Australian National Cervical Screening Program Renewal: attitudes and experiences of General Practitioners, and Obstetricians and Gynaecologists

Running Title: Clinician's views of Cervical Screening Changes

Authors

Helena M OBERMAIR^{1,2}, Kirsty BENNETT.³, Julia ML BROTHERTON^{4,5}, Megan A SMITH^{1,6}, Kirsten J MCCAFFERY¹, Rachael H DODD¹

- 1 School of Public Health, University of Sydney, NSW
- 2 Department of Obstetrics & Gynaecology, Royal North Shore Hospital, Sydney, NSW
- 3 Institute of Epidemiology and Health Care, University College London, UK
- 4 VCS Foundation, Melbourne, Victoria
- 5 School of Population and Global Health, University of Melbourne, Victoria
- 6 Cancer Research Division, Cancer Council NSW, Sydney NSW

Position title for each author

Dr Helena Obermair – Obstetrics and Gynaecology Registrar Ms Kirsty Bennett – PhD Student Associate Professor Julia Brotherton – Medical Director VCS Population Health Dr Megan Smith – Senior Research Fellow Professor Kirsten McCaffery – Director of Research, School of Public Health Dr Rachael Dodd – Research Fellow

Email address for each author

Helena Obermair: <u>helena.obermair@health.nsw.gov.au</u> Kirsty Bennett: <u>kirsty.bennett.10@ucl.ac.uk</u> Julia Brotherton: <u>jbrother@vcs.org.au</u> Megan Smith: <u>Megan.Smith@nswcc.org.au</u> Kirsten McCaffery: <u>kirsten.mccaffery@sydney.edu.au</u> Rachael Dodd: <u>rachael.dodd@sydney.edu.au</u>

Corresponding Author:

Dr Helena Obermair

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Department of Obstetrics & Gynaecology

Royal North Shore Hospital

Herbert Street, St Leonards NSW 2065

helena.obermair@health.nsw.gov.au

Contact number: 0422609560

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Author

DR. HELENA OBERMAIR (Orcid ID : 0000-0002-0217-6574)

DR. RACHAEL HELEN DODD (Orcid ID : 0000-0002-8080-6359)

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ABSTRACT

Background

In 2017, the Australian National Cervical Screening Program (NCSP) implemented five-yearly primary human papillomavirus (HPV) screening for women aged 25-74. It is important that clinicians are able to explain the NCSP changes to women and confidently address concerns.

Aims

This study examined Australian clinicians' attitudes towards and experiences of the NCSP renewal since its implementation.

Materials and Methods

Cross-sectional survey of clinicians (General Practitioners, Obstetricians and Gynaecologists) involved in cervical screening, distributed two years after implementation of the renewed NCSP. Responses were analysed using descriptive statistics and thematic analysis.

Results

607 participants completed the survey. More than 80% of clinicians were comfortable with the main NCSP changes: extended screening intervals, increased age of first screening, and screening test used. However, only 47% of clinicians reported having utilised the National Cancer Screening Register, and a third of clinicians did not believe that self-collection was a reasonable alternative to practitioner-collected screening for under-screened women. Increased demands for colposcopy were reported. All clinicians identified at least one area of educational need, including the management of women with a history of screen-detected abnormalities in the previous program (34.9%), post-colposcopy management for women with no abnormalities detected (25.5%), and screening in complex scenarios (e.g. immunocompromise) (26.5%).

Conclusions

Overall, Australian clinicians are comfortable with the main changes to the cervical screening program. Certain areas may require further policy review, such as screening in complex clinical scenarios, colposcopy availability, accessibility of the

Register and self-collection. These issues could be meaningful for other countries switching to HPV-based screening.



In December 2017, Australia's National Cervical Screening Program (NCSP) underwent a "Renewal", with five-yearly primary human papillomavirus (HPV) screening for women aged 25-74 replacing two-yearly cytology-based screening for women aged 18-69.¹ The success of the National HPV Vaccination Program, and evidence that HPV testing has better sensitivity, providing longer-term protection against cervical cancer and further reducing its incidence and mortailty,^{2, 3} contributed to the decision to change .^{4, 5} The effectiveness of the renewed program depends upon its successful implementation including its acceptability to, and adoption by, clinicians.

Previous research has demonstrated that women may be concerned about the extended screening interval and later starting age.⁶⁻⁹ Healthcare provider endorsement increases patients' acceptance of screening program changes,^{10, 11} emphasising the importance of clinicians being able and willing to explain the changes to women and respond confidently to their concerns.

Prior to implementation of the renewed program, a survey of 956 Australian clinicians found that many were concerned about delaying the onset of screening to age 25, and that cervical cancers would be missed.¹² Since implementation, findings suggest that Australian clinicians have become more comfortable with the changes.¹³ Internationally, studies in the United States¹⁴ and Italy¹⁵ suggest that some clinicians do not adhere to changes in cervical screening guidelines (particularly regarding the screening interval), and that some feel unprepared to explain the implications of HPV testing to women.

A previous qualitative study has demonstrated that while most Australian clinicians had positive attitudes towards the changes to the NCSP, many clinicians faced challenges in implementation.¹⁶ This current study used a mixed-methods approach to examine the attitudes and experiences of Australian General Practitioners ('GPs')

and Obstetricians and Gynaecologists ('O&Gs') since implementation of the renewed NCSP.

MATERIALS & METHODS

Participants and Recruitment

The study recruited Australian clinicians involved in cervical screening and treating women with cervical abnormalities (e.g. GPs, O&Gs). Primary recruitment was through the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) mailing list and advertisements in RANZCOG and Primary Health Network newsletters. Other clinicians on hospital O&G department mailing lists (approximately 50 people) were invited by email. Data were collected from September 2019 to February 2020. The study was approved by The University of Sydney Human Ethics Committee (2019/691).

Procedure

Participants were directed to a web-link to access the participant information sheet and provide online consent to participate before completing an online survey.

Measures

Survey items were adapted from previous work on clinician attitudes and acceptance of the renewed program prior to its implementation.¹² The survey was revised through discussions with key stakeholders, including the Commonwealth Department of Health, and members of the NHMRC Centre for Research Excellence in Cervical Cancer Control. The surveys differed slightly between GPs and O&Gs to reflect their differing scopes of practice.

Participants were asked about their education and information sources for the renewed guidelines, comfort and confidence in aspects of the renewed program, self-collection, colposcopy and the newly created National Cancer Screening Register (the Register). Most questions were answered on a 5-point Likert scale (e.g. strongly agree to strongly disagree), with some free-text responses including a final question seeking thoughts about the program.

Analysis

Analyses were carried out using SPSS v24. Descriptive statistics summarised sample characteristics of, and the proportion and percentage of clinicians endorsing each item, overall and by job role. Respondents were categorised into one of two job roles for the analyses: (1) O&Gs (including specialist O&Gs and O&G registrars) and (2) GPs (including specialist GPs and GP registrars). For categorical variables chi-square and Fishers exact tests were used, and for continuous variables t-tests and ANOVA were used to compare groups. Thematic analysis, which extracts patterns or themes within a dataset, by organising, describing and interpreting the content,¹⁷ was used to analyse free-text.

RESULTS

Participant characteristics

Six hundred and forty-eight clinicians responded to the survey. Participants unaware of changes to the screening program (n=3), who didn't complete the survey (n=6) or those who were not O&Gs or GPs (n=32) were excluded, leaving 607 participants. Participants were O&Gs (n=324/607, 53.4%) or GPs (n=283/607, 46.6%) (Table 1). Almost 31% were registrars (12% of GPs and 18.8% of O&Gs). 44.6% of GPs reported a broad spectrum of practice and 50.2% had a special interest in women's health (e.g. GP obstetrician). The main area of practice for O&Gs was general obstetrics and/or gynaecology (87.5%) with the remaining respondents working in O&G sub-specialities. The majority of GPs (59.9%) and O&Gs (61.2%) had over 10 years' experience in their speciality, with the registrars having varied years of experience in their training. Participants were predominantly female (72.8%) and practised in urban areas (98.0%).

>Table 1 here<

Attitudes and Education of clinicians

Clinicians were comfortable with the main changes: screening HPV-negative women every 5 years ('extremely comfortable': GPs 88%, O&Gs 82%), screening only for HPV ('extremely comfortable': GPs 75%, O&Gs 61%; 'slightly' comfortable: GPs 17%, O&Gs 22%), and only offering routine screening to women 25 years and over ('extremely comfortable': GPs 89%, O&Gs 82%). GPs were somewhat less comfortable with other aspects, such as when to refer for colposcopy (56% 'extremely' and 14% 'slightly' comfortable not referring HPV non-16/18 women with low grade/negative cytology for colposcopy); and management of HPV positive

women after negative colposcopy (43% 'extremely' and 35% 'slightly' comfortable) (Supplementary material). Over 20% of clinicians wanted more education in screening/management after previous cervical abnormalities; management of HPV positive women following negative colposcopy, and best management of more complex patients such as pregnant and immunocompromised women (Table 2). Clinicians also reported uncertainty regarding management of older women with persistent HPV positivity, negative cytology and a Type 3 transformation zone (where the upper limit of the transformation zone cannot be seen in the cervical canal) on colposcopy:

"Management of older women with a normal Pap smear history who are found to be 'positive' on a CST, particularly HPV16/18+ but normal cytology is particularly problematic as...their colposcopy can be more difficult due to a type 3 TZ."(O&G, NSW)

>Table 2 here<

Of 13 elements clinicians might like more education or resources about (Table 2), on average they chose 2.77 (range 1-13). GPs identified a greater number of elements than O&Gs (mean 2.99 vs. 2.54, t(507)=2.63, p=0.009). Most clinicians knew where to find the NCSP clinical guidelines (92.9% GPs, n=263/283; 94.4% O&Gs, = 305/324) and <1% reported having no education about the renewed NCSP. The most commonly used education resource was the NCSP Information Pack (80.6% GPs, 75.9% O&Gs).

Clinicians as educators

98% of GPs felt confident educating their patients about the reasons behind the NCSP renewal (Supplementary material). Clinicians felt confident explaining the basic aspects of the program to women; association between HPV and cervical cancer (98.6%), why more frequent screening is no longer recommended (95.3%), and what an HPV 16/18 positive test means to a woman (96.7%) (Supplementary material). Despite this, many O&Gs (60.6%) felt that patients were not adequately informed prior to being referred to their care, and over half (54.9%) reported that explanations of cervical screening results and follow-up care were 'somewhat' or 'significantly' harder under the renewed NCSP (Supplementary material). O&Gs reported that additional public education about HPV was required, particularly for younger and older women, due to patient concerns about HPV positivity:

"I spend a significant amount of time having to explain the nature of HPV to them again. The public education regarding the changes to the screening program [was] virtually non-existent". (O&G, QLD)

70% of O&Gs (n=225/324) and 80% of GPs (n=226/283) felt they had adequate resources to educate patients.

Self-collection

Almost two-thirds of clinicians believed that self-collection is a reasonable alternative to practitioner-collected screening for under-screened women (GPs 65%; O&Gs 65%) (Table 3). Although most clinicians were comfortable discussing self-collection with under-screened women who declined practitioner-collected sampling (GPs 77.9%; O&G 68.6), many were not comfortable with having to wait another 7 years until a woman was overdue before offering screening with self-collection again ('extremely' or 'slightly' comfortable: GPs 29.3%; O&Gs 28.3%). Clinicians advocated for broader eligibility criteria for self-collection:

"Would be nice to be able to offer self-collect to all patients, rather than just unscreened >7 years." (GP, Victoria)

>Table 3 here<

National Cancer Screening Register

Around half of O&Gs (44.1%, n=142/322) and GPs (51.1%, n=143/280) reported having used the Register to gain information about their patients (Table 4). Over 80% of O&Gs and GPs reported trusting the provider of the Register with patient's health information. Around half knew how to obtain information about their patients from the Register (GPs 55.7%; O&Gs 54%). Only 36% of GPs and 32.7% of O&Gs who had used the Register reported being able to get information in a timely and accurate way, and free-text responses revealed issues with the waiting time and wanting online access to the Register:

"I would like to be able to access registry data more quickly than has been my experience, preferably online". (O&G, QLD)

>Table 4 here<

Colposcopy

Most O&Gs respondents practised colposcopy; 72% 'frequently' (n=232/321), 19% 'occasionally' (n=61/321). Two-thirds of colposcopists (66.9%, n=196/293) reported a large increase in colposcopy referrals. 54.4% (n=160/294) of respondents felt demands were still being met and providers were adhering to recommended timeframes. Free-text responses raised concerns about the administrative burden of colposcopy reporting forms, advocated for mandatory accreditation to maintain colposcopy standards and described concerns about managing high volumes of patients:

"The number of people we have to see back in colposcopy at 1 year for persistent HPV is blowing out and new guidelines are going to be needed to maintain our ability to meet requirements". (O&G, QLD)

DISCUSSION

This study provides insights into the attitudes, experiences, and challenges clinicians have faced since the implementation of the renewed NCSP. These findings demonstrate that many Australian clinicians are comfortable and confident with implementing and explaining the main aspects of the renewed NCSP. Challenges identified included under-utilisation of the Register, restrictive criteria for self-collection, and increased demands for colposcopy services. The ability of clinicians to confidently explore women's concerns and explain the screening changes will be key for the continued success of the NCSP, given the known concerns by screening-eligible women about the changes.^{7, 9}

Before implementation, research reported that only 40-60% of clinicians found the main program changes acceptable.¹² Our study demonstrates increasing acceptance of the new guidelines, consistent with another recent survey of clinicians pre- and post-renewal which found that comfort in implementing the renewed program increased throughout the implementation period.¹³ However, most O&Gs reported that their patients had low levels of understanding and required a longer time to educate patients during consultations. A public education campaign may therefore be warranted, although the public's level of understanding is likely to improve over time. Our study also highlights scope to potentially improve access to patient resources, with 30% of O&Gs and 20% of GPs reporting not having access to patient educational materials. In addition, some key gaps were identified in clinician knowledge around transitioning women diagnosed with abnormalities under the previous program, management of HPV positive women following negative

colposcopy, and screening in more complex patient groups. These complex issues require further investigation about whether clinicians would benefit from further education or resources in these areas, or possibly incentives to engage with existing educational strategies.

Self-collection for under-screened and never-screened women was a new component of the renewed NCSP and is a particularly important option for Aboriginal and Torres Strait Islander women, women from culturally and linguistically diverse and of lower socioeconomic backgrounds who may face significant barriers to practitioner-collected screening.^{18, 19} Over half of clinicians believed that self-collection is a reasonable alternative to practitioner-collected samples in under-screened women, and many advocated for expanded eligibility criteria for self-collection. However, if the NCSP is considering expanding the use of self-collection, it should first consider that almost 40% of clinicians surveyed did not believe that self-collection was a reasonable alternative, suggesting targeted education addressing such concerns is needed. Low clinician confidence in self-collection may have been influenced by delays in its implementation and confusion regarding its availability.²⁰ There has been ongoing policy review in this area, including the addition of self-collection options in pregnant women.¹

Although the Register is a major component of the renewed NCSP, our study shows under-use by clinicians. Almost half of survey respondents did not know how to obtain information from the Register, demonstrating a need for further education or easier access. Previous research similarly found that only 40% of clinicians understood how to obtain information about their patients from the Register after its implementation.¹³ Increasing use of the Register will be critical to reduce overscreening and over-treatment. Lacking a patients' complete screening history may lead providers to perform more screening tests than necessary, with patients incurring more costs as screening outside the guidelines is not reimbursed. Many clinicians suggested online access to the Register would improve user-friendliness and accessibility.

This study used a mixed-methods approach to gain a perspective about a broad spectrum of care in cervical screening, from initial discussions of preventative health by GPs to the treatment of cervical abnormalities by O&Gs. Due to the recruitment methods used, it was not possible to calculate the response rate and subsequent representativeness of the sample. Only a small proportion of the registered O&Gs (1900)²¹ and GPs (36 000)²² in Australia were surveyed, meaning the surveys may

not be representative; clinicians who responded to the survey may be more engaged with and educated about the NCSP changes than non-responders. While the distribution of clinicians by age was approximately representative and we surveyed clinicians from all states and territories in Australia, our sample includes an over-representation of female doctors compared to current workforce data, both for O&Gs (61% vs. 45%²¹) and GPs (86% vs. 46%²²), and an over-representation of practitioners working in urban areas, both for O&Gs (99.7% vs. 82%²¹) and GPs (98.2% vs. 74%²²).

This study adds to the literature investigating the attitudes of clinicians towards the Australian cervical screening renewal ^{13, 23, 24}. In comparison to the study by Dodd et al ²⁵, this study uses a quantitative approach to demonstrate the validity of these conclusions in a larger sample. In comparison to the studies by Sultana et al ¹³ and Sweeney et al²⁴, this study also includes greater numbers of O&Gs, which allowed issues such as colposcopy to be investigated in greater detail.

Clinicians play an important advocacy role in women's health, and it is essential that they are adequately prepared to discuss the NCSP changes with their patients. These findings demonstrate that most clinicians accept the main NCSP changes and feel adequately prepared to explain them to their patients. However, there are certain elements of the NCSP renewal that may require ongoing policy review and provide important lessons that could be meaningful for other countries considering changes to their cervical screening programs.

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Table 1: Demographic characteristics of participants

	Total sample	GPs	O&Gs
	(n=607)	(n=283)	(n=324)
	n (%)	n (%)	n (%)
Role			
General Practitioners	283 (46.6)		
Obstetrics & Gynaecologists	324 (53.4)		
What is your main area of practice?			
GPs (n=249) ¹			
General GP		111 (44.6)	
Role in general practice with a women's		125 (50.2)	
health focus			
'Other' area within General Practice		9 (3.6)	
Missing		4 (1.6)	
O&Gs (n=263)			
General Obstetrics and/or Gynaecology			230 (87.5)
Obstetrics and Gynaecology sub-specialty ²			29 (11.0)
Missing			4 (1.5)
Age (mean years)	46.76	45.07	48.24
Years of practice as specialist (years)			
Less than 1 year		17 (6.9)	9 (3.5)
1 to 5 years		54 (21.9)	47 (18.1)
5 to 10 years		28 (11.3)	45 (17.3)
10 to 20 years		61 (24.7)	60 (23.1)
More than 20 years		87 (35.2)	99 (38.1)
Years of speciality training (GP registrars)			
1 year or less		13 (39.4)	
2 years		8 (24.2)	
More than 2 years		12 (36.4)	
Missing		1 (2.9)	
Years of speciality training (O&G			
registrars)			
1 year or less			15 (24.6)
2 to 3 years			16 (26.2)
4 years or more			29 (47.5)
Missing			1 (1.6)
Gender			
Male	164 (27.0)	40 (14.1)	124 (38.3)

Female	442 (72.8)	243 (85.9)	199 (61.4)
Other	1 (0.2)	0 (0)	1 (0.3)
State of practice			
New South Wales	191 (31.5)	79 (27.9)	112 (34.6)
Victoria	152 (25.0)	89 (31.4)	63 (19.6)
Queensland	109 (18.0)	37 (13.1)	72 (22.2)
South Australia	52 (8.6)	26 (9.2)	26 (8.0)
Australian Capital Territory	8 (1.3)	2 (0.7)	6 (1.9)
Western Australia	62 (10.2)	29 (10.2)	33 (10.2)
Tasmania	21 (3.5)	11 (3.9)	10 (3.1)
Northern Territory	12 (2.0)	10 (3.5)	2 (0.6)
Practice setting			
Rural	6 (1.0)	5 (1.8)	1 (0.3)
Urban	595 (98.0)	276 (98.2)	319 (99.7)
Missing	6 (1.0)		

¹The remaining GP respondents were GP Registrars. who were not asked about area of practice

²Includes gynaecology oncology, maternal-foetal medicine, reproductive endocrinology and fertility and urogynaecology and obstetric and gynaecological ultrasound.

Author Mar

Table 2: Changes to screening program and information needs

	All	GPs	O&Gs
	respondents		
	(n=607)	(n=283)	(n=324)
	n (%)	n (%)	n (%)
How did you educate yourself about the renewed National Cervical Screening Program? ²			
National Cervical Screening Program Information Pack	474 (78.1)	228 (80.6)	246 (75.9)
Cervical Screening Program Guidelines, hosted on Cancer Council Wiki platform ¹	249 (41.0)	65 (23.0)	184 (56.8)
NPS MedicineWise online module ²⁶	93 (15.3)	77 (27.2)	16 (4.9)
Pathology Lab Education pack	161 (26.5)	93 (32.9)	68 (21.0)
Education session at a conference	304 (50.1)	108 (38.2)	196 (60.5)
Education session at your hospital/practice	186 (30.6)	82 (29.0)	104 (32.1)
Education session related to clinical research	15 (2.5)	6 (2.1)	9 (2.8)
Education provided by Specialist college i.e. RANZCOG	154 (25.4)	36 (12.7)	118 (36.4)
Cancer Council Australia	135 (22.2)	62 (21.9)	73 (22.5)
National Cancer Screening Register Quick Start Guide ²⁷	86 (14.2)	41 (14.5)	45 (13.9)
National Cancer Screening Program Quick Reference Guide ²⁸	174 (28.7)	91 (32.2)	83 (25.6)
Victorian Cytology Service Renewal Cervical Screening Resources	88 (14.5)	56 (19.8)	32 (9.9)
No education received	3 (0.5)	1 (0.4)	2 (0.6)
Other	49 (8.1)	21 (7.4)	28 (8.6)
Are there any particular elements of the changes to the National Cervical Screening Program that			
would like more education or resources about? ²			
Transition guidelines i.e. screening pathways in those with previous history of cervical abnormalities	212 (34.9)	124 (43.8)	88 (27.2)
How to approach screening and management of high-risk groups e.g. immunocompromised patients, early	161 (26.5)	87 (30.7)	74 (22.8)
age of sexual activity			
How to manage women who are HPV positive and colposcopy negative	155 (25.5)	47 (16.6)	108 (33.1)
Self-collection	146 (24.1)	79 (27.9)	67 (20.7)

How to manage HPV-positive pregnant women	120 (19.8)	80 (28.3)	40 (12.3)
When to order a co-test rather than CST	111 (18.3)	59 (20.8)	52 (16.0)
How to explain HPV infection and its relation to disease to patients	96 (15.8)	47 (16.6)	49 (15.1)
The rationale for not referring those who are HPV positive (non 16/18) with LSIL cytology for colposcopy	92 (15.2)	55 (19.4)	37 (11.4)
Testing and management of symptomatic women	70 (11.5)	48 (17.0)	22 (6.8)
Interpreting the screening algorithm	64 (10.5)	18 (6.4)	46 (14.2)
The rationale for not repeating an HPV test at colposcopy	63 (10.4)	35 (12.4)	28 (8.6)
How to educate patients about the changes e.g. rationale for raising the starting age, later age for exit testing	57 (9.4)	24 (8.5)	33 (10.2)
The National Cervical Screening Register	55 (9.1)	23 (8.1)	32 (9.9)
Other	137 (22.6)	54 (19.1)	83 (25.6)

¹Number and percentage of participants responding 'yes'.

²Participants were asked to choose as many as applied.

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Table 3: Self-collection

	All respondents	GPs	O&Gs
	(%)	n (%)	n (%)
Do you believe self-collection is a reasonable alternative to practitioner-collected HPV screening for	391 (64.4)	182 (65.0)	209 (65.0)
under-screened women ¹			
How comfortable are you with²			
Discussing self-collection with an under-screened woman who refuses a practitioner-screened	439 (72.3)	218 (77.9)	221 (68.6)
cervical sample?			
Having to wait until the woman is overdue again (7 years since previous HPV screen) before	173 (28.5)	82 (29.3)	91 (28.3)
offering routine screening with self-collection again?			
Explaining to a woman who is not eligible for self-collection why this is not the case?	319 (52.6)	158 (56.4)	161 (50.0)
¹ Number and percentage of participants responding 'probably' or 'definitely' yes			

²Number responding 'extremely' or 'slightly' comfortable

Table 4: National Cancer Screening Register

	All	GPs	O&Gs
—	respondents		
	(n=607)	(n=283)	(n=324)
	n (%)	n (%)	n (%)
I know how I will obtain information about my patients from the National Cancer	330 (54.4)	156 (55.7)	174 (54.0)
Screening Register ¹			
I trust the provider of the National Cancer Screening Register with my patient's health	499 (82.2)	226 (80.7)	273 (84.8)

inf	orr	not	tion	
		IIa	lion	

I have had interactions with the National Cancer Screening Register about my patients1	285 (47.0)	143 (51.1)	142 (44.1)
I have been able to get the information you needed in a timely and accurate way ¹	208 (34.3)	102 (71.8)	106 (74.6)

¹Number and percentage of participants responding 'yes'.