

FOCUS ON THE FEMALE PATIENT



Is Liquid Cytology better than the Conventional Pap Smear?

Cervicovaginal cytology (Pap smear) has come a long way since Dr. George Papanicolaou introduced it approximately 50 years ago. Initially heralded as the prototype cancer screening test, the conventional Pap test came under strong scrutiny in the 1980's. As a response to the demands for improving the accuracy of the test, various attempts were made to develop an automated screening method, a standardized reporting system, and better collection and specimen preparation methods.

Liquid preparation of cervicovaginal smears was introduced in the early 1990's in an attempt to make screening easier and more accurate by both minimizing the obscuring nature of blood and inflammation in the material and by placing the cells in a monolayer. There are currently two commercial systems on the market, the Surepath (Autocyte) and the Thinprep (Cytyc). Although there are minor differences in the technologic features, both are comparable in performance. Our Cytology Laboratory at Creighton University Medical Center has been using the Surepath technology for the last 9 years. We were one of the centers where the initial clinical trials were conducted for this technique. As a result, all of our cytotechnologists and pathologists are well versed in the methods and interpretation of liquid prep smears. Currently, 50% of our cervicovaginal cytology comes as a liquid preparation. We also use this method for processing various non-gynecologic cytology material.

The collection of the specimens by liquid prep method is similar to the conventional method with the following differences. A special cervical brush or 'broom' is used in sampling the cervix and the tip of this broom is placed in a vial containing special liquid preservative. This is then sent to the laboratory where the cells are separated from the background debris by density gradient centrifugation and a monolayer of well fixed cells is placed in a circular area 13 mm in diameter on a specially coated slide. This is then stained, examined and reported in the usual manner.

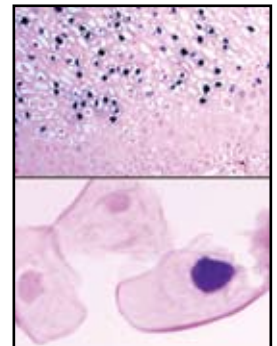
Several studies from multiple sources have shown consistent superiority of liquid prep smears over conventional Pap smears. The rate of 'unsatisfactory' diagnoses is markedly reduced as a result of elimination of obscuring background debris. This alone results in reduced repeat office visits and procedures, thus saving significant health care dollars. Studies also show a significant increase (5-10%) in detection of pre-malignant abnormal cells (low grade dysplasia). The superior slide preparation also diminishes screening fatigue by cytotechnologists, thus reducing screening errors and improving the overall accuracy of the Pap test. In

addition, ancillary tests for Chlamydia and Human Papilloma Virus can be performed on the same material, if clinically appropriate, thus eliminating the need for additional procedures and visits. In fact, the advantage of the liquid prep method was highlighted in the recently published '2001 Consensus Statement for Management of Women with Abnormal Pap Smears' (JAMA 287(16), April 24, 2002), which states that most experts now suggest routine HPV testing by a DNA hybridization method in all cases of minimally abnormal (ASCUS and AGUS) Pap smears. This is most easily done if the samples are taken by liquid prep method. In our Molecular laboratory HPV testing is routinely performed on all atypical (ASCUS) cytology material as well as on tissue biopsies and other materials, if requested. We use the Ventana in situ hybridization method with high specificity for all common types of low and high risk papilloma viruses by specific DNA probes. For information on this particular area, please call Dr. Joseph Knezetic at (402) 280-2511 in our molecular laboratory.

The liquid prep method has some minor disadvantages. Special equipment and materials, as well as extra technical training for processing, screening and interpretation are needed. Thus the test is more expensive than the conventional Pap smear. However it is currently fully reimbursed by almost all major third party payers. In addition, the extra cost is easily offset by dollars saved in improved diagnosis and treatment, and reduced office visits and procedures.

In summary, the Liquid Prep Cytology is here to stay. It is clearly a better method for collection and preparation of cervicovaginal materials. As a result, health care personnel as well as women themselves are urged to request this test instead of the conventional Pap smear. We will be happy to provide further information, instructions and the necessary supplies. ♦

Cervical biopsy showing HPV infected cells (blue) in the mucosa



Pap smear showing HPV infected cell nucleus (blue)

Please call the cytology laboratory direct at (402) 449-4938 or Dr. Chhanda Bewtra at (402) 449-4942 or e-mail at bewtra@pathology.creighton.edu



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