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General Practitioners knowledge, views and practices regarding cervical cancer screening in Australia

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Project team

Dr Stephen Goodall¹
A/Prof. Marion Haas¹
A/Prof. Rosalie Viney¹
Jeanette Ward²

¹Centre for Health Economics Research and Evaluation, UTS

² Sydney South West Area Health Service, NSW

Contact details

Dr Stephen Goodall
Centre for Health Economics Research and Evaluation (CHERE)
University of Technology, Sydney
City Campus
PO Box 123 Broadway
NSW 2007

Tel: + 61 2 9514 4720

Fax: + 61 2 9514 4730

Email: Stephen.Goodall@chere.uts.edu.au

Abstract

Objective

General practitioners (GPs) are the main providers of cervical screening in Australia and are crucial to the successful implementation of the National Cervical Screening Program (NCSP). This study assesses the views of GPs about the value of the Pap smear tests, their knowledge of the current screening policy, awareness of new technologies and concerns of litigation.

Design

A postal survey was conducted of a random sample of GPs in New South Wales, Australia.

Results

GPs are generally supportive of NCSP guidelines, specifically 88.5% now agree with the recommended 2 year screening interval. However, half believe the age range should be enlarged to include both older and younger patients. There are notable differences in knowledge and views between male and female GPs. Female GPs tend to support extending the age range and are more familiar with new technologies, whilst male GPs are more concerned about the legal implications of over and under-screening patients.

Conclusions

While the NCSP is generally well supported by GPs, there are differences in the knowledge and views of male and female GPs. This information provides a contemporary baseline from which to optimise the effectiveness of GPs as providers of cervical screening, improve the rate of appropriate utilisation and successfully implement any future changes to the national screening guidelines.

Introduction

Cervical cancer is one of the most preventable cancers. Early detection of precancerous lesions has meant that **cervical cancer** mortality rates have fallen in many countries, a consequence largely attributed to the successful implementation of systematic cytological surveillance¹. Australia's National Cervical Screening Program (NCSP)² was launched in 1991, unifying public messages throughout Australia about cervical screening and adjusting critical aspects of the screening pathway. The NCSP recommends that asymptomatic women between the ages of 20 – 69 years with no history of cervical pathology have a regular biennial Papanicolaou (Pap) smear. Since the inception of NCSP, both the incidence and mortality of cervical cancer in Australia have halved³ Australia now has the lowest mortality and second lowest incidence in the developed world⁴.

Despite the success of the NCSP, a number of challenges remain. Certain women continue either never to use or remain infrequently screened. In addition, early re-screening (defined as the provision of one or more Pap tests within a 21 month period following a normal Pap test) has been estimated to result in the provision of nearly 500,000 unnecessary additional screens per year³.

Further challenges for the NCSP concern its efficiency. Some authors have questioned the frequency and/or age range of the Pap smear test⁵⁻⁹, arguing that current guidelines are anachronous and do not reflect changes in epidemiology, understanding or technological advances associated with cervical cancer prevention. In releasing the updated guidelines for screen-detected cervical abnormalities, the National Health and Medical Research Council (NHMRC) recommended that the screening interval in Australia be reviewed to ensure that the NCSP is consistent with international best practice¹⁰. All of these reasons mean it is important to obtain a

contemporary assessment of knowledge, views and self-reported practices of the providers of cervical screening in the context of the current NCSP.

The majority of the two million Australian women receiving Pap smears each year, are performed in primary care³. The importance of general practitioners (GPs) in screening for cervical cancer is well recognised^{11 12 13}. It has been argued that a screening program will only be successful if GPs actively support the program^{14 15}. Standing and Mercer¹⁶ specifically argue that the main obstacles to cervical screening in general practice are the attitudes of GPs to preventive medicine, practice organisation and record keeping. Australian research was seminal in demonstrating the effectiveness of GPs when they adopted an opportunistic approach to recruitment during routine consultations^{17 18}.

Internationally, several studies have investigated doctors attitudes to cervical screening^{14 19-24}. These typically demonstrate that GPs are often unaware of current screening recommendations^{14 21}; GPs refrain from opportunistic recruitment during routine consultations and, instead, confine its provision largely to a patient-instigated annual check-up²³; and female GPs are more likely to endorse annual screening, ask new patients about their last pap smear, and are more comfortable taking a sexual history²³.

Prior to NCSP implementation, Bowman *et al*²⁵, demonstrated that most GPs accepted that cervical screening was necessary, they perceive themselves as the most appropriate providers and it was their role to provide and initiate screening with their patients. A significant minority of GPs viewed cervical screening less enthusiastically. The authors suggested that educational campaigns were required to persuade this group the preventative potential of screening and their role in the delivery. Barriers to effective screening included conflicting recommendations

between authorities regarding women at risk and the screening interval, and the shortage of female GPs. Immediately post-NCSP, Wai *et al*²⁶ demonstrated that GPs viewed Pap smears as an important means of cervical cancer prevention, but the majority did not adhere to 2-yearly screening. In the case of opportunistic screening, most GPs are likely to offer a Pap smear in a general health check-up. With female GPs are more likely to adopt an opportunistic approach^{13 18}.

Methods

This study was undertaken as part of a larger research project investigating factors that influence women's and providers' decisions in relation to cervical screening. Our aim was to investigate GPs attitudes, and in particular, examined the extent to which personal and practice characteristics of GPs explain attitudes and practice patterns in relation to cervical screening. This survey of GPs was conducted between October 2004 and June 2005 in New South Wales, Australia. GPs were randomly sampled from the Australian Medical Association contact list. A questionnaire was sent to each GP, along with an information sheet, study consent form and pre-paid reply envelope. Any non-respondent was telephoned once as a reminder. Once received, questionnaires were coded and de-identified to ensure confidentiality. Our study was approved by the Human Research Ethics Committee, University of Technology, Sydney.

The questionnaire comprised 22 questions designed to elicit information about GPs' knowledge, perceptions and views of the current screening policy, awareness of new technologies and concerns regarding litigation. Questions were written in closed format with fixed response sets, but; where applicable, space was provided for respondents to make additional comments. Information pertaining to professional

characteristics was also used to determine the representativeness of the practitioner sample.

Data were analysed using Stata v9. For ordinal regression, the data was checked for normal distribution. Subgroup analysis compared differences in means and odds ratios as appropriate, 95% confidence intervals and p values.

Results

Completed questionnaires were returned from 452 general practitioners (452/2969). Compared with information reported by the Australian Institute of Health and Welfare statistics ²⁷, our sample was representative in terms of age distribution. Male practitioners and sole practitioners were underrepresented (table 1). Our sample was appropriate for our intended comparisons between males and females.

Knowledge and believes of screening policy

A summary of the views of GPs regarding current NCSP recommendations can be found by gender and in total in table 2. The majority of GPs (88.5%) indicated the current NCSP 2 year screening interval was appropriate, with only 4.0% indicating the interval was not frequent enough. In general, female GPs were more likely than male GPs to respond favourably towards the current two-yearly screening interval (92.3% versus 82.7%). Male GPs were more likely than female GPs to indicate screening was too frequent (12.9% versus 4.0%) (p=0.001).

Almost half the GPs (48%) indicated that the current screening age range of 20-69 was appropriate. More than a quarter (27.4%) indicated that the current screening age range should be extended to include younger women. While 4.9% considered

that the age range should be raised to include older women, 16.8% indicated both younger and older ages should be included. Male GPs were more likely to indicate the current screening age range was appropriate (60.3% versus 39.9), whilst female GPs were more likely to indicate expanding the age range to include younger women (32.3% versus 20.1%) or younger and older women (20.5% versus 11.2%) ($p=0.001$).

Factors influencing a decision to recommend Pap test

GPs were asked what factors they considered most and least important when deciding whether to offer a patient a Pap test. The two highest-ranking factors considered most important were; time since last Pap test (29.4%) and false negative rate of the test (22.4%). Factors least important were; patient age (27.3%), patient socio-economic status (25.0%) and cost of the test (11.7%).

The likelihood of offering an opportunistic Pap test in the context of a routine consultation were recorded on an ordinal scale, where 1=very unlikely and 7=very likely (table 3). Female GPs were more likely than male GPs to offer an opportunistic Pap test when the patient is consulting for another medical reason. This difference remained statistically significant after adjusting for personal and practice characteristics (mean score 5.32 versus 4.41, OR=0.41 (0.27 to 0.61), $p<0.001$). Additionally, older GPs were more likely to offer opportunistic Pap testing (adjusted OR=1.57 (1.20 to 2.04) $p=0.001$). Women's age was not a factor (Table 3).

The ease with which GPs perceived they were able to discuss Pap tests with women from different cultural or religious backgrounds also was assessed. Using a 7-point scale, GPs indicated their level of comfort in such circumstances (1=completely

comfortable and 7=not able to talk to women from a different background). Female GPs indicated greater ease than male GPs when discussing Pap test with patient from a different cultural or religious background. This remained statistically significant after adjusting for personal and practice characteristics (mean score 2.06 versus 3.06, OR=3.70 (2.43 to 5.63), $p<0.001$). No differences with respect to the age of GPs were found.

Familiarity with new technology

The majority of GPs (80.7%) had recommended the liquid-based Pap test to their patients while 15.5% had heard of the liquid-based Pap test but never recommended its use and 3.8% had never heard of this test. Female GPs were more likely to have recommended the liquid-based Pap test (90.8% versus 65.4%) and male GPs were less familiar with this test (7.3% versus 1.5%)($p<0.001$).

GPs were asked which type of Pap test they usually recommend. Most (57.1%) recommended the standard Pap test. The liquid-based Pap test was preferred by 14.2% of GPs and 28.7% recommend both equally. There were no differences between male and female GPs, or between GPs of different ages.

Nearly half (45.8%) had heard of the HPV test, but had not requested one, 38.9% recommend the HPV test occasionally and 2.7% do so routinely. The remaining 12.6% of GPs had not heard of the HPV test. Female GPs were more likely than male GPs to 'occasionally test for HPV' (42.1% versus 30.1%) and male GPs more likely to be unaware of the test (20.7% versus 7.3%)($p=0.003$). Age of GP was not associated with responses.

Attitudes to litigation

Attitudes to litigation were expressed by converting the ordinal scale into a score, where 1= not concerned and 7=very concerned. Table 3 shows the mean scores. GPs were more concerned about under-screening than over-screening patients (mean score 3.79 versus 2.37) and more concerned of false negative results than false positive Pap smear (mean score 4.89 versus 2.97). After adjusting for personal and practice characteristics, male GPs were more concerned about over-screening patients (4.02 versus 3.59, OR=1.77 (1.18 to 2.68), $p=0.006$) and under-screening patients (2.73 versus 2.12, OR=1.84 (1.23 to 2.74), $p=0.003$). A marginal, but non-significant difference between male and female GPs was observed in relation to obtaining a false positive Pap test result (3.27 versus 2.77, OR=1.49 (0.99 to 2.25), $p=0.054$), but no differences existed regarding concerns about a false negative test result (4.73 versus 5.00, OR=0.79 (0.53 to 1.18), $p=0.252$). No differences regarding litigation and GP age were identified.

Discussion

In this study, we examined the attitudes of Australian GPs to cervical cancer screening. While recognising that the low response rate produced a sample under-representing certain types of GPs, it is especially valuable for analysis of differences internally between respondents. It is important to commend that the majority of GPs agree with the NCSP 2 year screening interval. This may indicate certain progress by the NCSP to diminish conflicts between organisations about the recommended screening interval²⁵ and discrepancies found in the early stages of the NCSPs creation in which GPs resisted the national guidelines^{13 26}.

GPs indicated that the age of the woman was deemed unimportant when recommending a Pap test. Half the GPs favoured extending the age range of women targeted by the NCSP. This is interesting since high-grade cytological abnormalities are diagnosed in about 1.4% of women screened under the age of 25, however the risk of invasive disease is extremely low³ and the majority of these abnormalities will regress without treatment²⁸. Therefore GPs' willingness to identify abnormalities that generally resolve without treatment may cause unnecessary distress for the patient.

Factors considered most important when initiating a Pap test were the time since the last Pap test and the false negative rate. These illustrate the importance placed by GPs on finding and identifying correctly an abnormality, and reflect the perceived dire consequences of undiagnosed cancer. The cost of the test was unimportant, suggesting economic arguments are not relevant to GPs when they believe women's lives are at stake.

The only previous studies to distinguish between male and female GPs illustrated that female GPs; frequently offer opportunistic screening, are more likely to endorse annual screening, and are more comfortable taking a sexual history^{13 23}. This study also highlighted some notable gender differences. Female GPs were more likely to: support biennial screening; advocate expanding the target age range; be familiar with new technologies; offer opportunistic screening; and be at ease discussing Pap tests with patients from different cultural or religious backgrounds. These findings suggest the greater emphasis of preventive medicine by female GPs, which may reflect their differing experiences. Female GPs are both users and providers of the NSCP service and therefore able to empathise to a greater extent with patients. Female GPs may also be more experienced at performing cervical screening. The fact that female GPs were over-represented in this study supports their greater interest in this area of work. GP practices were targeted to gauge interest in participation; therefore practice

manager may have only approached GPs with special interest in women's health (most likely to be a female GP).

The only difference regarding GP age was the propensity for older GPs to perform opportunistic Pap smears. This may reflect a tendency on the part of younger GPs to adhere more rigidly to the NSCP guidelines as a result of their more recent medical training or a more pragmatic attitude to screening on the part of older, more experienced, GPs.

Less than half of GPs have previously recommended a HPV test. This is not surprising, since a HPV test is generally recommended only for women with a previous high grade abnormality, and only following treatment. A small proportion (12.6%) of GPs had never heard of the HPV test. However, since this study was conducted, the HPV vaccine has been widely reported and listed on the Pharmaceutical Benefits Schedule. Also GPs will be involved in the vaccination of women aged between 17 and 26 years as part of the catch-up program funded by the Australian government.

Only one study has previously addressed medico-legal concerns of GPs performing cervical screening ²⁹. However, this qualitative study focussed only on the management of women with minor abnormalities of the cervix. This study highlights the concerns of GPs toward cervical screening in general. Respondents to this survey were more concerned about under-screening than over-screening, and false negative rather than false positive results. These findings are intuitive and reflect the poor outcome of missing a true case of cervical cancer.

A limitation of this study was the low response rate which may lead to an overestimate of the awareness of the NSCP, since responding GPs may have

greater interest and knowledge in cervical screening. Despite this, these are encouraging results that suggest the NCSP has been successful at disseminating information. Further research could explore the views of GPs, to help understand why more male GPs favour 3 yearly screening and to investigate whether the actual screening behaviour matched their statements.

Future Policy Implications

A significant minority of Australian women continue to under utilise cervical screening. The estimated re-screening rates for Australian women, following a negative test result, are 62% at 24 months, 81% at 60 months and the lifetime screening participation rate is 88%⁶. Therefore a significant minority of women either do not receive a regular biennial test or, more crucially, never receive a Pap test at all. Thus the full potential of the NCSP is not being realised. Some authors question the biennial frequency of Pap smear, recommending a 3 or 5 year screening interval^{6 7 9}. They argue resources released could be targeted at improving the proportion of women screened, especially in least advantaged groups. Canfell⁶ demonstrated that Australia's screening policy is no more effective than the UK, which uses a 3-yearly screening interval. Cost-effectiveness evidence also suggests the appropriateness of a triennial interval³⁰. A recent NHMRC report¹⁰, recommended that the Australian screening interval be reviewed to ensure that NCSP is consistent with international best practice since it is currently more frequent than other developed countries. Finally, the introduction of Gardasil, the human papillomavirus (HPV) vaccine, means that a pragmatic change, due to the cost-effectiveness of the biennial screening, may be unavoidable.

Health policy planners aim to increase the rates of appropriate utilisation, whilst decreasing the rates of inappropriate utilisation. In this regard, the factors which

determine screening utilisation relate not only to women as consumers of health care, but also the service provider, and the accessibility and nature of the service. To this extent, health providers and government agencies are responsible for public awareness campaigns as well as ensuring the availability and quality of screening programme ³¹. For optimal attendance, screening programs should be provider-initiated and user-oriented ³². The findings of this study suggest that GPs favour the current NCSP guidelines. Therefore any future policy changes needs to consider this fact. We suggest that an educational training program targeting GPs would need to accompany any future policy changes. The evidence and justification of the policy will need to be explained fully and may require incentive payments to change behaviour. Physicians knowledge and attitudes are barriers to guideline adherence ³³ and as Turnbull ¹⁵ concluded: “a national screening programme will only be successful if undertaken in general practice and providing family practitioners actively support such a programme”

Conclusion

Implementation of any health program can suffer from diffusion and dilution of the original idea or principle. This study highlights that in the main the NCSP is well supported by GPs. However, there are differences in the knowledge and views of male and female GPs. This information is essential if we are to optimise the effectiveness of GPs as providers of cervical screening, improve the rate of appropriate utilisation and successfully implement any future changes to the national screening guidelines.

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Table 1: Characteristics of General Practitioners in the study compared with the Australian Institute of Health and Welfare statistics ²⁷.

Characteristic	Study Population		Australia	
	n=452	(%)	n=22011	(%)
Sex				
Male	179	(40)	13971	(63)
Female	273	(60)	8040	(37)
Age				
<30	(<35) ^a	40 (9)	2298	(10)
31-40	(35-44) ^a	152 (34)	6038	(27)
41-50	(45-54) ^a	150 (33)	7264	(33)
51-60	(55-64) ^a	83 (18)	4216	(19)
>61	(>65) ^a	27 (6)	2195	(10)
Number of Practitioners				
1		52 (12)	3457	(17)
2		50 (11)	2611	(13)
3 – 5 ^b		167 (37)		
>5		179 (40)	14445	(70)
Hours worked per week ^c				
>20		105 (23)	-	
21-40		222 (49)	-	
>40		125 (28)	-	
Position				
Practice Partner		152 (34)	-	
Salaried		300 (66)	-	
Practice Incentive Program for cervical cancer				
Yes		309 (68)	-	
No		63 (14)	-	
Don't know		80 (18)	-	

NSW = New South Wales.

^a Age ranges defined by the Australian Institute of Health and Welfare statistics

^b Figures for NSW and Aus are practices with 3 partners or more.

^c Hours worked per week excluding on-call work.

Table 2. GP views about current screening recommendations and familiarity with new technologies.

	All sample		Male GPs		Female GPs		Comparison between male and female GPs			
	n=452	%	n=179	%	n=273	%	Unadjusted odds ratio	Adjusted* odds ratio*	95% CI*	P*
Views about NCSP recommendations										
2 year screening interval										
About right	400	88.5	148	82.7	252	92.3				
Not frequent enough	18	4.0	8	4.5	10	3.7	1.36	0.82	0.25 to 2.76	
Too frequent	34	7.5	23	12.9	11	4.0	3.56	5.49	2.21 to 13.68	0.001
Age range										
20-69 about right	217	48.0	108	60.3	109	39.9				
Include women aged > 69	22	4.9	8	4.5	14	5.1	0.58	0.47	0.15 to 1.50	
Include women aged < 20	124	27.4	36	20.1	88	32.2	0.41	0.44	0.25 to 0.76	
Include women >69 & <20	76	16.8	20	11.2	56	20.5	0.36	0.27	0.13 to 0.54	
20-69 is too great	13	2.9	7	3.9	6	2.2	1.18	1.12	0.28 to 4.39	0.001
Familiarity with new technology										
Knowledge of liquid-based Pap test										
Heard of it and recommended it	365	80.7	117	65.4	248	90.8				
Heard of it, but never recommended it	70	15.5	49	27.3	21	7.7	4.95	8.02	4.01 to 16.06	
Never heard of liquid-based Pap test	17	3.8	13	7.3	4	1.5	6.89	8.74	2.25 to 33.98	<0.001
Liquid Pap test v standard Pap test										
Mostly recommend liquid Pap test	64	14.2	24	13.4	40	14.7				
Mostly recommend standard Pap test	258	57.1	110	61.4	148	54.2	1.24	1.64	0.82 to 3.27	
Recommend both equally	130	28.7	45	25.1	85	31.1	0.88	1.06	0.50 to 2.24	0.155
Familiarity of HPV test										
Never heard of HPV test	57	12.6	37	20.7	20	7.3				
Heard of it, but never ordered HPV test	207	45.8	74	41.3	133	48.7	0.30	0.35	0.17 to 0.73	
Occasionally order HPV test	17	38.9	61	30.1	115	42.1	0.29	0.24	0.11 to 0.53	
Routinely order HPV test	12	2.7	7	3.9	5	1.8	0.76	0.52	0.11 to 2.49	0.003

* Logistic regression adjusted for age, years practiced, work status, working hours and taking into account the practice size and whether it is involve in the Practice Incentive Program for cervical screening.

Table 3. The importance of various factors when consulting with a patient, divided into male and female GPs and age groups.

	Total n=452	Gender		P****	Age Groups					P****
		Male n=179	Female n=273		<30 n=40	31-40 n=152	41-50 n=150	51-60 n=83	61+ n=27	
Level of concern of litigation *										
Under-screening for cervical cancer	3.76	4.02	3.59	0.003	3.46	3.73	3.81	3.55	4.67	0.194
Over-screening for cervical cancer	2.37	2.73	2.12	0.006	2.75	2.15	2.26	2.55	2.18	0.184
False positive Pap test result	2.97	3.27	2.77	0.054	3.40	2.97	2.69	2.89	4.11	0.799
False negative Pap test result	4.89	4.73	5.00	0.252	4.65	5.00	5.03	4.53	4.96	0.533
Opportunistic Pap test **										
Likelihood of offering Pap test if consultation for another reason	4.96	4.41	5.32	<0.001	4.68	4.89	5.01	5.11	5.04	0.001
Cultural and Religious background ***										
Ease of discussing Pap test with patient from different cultural or religious background	2.46	3.06	2.06	<0.001	2.70	2.53	2.29	2.63	2.19	0.377

* Mean score on a scale from 1=not concerned at all to 7=very concerned

** Mean score on a scale from 1=very unlikely to 7=very likely

*** Mean score on a scale from 1=completely comfortable to 7=not able to talk to women from a different background.

**** Relationship between importance of topic and gender (or age) of GP. Ordinal logistic regression adjusted for age (or sex), years practiced, work status, working hours and taking into account the practice size and whether it is involve in the Practice Incentive Program for cervical screening.