

# Ending Cervical Cancer Screening in Low-Risk Women After Age 65: Understanding Barriers to Adherence With Evidence-Based Guidelines Among Primary Care Providers

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## Abstract

**Background:** Current evidence-based cervical cancer testing guidelines recommend that screening of low-risk women ceases after age 65. Despite this, research suggests that continued testing by primary care providers remains common and represents unnecessary patient discomfort, cost, and consumption of valuable primary care resources.

**Objective:** To understand why primary care providers might knowingly ignore consensus evidence-based screening guidelines for cervical cancer in low-risk women of this age-group and to identify barriers to adherence with best practice recommendations.

**Methods:** A survey tool to identify barriers to adherence with current guidelines for cervical cancer screening in low-risk women older than age 65 was mailed to 4929 randomly selected primary care providers throughout California. Providers were asked to indicate the predominant reason(s) they might knowingly continue cervical cancer screening in women older than 65 years, despite evidence-based recommendations to the contrary.

**Results:** Qualified surveys were received from 1259 (25.5%) of those surveyed, representing primary care providers of all types, practicing in areas of vastly different demographics. Despite published reassurance to the contrary, many providers retain fear that discontinuation of testing in low-risk women after age 65 may result in missed invasive cervical cancer. Even among health-care providers who agree that cessation of screening is safe, other circumstances prompt their recommendation to continue cervical screening.

**Conclusion:** Although the data from this study suggest areas of policy intervention to lessen unnecessary cervical cancer screening, the broader implication is that advancement of evidence-based medicine will be of little value in improving the quality and cost of health care if barriers to guideline adherence are poorly understood and addressed.

## Keywords

cervical cancer screening guidelines, evidence-based medicine, overscreening, health services utilization, women over age 65, adherence to screening guidelines

## Introduction

For over half a century, cervical cancer screening has been a key component of women's preventive health care. These screening efforts have produced significant reductions in cervical cancer-related death and illness.<sup>1,2</sup> Best practice guidelines by organizations such as American College of Obstetricians and Gynecologists, the United States Preventive Services Task Force, and the American Cancer Society have defined cervical screening policy. These published guidelines for older patients, however, have previously been vague, without clear end points, and lacking consensus agreement.<sup>3-5</sup>

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In 2012, however, these same 3 entities issued new and uniform recommendations on cervical cancer screening for women of all ages.<sup>6-8</sup> These new guidelines were particularly clear, concise, and unambiguous for older women. It is now recommended that women older than 65 years should cease further cervical testing if they are deemed low risk—those whose prior adequate screenings have been normal (2 negative Pap/HPV co-tests or 3 negative Pap cytology tests within the 10-year screening interval prior to age 65).<sup>3-5</sup> This termination of screening represents a dramatic clinical departure from decades of prior advocated preventive care. From a health policy standpoint, these consensus recommendations represent a rare but important achievement for evidence-based medicine—when data-driven guidelines might be clear, broadly agreed upon, and without equivocation. This new understanding that most older women could safely stop cervical cancer testing was expected to be enthusiastically embraced by both patients and their overtaxed primary care providers.<sup>9</sup>

In fact, changes in screening behavior for older women have been far from straightforward. Studies have shown that primary care providers continue to perform cervical cancer screening in women older than 65 years despite clear guidelines to the contrary.<sup>10</sup> This continued activity adds to the financial burden of health care and represents an intervention in older women for which evidence of significant clinical benefit no longer exists. Unnecessary cervical testing consumes primary care provider access while nationwide shortages of these practitioners continue to grow.<sup>11</sup> In this aging cohort of women, continued cervical cancer screening focuses the preventive examination on activities of little value possibly at the expense of age-appropriate interventions that might better promote wellness. At a time when increasing emphasis is placed on delivering evidence-based care, it will be important to understand the barriers to adherence with these data-driven guidelines. This study sought to understand the motivations, beliefs, and circumstances which prompt primary care providers to knowingly recommend continued cervical cancer screening in low-risk women older than 65 years, despite their specific awareness of consensus guidelines to the contrary.

## Methods

During 2016 and 2017, opinions on various aspects of evidence-based cervical cancer screening were sought from primary care providers throughout California. From a commercially derived database of all active California primary care providers,<sup>12</sup> surveys were sent in a single mailing to a total of 4929 randomly selected family medicine physicians, obstetrician/gynecologists, primary care internists, primary care physician assistants, and primary care nurse practitioners. To be considered a qualified respondent, provider must affirmatively indicate in screening questions that they actively care for women aged 65 years and older, routinely perform cervical cancer screening in the course of their professional activities, at times knowingly perform routine cervical cancer screening in women older than 65 years

despite consensus recommendations to the contrary, and have returned the survey with all questions answered within the 6-month study time frame.

The respondent's practice location was cross referenced with applicable US Census data to create a demographic profile of the provider's practice environment.<sup>13</sup> This demographic profile of study participants was compared to study nonparticipants for statistical comparison.

Primarily, this study sought to understand the predominant beliefs, patient circumstances, or logistical limitations that would lead primary care providers to recommend continued cervical cancer screening in low-risk women after age 65, despite their knowledge of consensus evidence-based recommendations to the contrary. The survey tool included a wide variety of possible provider beliefs, developed by focus groups of both academic and community primary care providers. Survey participants provided a qualitative response (yes/no) as to whether a particular belief was a predominant reason for their knowing disregard of consensus guidelines. Participants were not limited in the number of their affirmative responses. Surveys were mailed and responses received over a 6-month time frame. Surveys that returned undeliverable were not included in the total study numerator of 4929. Statistical testing of survey and demographic data included independent *t* testing and calculation of confidence intervals, using XLSTAT-Base software, Version 2017.

## Results

A total of 1259 qualified responses were received from a total of 4929 surveys mailed. This represented an overall qualified response rate of 25.5%. The response rate among all various provider types (Obstetrics/Gynecology [OB/GYN], Family Practice [FP], Internal Medicine [IM], and mid-level providers) were statistically similar. Respondent providers practice within 368 distinct zip codes. The locations in which study participants deliver care was highly diverse in terms of median household income, racial and ethnic composition, and population density and consistent with the population variability of California. As Table 1 illustrates, the respondent group was statistically similar to the non-respondent group across all variables we gathered.

Among primary care providers, disagreement exists as to whether discontinuation of cervical testing in low-risk women after age 65 will result in otherwise preventable cancer. This fundamental fear (despite guideline reassurance to the contrary) correlates highly with a provider's likelihood to continue recommendation of cervical screening in older low-risk patients. Table 2 illustrates, however, that fear of a later missed cancer diagnosis is not the only driver of continued cervical screening. A full 32% of providers, who are not fearful of the clinical consequences of screening termination, still recommend continued testing despite knowledge of recommendations to the contrary.

Providers acknowledge various beliefs and circumstances that influence their recommendation to continue cervical

**Table 1.** Characteristics of Survey Respondents and Nonrespondents.

	Qualified Surveys Received <sup>a</sup> (Number Received, Percentage of Total Received by Provider Type, and 95% CI)	Nonrespondents (Number Mailed, Percentage of Total Mailed by Provider Type, and 95% CI)
Health-care providers	1259	3670
By provider type		
OB-GYN <sup>b</sup>	349 28.5% (25.3%-30.3%)	940 27.8% (24.2%-27.1%)
Family medicine <sup>b</sup>	320 25.4% (23.0%-27.9%)	1002 26.2% (25.9%-28.0%)
Internal medicine <sup>b</sup>	293 23.3% (31.0%-25.7%)	902 23.5% (23.2%-26.0%)
Mid-level (NP and PA) <sup>b</sup>	297 22.8% (21.3%-26.0%)	826 22.5% (21.2%-23.9%)
Median practice Area Demographics	Qualified Survey Responses Received (Median and 95% CI)	Nonrespondents (Median and 95% CI)
Median household income <sup>c</sup>	\$55 698 (\$52,343-\$59,053)	60 783 (\$58,553-\$63 013)
Mean population density (population/square mile) <sup>c</sup>	4516 (4076-4,956)	4313 (4093-4533)
White <sup>c</sup>	37.6% (28.5%-48.3%)	36.6% (23.9%-43.1%)
Hispanic <sup>c</sup>	34.8% (25.7%-45.2%)	33.4% (23.9%-43.1%)
Black or African American <sup>c</sup>	7.5% (3.5%-15.2%)	9.3% (4.2%-16.4%)
Asian <sup>c</sup>	9.8% (4.9%-17.6%)	8.1% (3.5%-15.2%)
Two or more races <sup>c</sup>	9.2% (4.2%-16.4%)	11.2% (5.6%-18.8%)
Native American/Pacific Islander <sup>c</sup>	1.1% (0%-5.4%)	1.4% (0%-5.4%)

Abbreviations: CI, confidence interval.

<sup>a</sup>To be a qualified respondent, provider must be actively caring for women including those older than age 65, routinely perform cervical cancer screening in the course of their practice, at times knowingly perform routine cervical cancer screening in women older than age 65 despite consensus recommendations to the contrary, and have returned the survey with all questions answered within the study time frame.

<sup>b</sup>Qualified survey participation rates were statistically similar among various provider types by 95% CI testing.

<sup>c</sup>The demographic practice location profile of qualified survey participants was statistically similar to that of nonrespondents by 95% CI testing.

**Table 2.** The Relationship Between a Provider's Fear of Missed Later Cervical Cancer and Their Likelihood of Knowingly Disregarding Current Cervical Cancer Screening Guidelines in Low-Risk Women After Age 65.

n = 1259 respondents	
Primary care providers who believe termination of screening for cervical cancer in low-risk women after age 65 might likely miss the diagnosis of preventable cervical cancer in later life (n = 375)	
and would continue cervical cancer screening despite knowledge of guidelines to the contrary (n = 337)	and would discontinue cervical cancer screening consistent with current guidelines (n = 38)
26.8% <sup>a</sup> (24.3%-29.3%)	3.0% <sup>a</sup> (2.1%-4.1%)
Primary care providers who believe termination of screening for cervical cancer in low-risk women after age 65 would not likely miss the diagnosis of preventable cervical cancer in later life (n = 884)	
and would continue cervical cancer screening despite knowledge of guidelines to the contrary (n = 406)	and would discontinue cervical cancer screening consistent with current guidelines (n = 478)
32.2% <sup>b</sup> (29.7%-34.9%)	38.0% <sup>b</sup> (35.3%-40.72%)

<sup>a</sup>Results differ by 95% confidence interval (CI).

<sup>b</sup>Results differ by 95% CI.

cancer screening in their patients after age 65, despite knowledge of evidence-based guidelines to the contrary (Table 3). Of the 17 predefined reasons why primary care providers might knowingly continue cervical screening in low-risk women older than 65 years, study participants reported an average of 5.7 of 17 predominant explanations.

## Discussion

At a time when evidence-based guidelines increasingly steer efforts to optimize personal and population health, changes to women's cervical cancer screening guidelines in 2012 were noteworthy.<sup>3-5</sup> In that year, all defining organizations recommended that cervical cancer screening should now cease in

**Table 3.** Percent of Primary Care Providers Who Believe Listed Reason(s) Might Influence Their Recommendation to Continue Cervical Cancer Screening in Low-Risk Women After Age 65, Despite Knowledge of Evidence-Based Consensus Screening Recommendations to the Contrary.

Beliefs, Fears, and Circumstances	Percent of Providers (95% CI)
Provider believes termination of screening at age 65 could miss preventable cervical cancer in later life	56.6% (53.8%-59.3%)
Provider feels it takes less time to perform the screening than explain to the patient why not, especially in patients who are confused about changes in screening guidelines	55.3% (52.5%-58.1%)
Providers acknowledge a pressure to continue screening when patients see little downside to testing and feel reassurance when it is normal	45.6% (45.6%-51.2%)
Providers are frustrated over inadequate time to address patient confusion as to why cervical cancer screening is no longer required	45.9% (43.1%-48.7%)
Patients are concerned that termination of screening will lead to later undiagnosed cervical cancer	43.8% (41.1%-46.6%)
Provider believes the decision to terminate cervical cancer screening should purely be by patient's choice	38.3% (35.6%-41.0%)
Difficulty in obtaining prior records causes concern in providers that patient may not be truly low risk and applicable for termination of cervical cancer testing	37.3% (34.7%-40.2%)
Patients express reluctance to stopping cervical cancer screening now, when testing has been advocated for decades	36.6% (33.9%-39.3%)
Provider continues cervical cancer screening to maintain relevance of the yearly preventive visit until a more useful evaluation can be formulated for older women	35.9% (33.2%-38.6%)
Trying to convince a patient that not performing a cervical cancer screening is somehow of individual benefit to them is a difficult message to convey	26.9% (24.5% -29.5%)
Provider fears perception by patients that an examination without cervical screening is a less complete preventive visit	17.8% (15.7%-20.0%)
Patients hold the belief that cervical screening will detect other types of GYN cancers	16.9% (14.9%-19.1%)
Patients express confusion as to the purpose of a pelvic examination if cervical cancer screening isn't performed	14.8% (12.9%-16.9%)
Patients express confusion as to why screening should cease when their same aged peers continue to receive cervical testing from other providers	14.1% (12.2%-16.1%)
Providers are fearful that termination of screening will be perceived by patients as primarily to benefit payers, not patients	12.2% (10.4%-14.1%)
Patients express fear that doctors will change their mind again in the future and conclude that screening should have never been stopped	11.5% (9.8%-13.4%)
Other primary care provider-related fears or beliefs not listed	17.7% (15.6%-19.9%)

low-risk women after age 65. Rarely have such differing entities made such an abrupt and uniform data-driven change in their recommendations. As such, these new guidelines represent a significant change from decades of prior women's health screening dogma.

One might have expected that the elimination of cervical cancer testing in older women would be embraced by patients and providers alike. Published data, however, show this is far from true.<sup>14,15</sup> Primary care providers continue to perform routine cervical cancer screening in vast numbers of women older than 65 years in contradiction to these published guidelines.<sup>10</sup>

Prior to our study, little has been published on the factors that foster provider nonadherence to these cervical cancer screening guidelines. To our knowledge, this is the largest published study that sought to understand why primary care providers, across wide geographies and diverse populations, would knowingly recommend cervical screening in this population of older women, despite consensus recommendations to the contrary. Although the response rate for our study was somewhat low, the absolute number of respondents for a non-rewarded randomly mailed survey was high relative to many other published studies, and there was not statistical difference between responders and non-responders. We have no evidence to suggest that the opinions obtained are not statistically

representative of primary providers practicing in diverse locations and populations statewide.

As Table 2 demonstrates, a significant driving force for unnecessary continued cervical cancer screening is the provider's concern over safety. A high percentage of primary care providers remain concerned that they might likely miss avoidable cervical cancer if screening is terminated in older women. As our data show, there is a significant concordance between the lack of belief in the safety of these preventive guidelines and the continued recommendation for cervical cancer screening in women after age 65. For primary care providers in our study, the fear of missing a later invasive cervical cancer is a frequent worry that encourages continued cervical testing.

These concerns over the safety of discontinuing cervical cancer screening, however, are not the sole determinant of guideline adherence. As Table 3 illustrates, primary care providers experience many other circumstances, beliefs, and motivations that prompt continued unnecessary cervical testing. It remains a daunting task for primary care providers, in the midst of a hectic schedule, to explain to patients how not performing a simple cancer detection test is of personal benefit. Patients have a difficult time understanding how discontinuation of a highly recommended test of the past is now in their best interest. The disquieting concern by patients of future undiagnosed

cervical cancer prompts providers to follow the path of less resistance to merely continue screening.

Providers also express the concern of incorrectly believing a patient is at low risk and therefore inappropriately suitable for termination of screening. Often the prior cervical test results are unavailable, and merely taking the patient's representation that "they were all normal" may not assuage provider concerns. The safest path is to recommend continuation of screenings and "play it safe." Better electronic health record interoperability and expansion of health information exchanges might help to not only lessen future unnecessary cervical screening in low-risk women after age 65 but conversely also highlight those who truly do need high-risk follow-up.

Many primary care providers in our study expressed the frank belief that it is easier and less time-consuming to simply perform the cervical screening. Patients are typically not knowledgeable of these significant changes in cervical screening policy and don't understand how discontinuation of cervical cancer testing might be safe or even beneficial. Health-care providers acknowledge that they are quick to acquiesce to continued unnecessary cervical cancer screening when they perceive confusion or reluctance by the patient. It's just easier. Patients and providers alike must be educated when a significant change in preventive medicine policy occurs.

As the providers in our study indicate, it is difficult to discontinue a particular population health intervention when prior performance has been heavily emphasized. It may not be so easy for patients to merely forget what they have been repeatedly told in the past or what simply would seem to make common sense. Providers acknowledge a pressure to continue screening when patients see little downside to testing and feel reassurance when it is normal. One must only look at other examples such as the recommendation to cease routine Prostate Specific Antigen (PSA) blood testing in men to detect prostate cancer, to see that there is a divide between the theoretical aspects of a guideline and the struggles in community-wide implementation.<sup>16</sup> It should not be surprising therefore that many providers in this study believe that the decision to continue screening should be by patient choice. Although this may be a path of least resistance, it does not seem consistent with an evidence-based approach to improving community health.

More importantly, many primary care respondents in our study expressed fear that termination of screening will erode the perceived value of a yearly preventive examination. Providers are concerned that without cervical cancer testing, older women might not perceive a yearly preventive examination is worth their time. This might be especially true when other traditional components of the preventive visit such as the pelvic examination and provider breast examination also face evidence-based scrutiny.<sup>17,18</sup> Our data suggest that continued cervical screening serves as a means by providers to maintain the perceived relevance of the yearly preventive examinations until new interventions might be defined. There seems to be a fear that a broadly conveyed message of discouraging unnecessary cervical cancer testing will have spillover effects in lessening periodic visits where other valuable health interactions might occur.

The primary care provider responses outlined in this study suggest policy implications for each and every barrier to adherence. Primary care providers must be armed with sufficient education and training such that new evidence-based guidelines not only make sense to themselves but also to the community of patients they serve. We suspect that when patients and providers alike are educated to the lack of clinical benefit in continued cervical screening, then comfort and adherence rates by both patients and providers alike will improve. For patients, education as to the natural history of cervical cancer, the role of HPV infection, and exactly what a cervical cancer screening test can or cannot accomplish, all might be useful information for this community of women. Not only is this important for those at low risk but also possibly more important for those at higher risk. Clearly this education might best occur before a hurried provider visit.

The growth and dissemination of best practice guidelines provide a hope for standardized improvement in the health of both individuals and populations. The study, however, illustrates an important reality. The anticipated benefits of evidence-based medicine might never be realized if the barriers to adherence by those responsible for implementation are poorly understood.

## Conclusions

Despite consensus recommendations that low-risk women cease cervical screening after age 65, evidence suggests that continued testing remains common. Our study shows that numerous factors influence primary care providers to recommend continued screening despite their knowledge of consensus guidelines to the contrary. Safety concerns, time constraints, logistical limitations, and differing motivations influence primary provider behavior. By understanding these various barriers to guideline adherence, policy interventions might be designed such that patients and providers alike will gain comfort with cessation of this long-standing component of preventative medicine. Perhaps most broadly, this study illustrates once again that simply developing more evidence-based guidelines for improving community health will be of little value unless the obstacles to implementation are understood and addressed.

## Authors' Note

This research involved human participants, with study design approved by the institutional review board (IRB) of University of Southern California.


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