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Papanicolaou Technique; Approved Guideline—Second Edition

This document discusses procedures for cervicovaginal specimen collection, as well as the preparation, fixation, staining, and storage of Papanicolaou-stained cervicovaginal cytology slides.

A guideline for global application developed through the NCCLS consensus process.



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Papanicolaou Technique; Approved Guideline—Second Edition

Abstract

Papanicolaou Technique; Approved Guideline—Second Edition (NCCLS document GP15-A2) is intended for healthcare providers who are responsible for collecting cervicovaginal cytology specimens and preparing conventional Papanicolaou smears and liquid-based preparations. The guideline focuses on quality collection and processing of specimens, addressing all steps, including patient assessment, test requisition, specimen collection, specimen transport, and specimen receipt and processing. Illustrations of the techniques are described, and a sample requisition form is also included.

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Foreword

Cervicovaginal cytology, which was developed by Dr. George N. Papanicolaou for detection of preneoplastic lesions of the uterine cervix, is a routine screening procedure for women. Routine cervical screening is recognized as the most effective method of reducing the incidence and mortality of cervical cancer. The test has become a means for the medical profession to regularly review the cervical health status of women.

For cervicovaginal cytology to produce optimal results, the specimen collection procedure must be carried out by a healthcare provider on an adequately prepared, educated, and cooperative patient. The specimen must be evaluated using quality-controlled laboratory techniques.

The intent of this second-edition, approved guideline is to provide updated recommendations. These recommendations include: patient assessment, test requisition, cervicovaginal specimen collection, specimen transport, specimen receipt, specimen processing, and storage of slides. Cytologic interpretation is outside the scope of this document and is not addressed.

Standard Precautions

Because it is often impossible to know what might be infectious, all human specimens are to be treated as infectious and handled according to “standard precautions.” Standard precautions are new guidelines that combine the major features of “universal precautions and body substance isolation” practices. Standard precautions cover the transmission of any pathogen and thus are more comprehensive than universal precautions which are intended to apply only to transmission of blood-borne pathogens. Standard precaution and universal precaution guidelines are available from the U.S. Centers for Disease Control and Prevention (*Guideline for Isolation Precautions in Hospitals*. Infection Control and Hospital Epidemiology. CDC. 1996;Vol 17;1:53-80.), [MMWR 1987;36(suppl 2S):2S-18S] and (MMWR 1988;37:377-382, 387-388). For specific precautions for preventing the laboratory transmission of blood-borne infection from laboratory instruments and materials; and recommendations for the management of blood-borne exposure, refer to NCCLS document M29—*Protection of Laboratory Workers from Instrument Biohazards and Infectious Disease Transmitted by Blood, Body Fluids, and Tissue*.

Key Words

Cervical cancer, cervicovaginal specimen collection, diagnostic cervicovaginal cytology, liquid-based preparations, Papanicolaou stain, Papanicolaou technique, Pap smear, preneoplastic lesions

Papanicolaou Technique; Approved Guideline—Second Edition

1 Introduction

The primary purpose of obtaining a sample of cells from the uterine cervix is to detect precursor lesions of cervical cancer. The goal of this guideline is to provide recommendations for optimal specimen collection and processing. This is essential for accurate cytologic interpretation.

2 Scope

The scope of this document addresses the collection and processing of the cervicovaginal cytology specimen, including the conventional and liquid-based methods. The intent of this document is not to address interpretation of the cervicovaginal specimen, but to prepare a guideline that deals with the process up to and including the preparation of the slide.

This guideline will be useful to healthcare providers, laboratory directors, supervisors, and others who have responsibilities for quality control in cytopathology laboratories.

Various manufacturer devices are available for collecting and processing cervicovaginal cytology specimens. The manufacturer's instructions for each product should be checked before instituting the use of that product.

3 Definitions^a

Cervical intraepithelial neoplasia (squamous intraepithelial lesion) (CIN), *n* - Precancerous cellular changes in the cervix which encompass a spectrum of cellular abnormalities, including CIN 1 (mild dysplasia, low-grade squamous intraepithelial lesion), CIN 2 (moderate dysplasia, high-grade squamous intraepithelial lesion), and CIN 3 (severe dysplasia/carcinoma *in-situ*, high-grade squamous intraepithelial lesion).

Colposcopy, *n* - A procedure used to view the cervix with a long, focal-length, dissecting-type microscope after a solution of dilute acetic acid has been applied to the cervix; **NOTE:** The acetic acid solution removes and dissolves the cervical mucus and causes CIN lesions to become whiter (acetowhite) than the surrounding epithelium; the coloration allows the colposcopist to identify and biopsy intra-epithelial lesions and cancer.

Conventional smear, *n* - A method of slide preparation utilizing the smearing and fixation of a sample of cells from the cervix/vagina onto a glass slide.

Diethylstilbestrol (DES), *n* - Synthetic, nonsteroidal estrogens that were administered to gravid women who were thought to be at high risk for early pregnancy loss during the 1940s through the 1960s; **NOTE:** Subsequently, DES-exposed daughters developed non-neoplastic (adenosis) and neoplastic (adenocarcinoma) changes in the female genital tract.

Human papillomavirus (HPV), *n* - A sexually transmitted virus implicated in the pathogenesis of cervical cancer and its precursor lesions; **NOTE:** HPV infections of the genital tract are thought to be the most common sexually transmitted viral disease.

^a Some of these definitions are found in NCCLS document NRSCL8—*Terminology and Definitions for Use in NCCLS Documents*. For complete definitions and detailed source information, please refer to the most current edition of that document.