COMMENTARY

# Treating Cervical Dysplasia: Why Does It Matter?

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The cone biopsy described in the case series discussed by Mulhem et al[1] touches on several key issues in cervical cancer prevention and within the scope of practice of family physicians. In the current medical environment health care reform to bolster primary care to reduce health care costs are being proposed; such internal discussions within the family medicine community are timely and germane to reform.[2–5] The role of family medicine specialists in implementing and translating technological advances in science into clinical practice is undervalued and unappreciated within the medical system hierarchy.[6] There is a need for family physicians to lead the way in adopting and implementing such new technologies into clinical practice and generating implementation, service, and patient-related outcomes data, which evidence rigorous evaluation within real-world settings.

## The Big Picture

In the United States and other developed countries, cervical cancer prevention with organized screening programs is actively taking new shape. Since the 1950s and the widespread use of Papanicolaou smear screening there has been a decline in the number of cervical cancers in the United States, with 11,070 invasive cervical cancers detected in 2008 and 4,070 deaths.[7] Concurrent to the decrease in cervical cancer is an observed increase in the detection of cervical precancer or cervical intraepithelial neoplasia (CIN). Screening practices using cytology and human papillomavirus (HPV) typing has lead to the detection of an estimated 20 million women in the United States who are already infected with HPV and 1.875 million women infected with CIN per year. In addition, Papanicolaou smear detects 2 million women with atypical squamous cells of unknown significance.[8] This process has lead to large numbers of women who are seen within family practices nationwide who need intervention after being diagnosed with a non–life-threatening precancer.

## HPV Vaccine

The prophylactic L1 subunit HPV vaccine is one of the technological advance of this century. However, administration of the vaccine and its implementation into clinical practice has been poorly accepted, particularly among target populations including minority women with a high prevalence of HPV infection. The true potential of this vaccine has not been realized because of imperfect penetration within the community and subpar vaccination of the US population.[9] Assuming that translational science in clinical implementation accrues in HPV vaccine delivery, leading to significant increases in populations that have been vaccinated against HPV, there still are expected to be millions of US women who are already infected with the HPV and thus at risk for CIN. In addition, the vaccine contains 2 of the many HPV subtypes that cause dysplasia and cancer, leaving women unprotected against other HPV strains that account for 30% of cervical disease. Thus, in the foreseeable future there will be a need to refine the management of CIN within primary care and will require judicious consultation with our gynecological colleagues.

## Management of CIN

Management of CIN uses a framework that is set by the American Society for Colposcopy and Cervical Pathology, a multidisciplinary group that has provided guidance applicable in most clinical settings, including primary care/family medicine.[10] Guidance from this group has become more con-

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servative as the science of HPV infection and HPV-linked CIN advances. Recent iterations of the American Society for Colposcopy and Cervical Pathology's guidance have used age as the primary categorization of risk. New guidelines are linked to age, which suggests a need for greater restraint in screening girls younger than 20 because of the risks of overtreatment with excisional cervical biopsies. Although alternatives to excisional biopsy or cervical ablation are in early-phase therapeutic clinical trials (eg, terameprocol used topically for CIN), they are not standard of care.[11] Further, utilization of excisional biopsy is standard of care in cases of CIN II and/or III in adult women unless there are clear parameters that contradict the use of loop electrosurgical excision procedure (LEEP).

## Family Medicine's Role in the Management of CIN

Cervical excisional biopsy, including LEEP training within family medicine residencies, is not consistent. Although some residencies provide women's health training, including colposcopy and LEEP, many residencies do not provide this training. However, the contradiction in needs and training becomes more evident when considering that a large proportion of all Papanicolaou smears performed in the United States are generated in family practice offices and results of the tests are processed there as well. Follow-up colposcopy and biopsy is very often performed within family practice offices. Rigorous evaluation of colposcopy in trials comparing the performance of colposcopy in detecting cervical disease and comparing this to the level of training of the operator (e, gynecologic oncologist, gynecologist, general practitioner, nurse practitioner) suggests that the level of operator training does not influence the results of the colposcopy. Rather, the number of biopsies obtained by colposcopy is directly related to the disease yield for cervical dysplasia.[12,13] Thus, evidence suggests that obtaining 2 or more biopsies during colposcopy has excellent yield. Intuitively, adding an endocervical curettage should increase the yield for endocervical disease in women older than 30.[14]

If we extrapolate from the results of real-life implementation outcomes observations in colposcopy, it would suggest that excisional biopsy, including LEEP, in the hands of trained practitioners from any discipline should have similar yield. However, there are inevitably low numbers of CIN II and III diagnosed in family medicine and thus less opportunity for adequate training in cone biopsy using the LEEP. Using the assumption that lower numbers of procedures within a practice are associated with higher number of adverse events, it would be reasonable to consider the use of an assistive device such as the Fischer cone biopsy. Use of the Fischer cone biopsy excisor (FCBE) could be optimized in family medicine by restricting the use of the FCBE to the treatment of CIN II or III among women over the age of 30, allowing it to be used by practitioners with appropriate training, and performing the procedure with the backup support of our gynecology colleagues.[1]

## Fischer Cone Biopsy Technique

The FCBE procedure uses preset sizes of electrodes that allow a hinge to be formed within the cervical os. The selection of FCBE sizes is based on the use of Lugol iodine application to the cervix and guided by sites of previous cervical disease that have been discovered during cervical biopsy. The Mulhem et al[1] case series reported excellent results. FCBE is a device that can provide greater control over the area excised. However, to become an accepted alternative, the FCBE may need to be evaluated in an adequately powered case-control study comparing the standard of care and excisional biopsy, including LEEP, with the FCBE. Rigorous translational science in clinical implementation to support claims of superior outcomes will provide the data needed to entice new adopters of this new technology. The Mulhem article provides evidence that this technology works, but further evidence is needed to support the use of FCBE in clinical practice. In the case series presented, the placement of the electrode within the cervical os demonstrated reduced injuries to surrounding tissues, lower bleeding, and less pain, thus supporting continued clinical trials and use of this technology. Further, the completeness of diseased tissue excision was excellent, suggesting that further study is warranted. It is conceivable that future clinical trials may identify specific indications for FCBE, such as single-quadrant cervical disease, which would be better addressed with an FCBE instead of the LEEP.[15]

## Reimbursement

Because the use of the FCBE involves identification of the cervical os and placement of an electrode inside the cervical os, there may be scope to consider reimbursement cost setting at a higher rate based on the higher degree of skill that is needed to perform the technique compared with the use of cervical excisional biopsies including LEEP, where no electrodes are placed inside the cervical os.

## Conclusion

Overall, the FCBE is a promising technology with the potential for inclusion within family practices and for use by family physicians with experience conducting the cervical excisional biopsy, including the LEEP procedure. We have the opportunity to generate implementation data in clinical practice to support evidence-based inclusion of this new technology as an option in the management of abnormal Papanicolaou smears.

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