) where interventions are provided to meet the secondary (acute and potentially life threatening presentations)

and tertiary (chronic) needs of individuals. This model clearly has the most limitations for communities in remote and isolated areas in which the participants in this study were employed.

Primary health care in its purest form is a broad concept that addresses all social, environmental and lifestyle determinates of health (Felix-Bortolotti 2009). Findings from this study indicate that there is great variation in the models of health service delivery across the sites in which nurses are employed in remote or isolated areas of Queensland. Even though many participants were aware of evidence about the effectiveness of preventative health care education and activities in reducing the burden of secondary and tertiary conditions, much of the nurses' energy in their role was directed towards interventionist management of chronic disease and acute presentations. The need for nurses working in remote or isolated areas of Australia to prioritise emergent cases has been identified in the literature as a barrier to implementing a primary health approach to care (Yuginovich and Hinspeter 2007; Hanna 2001).

Overall, models of health service delivery used throughout remote and isolated Queensland demonstrate a process in which local (resident) and visiting (non-resident) health care professionals largely act upon, rather than with, the community. This is similar to the bio-medical model of health care (Germov 2009). Nurses may be seen as a substitute for a general practitioner, with little input from the community or individuals in the decision making process. Their work is viewed as a series of tasks and activities rather than being driven from a particular theoretical position, focusing on addressing specific clinical issues rather than a wider view of prevention and the social and emotional wellbeing of their clients. Registered nurses working in biomedical models of health care often consider their care to be very holistic because,

as members of the community, they feel they have a greater insight into the background of the individual community members. However, it has been suggested that without input and involvement from the community, they are unlikely to gain much insight or understanding of the background of their clients – rather their understandings are drawn from their own observations, rather than from interaction and dialogue (Genat 2006; Eckermann et al. 2006; McMurray 2003).

Recommendations

Findings from this study support the development of a new model of health service delivery in remote or isolated areas of Queensland with a greater emphasis on primary health care. Implicit in planning for such a change is consideration of the contextual elements impacting on individual communities that need to be assessed and incorporated into a population based primary health care framework. Many of the participants of this study demonstrated an awareness of the importance of working with factors inherent in the socio-cultural, economic and political environment to ensure relevance and effectiveness of care delivery. In a number of instances, the efforts of the health care professionals go some way to achieving this goal, yet this is neither a consistent nor universal outcome for clients.

This study recommends a model of health service delivery that includes resident health service providers (including nurses, medical officers, Indigenous health workers and managers) working in conjunction with non-resident service providers (such as visiting specialist teams and locum staff), to provide care at primary, secondary and tertiary levels within a primary health care framework (Figure 1).

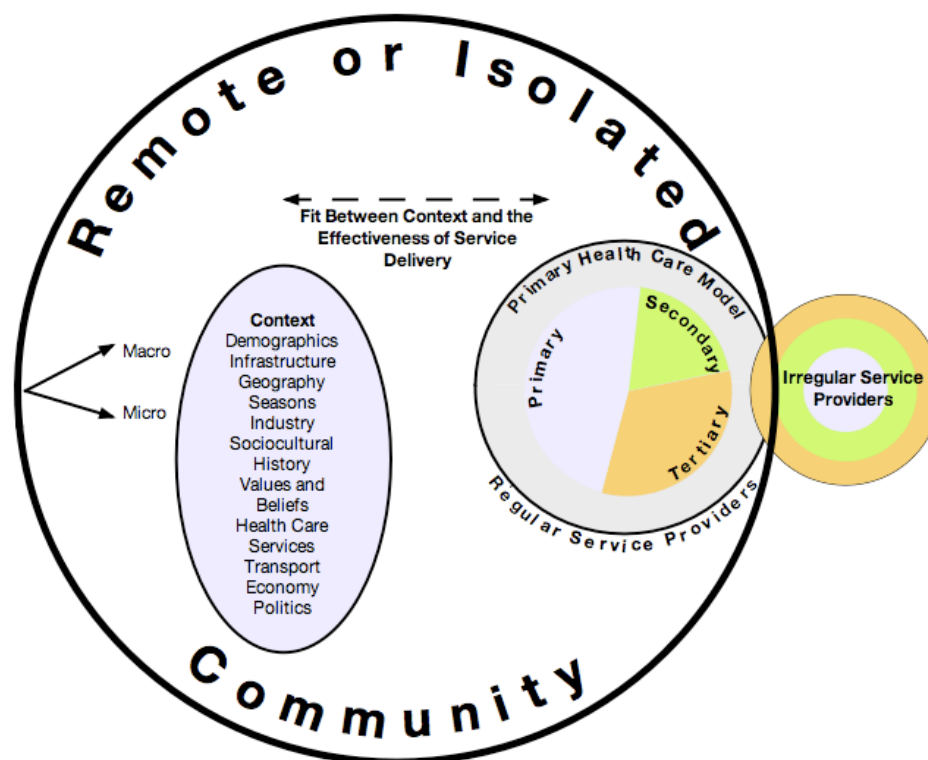


Figure 1: New Model of Health Service Delivery and Care

In this model, an increased emphasis on primary health care is reflected in the balance of time devoted by the health care professionals to preventative versus emergent or restorative care activities. The model capitalises on findings from this study that demonstrate greater success in health care provision when elements within both the micro and macro environment are incorporated into health service delivery processes. The study identified a number of examples where nurses working with Aboriginal or Torres Strait Islander communities using a primary health care approach demonstrated an increase in the effectiveness of health services. A thorough understanding of local contextual elements and their impact on the needs and expectations of the community supported these example scenarios.

The need for models of service delivery to be determined by factors in the individual community is consistent with views expressed in the literature (Burley and Greene 2007). Community consultation is therefore the foundation on which health service provision must be configured, or in some cases reconfigured, to move from the current interventionist model. This consultative and multidisciplinary approach to health care services and delivery at the population level can assist in preventing illness and improving the overall health of the community (Queensland Health 2004). To facilitate this new approach the primary health care workforce of the future must be educationally prepared to lead the shift from traditional models of health care service and delivery towards a more comprehensive and integrated population health approach (Dade Smith et al. 2006).

CONCLUSION

In remote or isolated areas of Queensland, achieving a functional model of health service delivery will require the integration of the philosophy and principles of primary health care, an appropriate skill mix of staff, consistency in working conditions, a minimum inventory of equipment, sophisticated levels of information technology, and a clear and consistent communication strategy. It is important that staff members have access to appropriate education and training activities, to support the implementation of changes in models of health service delivery that will best serve the needs of each individual community.

REFERENCES

- Australian Bureau of Statistics. 2006. *Population distribution, Aboriginal and Torres Strait Islander Australians, 2006*.
- Bourbeau, J., Julien, M., Maltais, F., Rouleau, M., Beaupré, A., Bégin, R., Renzi, P., Nault, D., Borycki, E., Schwartzman, K., Singh, R., Collet, J.P. 2003. Reduction of Hospital Utilization in Patients With Chronic Obstructive Pulmonary Disease. *Archives of Internal Medicine* 163:585-591.
- Burley, M. B., & Greene, P. 2007. Core drivers of quality: a remote health example from Australia. *Rural and Remote Health* 7(3):611.
- Church, J., Saunders, D., Wanke, M., Pong, R., Spooner, C., & Dorgan, M. 2002. Citizen participation in health decision-making: Past experience and future prospects. *Journal of Public Health Policy* 23(1):12-32.
- Council of Remote Area Nurses of Australia. 2008. *About RANs* 2008 Available from <http://www.crana.org.au/ab.php?ID=2> [accessed 29.09.08].
- Cramer, J.H. 2006. Amorphous practice: nursing in a remote Indigenous community of Australia. *Contemporary Nurse* 22(2):191-202.
- D'Souza, W.J., Te Karu, H., Fox, C., Harper, M., Gemmell, T., Ngatuere, M., Wickens, K., Crane, J., Pearce, N. & Beasley, R. 1998. Long-term reduction in asthma morbidity following an asthma self-management programme. *European Respiratory Journal* 11:611-616.
- Dade Smith, J., O'Dea, K., McDermott, R., Schmidt, B., & C. Connors. 2006. Educating to improve population health outcomes in chronic disease: an innovative workforce initiative across remote, rural and Indigenous communities in northern Australia. *Rural and remote health* 6(3):606.
- Department of Health and Community Services. 2008. *Career factsheets: Remote area nurse*. Northern Territory Government 2008 Available from http://www.nt.gov.au/health/nurse_midwife/docs/career/remote_area_nursing.pdf [accessed 06.08.09].
- Department of Health and Families. 2009. *Remote Health Atlas: On-call expectations*. Department of Health and Families, June 2008. Available from http://remotehealthatlas.nt.gov.au/on_call_expectations.pdf [accessed 06.08.09].
- Eckermann, A., Dowd, T., Chong, E., Nixon, L., Gray, R., & Johnson, S. 2006. *Binan Goonj Bridging Cultures in Aboriginal Health*. Marrickville, NSW: Elsevier.
- Félix-Bortolotti, M. 2009. Part 1 - unravelling primary health care conceptual predicaments through the lenses of complexity and political economy: a position paper for progressive transformation. *Journal of Evaluation in Clinical Practice* 15(5):861-867.
- Genat, W. 2006. *Aboriginal Healthworkers*. Crawley, WA: University of Western Australia Press.

- Germov, J. 2009. Challenges to medical dominance. In *Second Opinion: An introduction to health sociology*, in J. Germov (ed.). Melbourne: Oxford University Press.
- Hanna, L. 2001. Continued neglect of rural and remote nursing in Australia: the link with poor health outcomes. *The Australian Journal of Advanced Nursing* 19(1):36-45.
- Hoodless, M., Bourke, L., and Evans, F. 2008. Quality of Rural Primary Health Care: Including the Consumer. *Australian Journal of Primary Health* 14(2):82-88.
- Kim-Godwin, Y.S., Clarke, P., & Barton, L. 2001. A model for the delivery of culturally competent community care. *Journal of Advanced Nursing* 35(6):918-925.
- Lenthall, S., Wakerman, J., Opie, T., Dollard, M., Dunn, S., Knight, S., MacLeod, M., & Watson, C. 2009. What stresses remote area nurses? Current knowledge and future action. *Australian Journal of Rural Health* 17(4):208-213.
- McMurray, A. 2003. *Community Health and Wellness*. Marrickville, NSW: Mosby/Elsevier.
- Mills, J., Birks, M., Francis, K., Coyle, M., & Al-Motlaq, M. 2008. Nursing in remote or isolated areas of Queensland: A multiple case study. Churchill: School of Nursing and Midwifery, Monash University.
- Mills, J., Francis, K., & Bonner, A. 2008. Getting to Know a Stranger - rural nurses' experiences of mentoring: A grounded theory. *International Journal of Nursing Studies* 45(4):599-607.
- Queensland Health. 2004. Strategic Plan 2004-10. Brisbane: Queensland Health.
- Stake, RE. 2006. *Multiple case study analysis*. New York: Guilford.
- Timby, Barbara Kuhn. 2008. *Fundamental nursing skills and concepts*. Ninth ed: Lippincott Williams & Wilkins.
- Wakerman, J., Humphreys, J., Wells, R., Kuipers, P., Entwistle, P., & Jones, J. 2006. A systematic review of primary health care delivery models in rural and remote Australia 1993-2006. Canberra: Australian Primary Health Care Research Institute (APHCRI).
- Weymouth, S., Davey, C., Wright, J. I., Nieuwoudt, L. A. Barclay, L., Belton, S., Svenson, S., & Bowell, L. 2007. What are the effects of distance management on the retention of remote area nurses in Australia? *Rural and Remote Health* 7(3):652.
- Wilson, D., & Grant, J. 2008. Culturally Competent Partnerships with Communities. In *Community as Partner: Theory and Practice in Nursing*, in K. Francis, Y. Chapman, K. Hoare and J. Mills (eds.). Broadway, NSW: Lippincott, Williams & Wilkins.
- Yuginovich, T., & Hinspeter, L. 2007. Unfinished business... The impact of single nurse clinics on delivery of Primary Health Care in remote communities. Hervey Bay, Queensland: University of Southern Queensland.