

Detecting and preventing cervical cancer: a nurse-led model for rural Aboriginal women

Elizabeth Barrett¹, Leonie Parker², Michael Campion³, Jamie Newman⁴, Claire O'Neill¹, Sharif Bagnulo¹, Amanda Masset¹

¹NSW Rural Doctors Network, ²Condobolin Community Health Western NSW Local Health District, ³Royal Hospital for Women, Sydney, ⁴Orange Aboriginal Medical Service

Introduction

The incidence of cervical cancer for Aboriginal women is more than twice that of non-Aboriginal women (1). The mortality rate for cervical cancer in Aboriginal women is 4 times the non-Aboriginal rate (1). This is consistent with the experiences of women worldwide from poorer countries. Indeed, some 90% of deaths from cervical cancer worldwide occur in women from 'low and middle income countries' and in those countries the mortality rate from cervical cancer is 85% (2).

This paper describes the development of a new healthcare model to address the detection and prevention of cervical cancer for Aboriginal women in a regional centre in NSW that serves women from a wide catchment area. It examines the use of a nurse practitioner-led model in an outreach context and also as a way of reducing barriers to access for a service. The paper demonstrates how the strength of healthcare partnerships can be the foundation upon which significant barriers in accessing services are addressed.

Cervical cancer detection and prevention

The incidence of cervical cancer is likely to reduce significantly across Australia in coming years due to the high uptake of the human papilloma virus vaccine through an effective school based program. However, uptake of the vaccine by Aboriginal adolescents appears to be lower than that for non-indigenous adolescents. A study reported in the Medical Journal of Australia identifies some barriers to vaccine uptake and completion including difficulty obtaining consent forms from parents and poorer school attendance making delivery of the 3 doses of vaccine required more challenging (3).

Furthermore, studies have demonstrated that once a woman is diagnosed with and treated for a Cervical Intraepithelial Neoplasia 3 (CIN3)¹ lesion she has a much greater chance of developing cervical or vaginal cancer later in life. A 2014 study found that the cancer risk for women treated for a CIN3 lesion increases as women age and suggests the need for life-long follow up (4).

Aboriginal women have a greater risk of developing and dying from cervical cancer than non-Aboriginal women in general and the need for surveillance, once a high-grade cervical lesion is found, is life-long.

Setting

An Aboriginal Community Controlled Health Service (ACCHS) in a large regional centre, with a population of close to 40,000 people, identified a significant need to improve access to bulk-billed colposcopy services for local Aboriginal patients in 2011. At the time, there were no local, bulk-billing colposcopy providers. As a result, Aboriginal women were being referred to a major capital city, some 250 kilometres away. The barriers experienced at this ACCHS were consistent with general barriers for access to early detection and screening services reported for breast and cervical cancers (5).

To overcome these barriers to access, a monthly visiting gynaecologist position was proposed through the Indigenous Specialist Outreach Assistance Program (ISOAP). ISOAP is a Commonwealth-supported Health Outreach Program available only in NSW and aimed at providing access to a range of health services in locations where issues such as distance, long wait times, cost or cultural appropriateness hinder patient access to services. By situating the visiting service at an ACCHS, the service addresses many of the economic, logistic and cultural barriers that are known to be experienced by Aboriginal women in accessing cervical cancer screening services (5).

¹ Cervical Intraepithelial Neoplasia (CIN) refers to abnormal and potentially premalignant changes found on the surface of the cervix. These abnormalities are graded according to severity from CIN 1 (least risk) to CIN 3 (greatest risk)

Furthermore, an assessment of outreach colposcopy services provided in a primary health setting in the Northern Territory indicated that, since less than 50% of the women accessing the service required subsequent hospital treatment (6), placing the service in the pre-hospital environment saved a considerable amount of unnecessary travel.

However, maintaining a visiting medical specialist service proved to be difficult for the ACCHS. The visiting services trialed were often unreliable and irregular, impacting adversely on the faith in the service by local women. It was at this time that the funding body considered finding a women's health nurse practitioner to be trained in colposcopy.

Approach

A partnership was formed to plan the service. Membership included representatives from the funding body, the ACCHS, the Local Health District (LHD) and a tertiary referral hospital in the nearest capital city. A model was agreed upon: a nurse practitioner would be trained to provide the colposcopy service offering local access to colposcopy and associated procedures thereby reducing the need for referral of women to the capital city. It was agreed that the nurse practitioner would be wholly responsible for the clinic from accepting referrals, triage, addressing the results, providing follow-up and following a defined professional development plan.

The gynaecologist from the referral hospital took on the role of mentor and trainer for the nurse practitioner. The nurse practitioner and the gynaecologist visit the ACCHS together once a month, with the nurse practitioner taking the lead role in the clinic. On occasion, the gynaecologist will see patients at the request of the nurse practitioner. As nurse practitioners employed by the public sector do not presently have a Medicare Provider Number to allow access to the Medicare Benefits Schedule, the gynaecologist also acts as diagnostician and referrer for further investigations and treatment if needed.

Training for the nurse practitioner involved the following:

- Observing the gynaecologist performing procedures followed by supervised colposcopy at another rural ACCHS.
- One week of procedural, instrumentation and didactic education from the gynaecologist at the referral hospital.
- Continuing clinical supervision, education sessions and mentoring by the gynaecologist.

Data on the number of nurse colposcopists operating in Australia is not available. Gynaecologists perform most colposcopies in NSW and nationally. It is likely that this service is the first nurse practitioner-led colposcopy clinic in Australia.

The authors examined the first 18 months of clinic activity, seeking to determine the type of referrals such a colposcopy service receives and to assess the quality of the patient journey.

Results

The clinic commenced in July 2012, with 34 clinics conducted as of March 2015. The medical specialist has been in attendance at 32 of the 34 clinics. Since the commencement of the clinic, there have been 345 referrals in total, with 271 occasions of service. Most patients have been provided with a colposcopic examination of the cervix. Colposcopy has been requested for cervical abnormality identified through cervical screening, post coital bleeding, post-menopausal bleeding, suspicious cervix and investigation of cervical polyps. The clinic also provides follow up, post colposcopy, which is an opportunity to address results and discuss management.

Other reasons for referral to the clinic include patients with vulvar dermatology conditions including lichen sclerosus and posterior forchette skin fissuring. In some cases, procedures such as large loop excisions of the transformation zone (LLETZ) have been completed under local anaesthetic at the ACCHS. No adverse effects have been reported. From the clinic commencement to the present day 7 patients have been referred to the closest capital city, 4 for a LLETZ procedure under general

anaesthesia and 3 for other surgical interventions requiring a general anaesthetic. Reasons for referral to the closest capital city are either due to the more complex nature of the treatment and investigations required and/or to accommodate the need for a surgical procedure under general anaesthetic.

On average, one patient requires treatment that is outside the nurse practitioner's scope of practice at each clinic.

The team analysed the outcomes from the first 125 patients seen at this clinic, which are summarized in the table below. Further analysis of the clinic outcomes will be performed.

Reason for consultation	Number	Procedure performed		Outcome							Further treatment/procedures or investigations proposed	
				PAP smears				Histology after biopsy				
		Colposcopy	Biopsy	Neg PAP	LSIL/poss LSIL	HSIL/poss HSIL	HPV	CIN1	CIN2	CIN3	LLETZ	Other
PH/ possible HSIL/HSIL	21	21	15	6	2	12	12	1	2	7	10	1 referral for CT scan pelvis
Possible LSIL/LSIL	22	22	14	11	10	1	11	4	0	0	1	
LLETZ	10	10					8					2 referred to tertiary referral hospital - 1 because cervix high grade visually but biopsy did not correlate with visual and pap.
Follow up/ Post LLETZ/ treatment plan	51	8	0		1		1		0	0		1 planned admission 3 pelvic US 1 IUD insert 2 Rpt colposcopy
Suspicious/ irregular cervix	5	4		3								1 ectropion 1 cervical stenosis for surgical repair
Post menopausal/ other irregular bleed	4	4	0	1								1 admission for EUA
? Cervical polyp	2	2	1	2			1					1 polyp for hospital admission
Difficult PAP	1	1		1								
Vulvo- vaginal abnormality	3	2		2								1 biopsy - epidermal cyst 1 referral tertiary referral hospital 1 vaginoscopy
Other	6	3		2								2 referral tertiary referral hospital
TOTAL	125	77	30	28	13	13	33	5	2	7	11	

CIN: Cervical Intraepithelial Neoplasia
 AIS: Adenocarcinoma in Situ
 LSIL: low Grade Squamous Intraepithelial Lesion
 HSIL: High grade Squamous Intraepithelial Lesion
 LLETZ: Large Loop Excision of the Transformation Zone
 PH: past history

From July 2012 to December 2013, 10 women were identified as being at risk of developing cervical cancer with pre-cancerous lesions of the cervix. All 10 women have received treatment. The rate of no-shows for referrals is approximately 20%.

Women who present for colposcopy at the ACCHS are actively followed up, retained within the service and provided with early intervention when required.

Discussion

Effective partnerships have maintained trust and goodwill between the collaborating parties. Regular formal meetings between representatives provide a regular opportunity for staff from the ACCHS, LHD, referral and training hospital and the funding body to review progress, identify needs and agree on solutions.

Finding a local provider has been important in building consumer trust that the service will be continued and strengthens support for succession planning. The service has built on the provider's existing relationships in the community (for example, the service accepts referrals from GPs outside the ACCHS). However, no-shows remain a particular problem for the colposcopy clinic, with a non-attendance rate of referrals of almost 20%. It has been suggested that training an Aboriginal health worker to support the clinic may reduce non-attendance.

In this model most patients can be assessed and monitored closer to home, substantially increasing access to colposcopy. In the first 18 months of this service less than 10% of patients required further treatment, procedures and/or investigation thereby avoiding unnecessary travel to a capital city or hospital for the remaining patients. The clinic was lead by a nurse practitioner, who was able to provide appropriate care for the majority of patients with less than one patient per visit referred to the medical specialist. This is efficient in use of time and cost of travel.

Nurse practitioners are legally allowed to diagnose and refer within their scope of practice. However the non-issuing of a Medicare Provider Number has lead to some double handling in the clinic. If Provider Numbers could be issued to employed nurse colposcopists the nurse practitioners would have access to a full range of services including referrals for pathology and ultrasound and direct Medicare billing. Nurse colposcopists have been credentialed in parts of the United States for some 30 years and in New Zealand for approximately 10 years.

The project partners are currently testing technology options that will support the transmission of video and still colposcopy images over a telehealth link. This is based on the USA telehealth model, where nurse colposcopists also use telehealth to seek assistance with diagnosis from a medical specialist when diagnosis is difficult or to access education and collaboration with distant gynaecologists.

It is anticipated that once the telehealth component to this service is complete and working effectively, there will be a significantly reduced requirement for the gynaecologist from the referral hospital to be on site for colposcopy. For example, the specialist will be able to view cervical lesion images remotely on request. This would support the diagnostic process and provide continuous quality improvement. It is expected that in future, transmission of high-quality and real-time colposcopy video images over a 4g mobile internet connection will occur.

There are plans to expand to more remote sites. The nurse practitioner could use telehealth to gain access to patients unwilling to travel for colposcopy.

Conclusion

The introduction of a nurse practitioner-led colposcopy and gynaecology clinic has improved access to essential healthcare for vulnerable and at risk patients. The model demonstrates best practice collaboration between partner organisations and in training and supervision. Efficiency and effectiveness could be enhanced if the nurse practitioner had a Provider Number, if an Aboriginal health worker was employed and if there was training and support to improve cultural competence. The use of telehealth technology will assist to improve both efficiency and effectiveness and enhance access in a culturally safe environment. This model could be replicated in other rural and remote locations.

Recommendations

Based on this experience, the authors provide the following recommendations:

1. More nurse practitioners should be supported to expand their role in women's health services, such as colposcopy.
2. Nurse practitioners should be allocated a Provider Number. Under the 19-2 Exemption the nurse practitioner could utilise the Medicare Benefits Schedule and provide a colposcopy service without needing to have a medical officer on site.

3. Significant metropolitan teaching hospitals should take a larger role in the development of innovative service models that enhance access to important services for patients in regional and remote areas.
4. Use of telehealth can provide support for the nurse colposcopist, improving access to colposcopy services for patients in regional and rural areas.

References

1. Australian Health Ministers' Advisory Council. Aboriginal and Torres Strait Islander Health Performance Framework [Internet]. Canberra: AHMAC; 2012 [cited 2015 Mar 24]. Available from: <http://www.health.gov.au/indigenous-hpf>
2. Australian Institute of Health and Welfare. Cervical screening in Australia 2011-2012 [Internet]. Canberra: AIHW; 2014. Available from: <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129547030>
3. Singhrao R, Huchko M, Yamey G. Reproductive and Maternal Health in the Post-2015 Era: Cervical Cancer Must Be a Priority. *PLoS Med*. 2013 Aug 13;10(8):e1001499.
4. Brotherton JML, Murray SL, Hall MA, Andrewartha LK, Banks CA, Meijer D, et al. Human papillomavirus vaccine coverage among female Australian adolescents: success of the school-based approach. *Med J Aust* [Internet]. 2013 [cited 2015 Mar 24];199(9). Available from: <https://www.mja.com.au/journal/2013/199/9/human-papillomavirus-vaccine-coverage-among-female-australian-adolescents-success>
5. Strander B, Hällgren J, Sparén P. Effect of ageing on cervical or vaginal cancer in Swedish women previously treated for cervical intraepithelial neoplasia grade 3: population based cohort study of long term incidence and mortality. *BMJ*. 2014 Jan 14;348:f7361.
6. Reath J, Carey M. Breast and cervical cancer in indigenous women: overcoming barriers to early detection. *Aust Fam Physician*. 2008;37(3):178–82.
7. Gruen RL, Weeramanthri TS, Bailie RS. Outreach and improved access to specialist services for indigenous people in remote Australia: the requirements for sustainability. *J Epidemiol Community Health*. 2002 Jul 1;56(7):517–21.

Presenter

Dr Elizabeth Barrett is currently a medical adviser with the NSW Rural Doctors Network (RDN). She has a medical degree from the University of NSW and further qualifications in family planning and health management and a Masters Degree in Public Health. She is a Fellow of the Faculty of Public Health Medicine, RACP. After clinical practice, Dr Barrett worked in public health and senior health management positions in rural and metropolitan NSW. In addition to her current role at RDN, she is a surveyor for the Australian Council on Healthcare Standards. Dr Barrett's previous commitments include President of Quality Management Services, membership of the Optometrical Board of NSW, membership of the Charles Sturt University (CSU) and University of Western Sydney Advisory Councils and the CSU Ethics Committee. She has been engaged in research for the Australian Medical Workforce Advisory Committee, The National Health Strategy and Hepatitis B prevalence and management in Western NSW. Dr Barrett has undertaken rural health consultancies in China and Queensland and occasionally works as a relief hospital Director of Clinical Services.

Leonie Parker is a nurse practitioner in women's health based in Condobolin in the centre of NSW. Leonie completed both her general nurses and midwifery training in Sydney and when the Condobolin Health Service maternity unit closed its doors, Leonie turned her attention to women's health and has been specialising in women's health for 15 years. Leonie completed a postgraduate certificate in Sexual and Reproductive Health in 2000, a postgraduate certificate in Women's Health in 2004 and a Master of Nursing: Nurse Practitioner in 2006. Leonie has been an authorised nurse practitioner since 2007 and provides outreach women's health services to Lake Cargelligo, Tullamore, Trundle and Tottenham and has more recently been involved in establishing a the first Australian Nurse Led Colposcopy/Gynaecology Clinic at The Orange Aboriginal Medical Service. Leonie was a finalist in the

NSW Excellence in Nursing Awards in 2014 and is the recipient of the 2015 Australia Day, Citizen of the Year for Condobolin, for her work in women's health. Leonie's passions outside work are cooking, spending time with her animals and playing the ukulele!