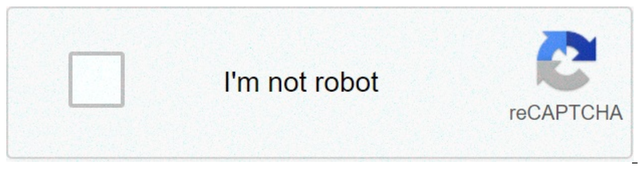


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# Cervical screening australia guidelines

Open Access Peer-reviewed The National Cervical Screening Program (NCSP) in Australia underwent major changes on December 1st, 2017. The program changed from 2-yearly Pap testing for women aged 18–69 years to 5-yearly HPV testing for women aged 25–74 years including differential management pathways for oncogenic HPV 16/18 positive versus HPV non16/18 positive test results and the option of self-collection for under-screened women. We conducted a survey among cervical screening providers in primary care to assess their level of preparedness in undertaking cervical screening before (pre-renewal) and after (post-renewal) the new program was implemented. Surveys were conducted between 14th August and 30th November 2017 (pre-renewal) and 9th February and 26th October 2018 (post-renewal) among cervical screening providers who attended education sessions related to the new guidelines. Preparedness was assessed in three areas: 1) level of comfort implementing the new guidelines (7 questions), 2) level of confidence in their ability to convey information about the new guidelines (9 questions) and 3) level of agreement regarding access to resources to support implementation (11 questions). Proportions were calculated for each question response and pre- and post-renewal periods compared using generalised linear models. Open-ended questions related to anticipated barriers and ways to overcome barriers were also included in the questionnaires. Compared to the pre-renewal period, a higher proportion of practitioners in the post-renewal period were more comfortable offering routine screening to women ≥25 years (p = 0.005) and more confident explaining the rationale for not screening before 25 years (p = 0.015); confident explaining a positive HPV 16/18 (p = 0.04) and HPV non 16/18(p = 0.013) test result and were comfortable with not referring women with a positive HPV non 16/18 test result and low grade/negative cytology for colposcopy (p = 0.01). A higher proportion of Victorian practitioners in the post-renewal period sample were also comfortable (p = 0.04) and confident (p = 0.015) recommending self-collection to under-screened women and agreed that self-collection is a reliable test (p = 0.003). The most commonly reported suggestion was to provide information, education and communication materials to both patients and practitioners. Compared to the pre-renewal period, practitioners in the post-renewal period were better prepared to implement the renewed screening program. Healthcare providers require further support to implement the self-collection pathway. Citation: Sultana F, Roeske L, Malloy MJ, McDermott TL, Saville M, Brotherton JML (2020) Implementation of Australia's renewed cervical screening program: Preparedness of general practitioners and nurses. PLoS ONE 15(1): e0228042. Erin Bowles, Kaiser Permanente Washington Health Research Institute, UNITED STATESReceived: September 3, 2019; Accepted: January 6, 2020; Published: January 29, 2020Copyright: © 2020 Sultana et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.Data Availability: Source data files cannot be shared publicly per ethics approval conditions because data are potentially reidentifiable. Data can be requested through the Bellberry Ethics Committee (contact at bellberry@bellberry.com.au), who will require data to be handled appropriately, in consultation with the authors.Funding: The authors received no specific funding for this work.Competing interests: JMLB and MS are chief investigators of the NHMRC Centre for Research Excellence in Cervical Cancer Control (APP1135172) from which FS (formerly) & TLM receives salary support. JMLB, MS and LR are investigators of a trial of primary HPV screening in Australia (Compass) that has received a part funding contribution from Roche Molecular Systems, Ventana Inc. USA. This does not alter our adherence to PLOS ONE policies on sharing data and materials. The National Cervical Screening Program (NCSP) in Australia has resulted in a halving of cervical cancer incidence and mortality since it began in 1991 [1]. However, the emerging body of international evidence on the efficacy of primary HPV screening, as well as high coverage with HPV vaccination in Australia, prompted a structured critical examination of the NCSP in Australia known as the "Renewal" process. Based on the findings of this detailed evidence review and extensive modelling, in April 2014, it was recommended that Australia replace its 2-yearly cytology based screening program with 5-yearly primary HPV screening including partial genotyping for HPV 16/18 and direct referral of women test positive for HPV16/18 to colposcopy [2]. The renewed program is expected to further reduce incidence and mortality from cervical cancer by another 20–30% [3, 4]. Major changes to the program are detailed in Table 1. A new self-collection pathway for never- and under-screened women who decline clinician-sampling has been made available in the new program [2]. Effective implementation of this new self-collection pathway could make a critical difference for equity in the program. The renewed NCSP commenced on 1st December 2017, although without a fully functional national register or availability of a laboratory authorised to test self-collected samples. A single authorised laboratory based in Victoria (VCS Pathology) began testing specimens in January 2018. General practice is the frontline for inviting and engaging women to participate in cervical screening. Data suggest that in 2015–2016 about 1.6 per 100 encounters in general practice were for a Pap smear [5] and the 5 yearly participation rate in the period 2012–2016 was estimated at 81.9% [1]. Despite this generally high level of engagement with the program, some women remain unscreened and are more likely to be diagnosed with cervical cancer [6]. Notably women resident in lower socioeconomic areas, Aboriginal and Torres Strait Islander women, and women from cultural and linguistically diverse backgrounds have lower screening participation due to a range of barriers, which can be structural, cultural or personal [7, 8]. In the new program, general practitioners (GPs) and other cervical screening providers continue to play a crucial role by explaining the changes to the cervical screening program to women, collecting liquid based cervical samples, facilitating self-collection (for eligible women), and managing patients according to the renewed follow-up and referral pathways. Transition is a challenging period for what has been a very successful program [1]. Failure at the health services level to effectively adapt to the changes, and to successfully support and engage with the new program, could mean that projected improvements in equity of access and outcomes, and in further reducing the cervical cancer burden, may not be achieved. In this study, we opportunistically collected information from general practitioners and nurses as a part of the Royal Australian College of General Practitioners (RACGP) accredited education activities in the lead up to Renewal (pre-renewal period) and thereafter (post-renewal period) in order to determine how prepared practitioners felt to undertake cervical screening under the new guidelines, and as quality improvement information for our training sessions. Alongside such educational workshops, other education for GPs about the renewed program was provided by government under contract by the National Prescribing Service and all general practitioners received a mailed out kit of information materials about the new program developed by government in the month immediately prior to Renewal (November 2017)(see website for these materials: . We aimed to identify any emerging issues that could compromise effective delivery of the Program, so that resources, training and systems changes could be developed and implemented appropriately and in a timely way. Two surveys were conducted, one before (pre-renewal) and one after the renewed program was implemented on December 1, 2017 (post-renewal). The pre-renewal survey was conducted between 14th August 2017 and 30th November 2017 and the post-renewal survey between 9th February 2018 and 26th October 2018. General Practitioners (GPs) and nurse cervical screening providers in general practices, sexual health clinics and community clinics who had enrolled in and attended education sessions related to the new cervical screening program and who completed a pre-education survey as part of that education were eligible for this study. The surveys were incorporated as routine baseline pre-education activities, and a component of medical education organised by VCS Foundation in accordance with RACGP QI&CPD accreditation requirements, delivered in an identical manner at sessions for educational purposes in the pre and post renewal periods. It is usual practice to survey all participants about their baseline knowledge and reflections about their current practice, including what areas they would like assistance with prior to the delivery of medical education and training. VCS Foundation is an accredited Royal Australian College of General Practitioners (RACGP) Education Activity Provider and VCS Liaison Physicians provided dedicated education sessions on the new cervical screening program to practitioners attending conferences (GP17 in Sydney, NSW, GP18 on the Gold Coast, Queensland, and RMA18 in Darwin, NT) or at their practice when enrolling their practice in the Compass trial or requesting an update of the new cervical screening program in Victoria or South Australia. The Compass trial is a randomised controlled trial comparing 2.5 yearly cytology based cervical screening with 5-yearly primary HPV screening in Australia. The trial is being conducted by the VCS Foundation in collaboration with the Cancer Council New South Wales. The main trial has been ongoing in Victoria since 2015 with more than 500 practices involved in recruitment and follow-up. Details of the trial have been published elsewhere [9]. General practitioners and nurses were asked to complete the survey as part of their preparation for attending the education session, either beforehand or at the start of the session, in paper or electronic format (via Survey Monkey®). All questionnaires were completed anonymously and could not be linked back to the participant. An opening statement in the questionnaire explained the purpose, time required to complete the questionnaire (approximately 15–20 minutes) and its anonymity. No incentives were provided to participants of this study. We piloted the survey questionnaire during its development with 10 practitioners by asking them to complete it and refined it based on feedback received. The main changes were to the questions seeking to understand what approximate proportion of patients were women under 25 and how many Pap tests practitioners usually did. We adjusted how these were asked (proportion rather than number and longer time period) based on difficulties practitioners had answering our initial questions. We reviewed the framework of Michie et al [10] in considering the survey's development. The survey included statements and questions to assess preparedness (see S1 File Survey). Preparedness of the practitioners was assessed in three areas: 1) level of comfort with implementing the new recommendations (7 questions), 2) level of confidence about their ability to convey information about the new recommendations (9 questions) and 3) level of agreement regarding access to systems and resources to support the transition of the program (11 statements). Practitioners were asked to rate their level of comfort on a Likert scale of 1 (not at all comfortable) to 5 (extremely comfortable) and level of confidence on a scale of 1 (not at all confident) to 4 (very confident). Practitioners were also asked if they agreed, disagreed or didn't know whether they had access to systems and resources in place to support them during transition. The questionnaire also collected demographic information, assessed other routine preventive services offered by practitioners, and the practitioners' level of confidence, in the pre-renewal period, in discussing Pap testing with eligible women and women who are reluctant to screen. The survey also included open-ended questions for practitioners to comment on the anticipated key barriers to implementing the renewed cervical screening program in their practice and possible solutions. The study was approved by the Bellberry Human Research Ethics Committee, approval number 2018-08-715. A total of 322 surveys (161 in each of the pre- and post-renewal periods) is sufficient to detect a difference of 16% between the pre- and post-renewal period in the various indicators (assessing level of comfort, confidence and access to resources) with 80% power and a 5% significance level. This 16% difference is assuming 50% prevalence of the various indicators of preparedness in the pre-renewal period. All data were imported and analysed in STATA version 12.1 [11]. For categorical variables, frequencies and proportions were calculated whereas means and standard deviations were derived for normally distributed continuous variables. The pre- and post-renewal groups were compared for any difference in demographic characteristics using the chi-square test for categorical variables and t-test for continuous. Responses to questions related to level of comfort was dichotomised as 'comfortable' (including comfortable enough = 4 and extremely comfortable = 5) and 'not comfortable' (including not at all comfortable = 1, fairly uncomfortable = 2 and slightly uncomfortable = 3). Similarly, responses to level of confidence was dichotomised as 'confident' (confident enough = 3 and very confident = 4) and 'not confident' (not at all confident = 1 and not very confident = 2) and access to resources grouped as 'agreed' and 'not agreed/don't know'. Proportions were calculated for each question/statement (indicator) in the area of comfort, confidence and access to resources in the pre- and post-renewal period. To examine the change from the pre- to post-renewal period for each indicator (or outcome) in the three areas of preparedness (comfort, confidence and access), while adjusting for confounders, risk ratios were estimated using a generalised linear model with log link and a Poisson distribution with robust variance estimator [12]. A covariate (age, gender, place of practice, years and role in practice) was considered a confounder if it was associated with both the outcome and the exposure and not on the causal pathway between them. We also fitted interaction terms between each confounder and the exposure and reported stratum specific effects of the exposure on each outcome if there was evidence of an interaction. Number of cervical screening tests performed per month was not included in the model given that it is more likely to be a common effect of both the renewed program changes and preparedness of the practitioners. FS manually reviewed all qualitative responses and coded the data. Similar codes were grouped under themes and subthemes which were derived from the data and not identified beforehand. TLM independently reviewed the coding and the grouping of themes and subthemes and any discordant findings discussed and resolved by FS and TLM. Specific quotes were used to illustrate a survey finding where a need for better understanding was required. A total of 395 surveys were returned. Of these, 71 (18%) were completed online. One respondent returned a blank questionnaire and 52 (13%) respondents were international medical graduates who were at different stages of their registration process in Australia and were therefore excluded from this analysis as non-representative of currently practicing Australian general practitioners and nurses. Of the remaining 342 surveys, 182 (53%) were from the post-renewal period. Compared with the pre-renewal period, the sample of practitioners in the post-renewal period were more likely to be general practitioners, from Victoria,