

DESCRIPTION

CYTO-TRANSPORTER

Description of Device

1. During the process of taking a cervical smear for cervical cancer screening, the doctor will use a wooden cervical spatula or cervix brush to obtain a cellular yield from the lining of the ectocervix and endocervix (at the transformation zone) and then transfer the cell scrapping to a microscope slide. The cells are then spread evenly over the surface of the microscope slide before 'fixing' the cells. The principle of 'fixing' is to preserve the cells with a fixative so that the histological features of the cells are kept intact from the time of taking the cervical smear to the time they reach the laboratory for reporting. The fixative commonly used is 95% ethyl alcohol or isopropyl alcohol. Either of two methods is commonly used to fix the cells. One method is to pour the alcohol from the container bottle over the smear. The alternative method is to pour the alcohol into a beaker and then dip the slide and cells into the solution. The excess alcohol is then removed from the slide. After fixation, the slide is then sent to the laboratory in a special microscope slide holder, which is shaped from cardboard, or a plastic container. Both carriers are specially designed to prevent, during transportation, the smear from coming into contact with the sides of containers, which may disturb the integrity of the cells.
2. The conventional method of fixing the cells and sending them for reporting is prone to two common errors. Cell fixation requires even contact with alcohol of specified concentration. Continual use of bottled alcohol inevitably risks the solution to alcohol evaporation from repeated opening and closing of the container lid and inevitable fall in the concentration of the alcohol. The other error that could occur is ineffective fixation of the smear by uncontrolled pouring of the alcohol fixative over the smear.
3. The lack of a proper container usually compels the doctor or nurse to use other less suitable containers for delivering the specimens to the laboratory risking smear desiccation and rub-off from contact with the container walls.

Field of the Invention

4. Cervical cancer screening entails the taking of a cellular smear from the ectocervix and endocervix, transferring the cells to a microscope slide and then fixing them with 95% ethyl or isopropyl alcohol before packing them for actual delivery to the pathologist for interpretation and reporting. The present invention aims at providing in a single device the practical steps that the doctor or nurse must employ in order to prepare a specimen for accurate reporting.
5. The device is expected to be used also by doctors who intend to send thyroid or breast aspirate obtained from fine needle aspiration cytology for biopsy reporting.



Description of Drawings

- Figure 1:** Shows the side view of the container. It is filled with the fixative. (See Figure 1 on page 1/3)
- Figure 2:** Shows the front view of the slide drawer. This is introduced into the container and the top margins of the two components are then fused ultrasonically. This prevents leak absolutely. A thin plastic film covers the bottom end of the drawer. (See Figure 2 on page 2/3)
- Figure 3:** Shows the microscope slide holder. The holder is designed with a central slit for holding the glass slide. Two flanges are attached to the holder. In the folded position the flanges prevent the slide from advancing into the drawer and breaking the barrier accidentally. The smear has been applied to the slide. The flanges are straightened and are held between the fingers and the thumb. The glass slide is then advanced into the container. The plastic barrier film is deliberately broken to allow the fixative to flow into the drawer and fix the cells. (See Figure 3 on page 3/3.)

CLAIM(S)

1. A single device for cervical cancer screening which includes taking of a cellular smear from the ectocervix and endocervix comprising:

A fixative

- (i) A fixative that is housed in a jacket that surrounds the drawer which contains the microscope slide. Cell fixation is effected by engaging and breaking the partition (which separates the drawer from the fluid jacket) by means of the slide itself when its lower end is advanced further into the drawer.

A transporter

- (ii) A Transporter that transports the cell scrapping to a microscopic slide which eases transportation and maintaining the integrity of the cells.

2. A method of using the device of **Claim 1**:

- (i) A container filled with the fixative (Figure 1, page 1/3)
- (ii) The container and the top margins of the two components are then fused ultrasonically to prevent any leaks A thin plastic film covers the bottom end of the drawer. (Figure 2, page 2/3).
- (iii) The microscope slide holder is designed with a central slit for holding the glass slide (Figure 3, page 3/3).
- (iv) Two flanges are attached to the holder (Figure 3, page 3/3).
- (v) In the folded position the flanges prevent the slide from advancing into the drawer and breaking the barrier accidentally.
- (vi) Once the smear has been applied to the slide, the flanges are straightened and are held between the fingers and the thumb.
- (vii) The glass slide is then advanced into the container.
- (viii) The plastic barrier film is deliberately broken to allow the fixative to flow into the drawer and fix the cells.
- (ix) The slide with the applied smear is then inserted into a drawer that is surrounded by a jacket containing the fixative.
- (x) The slide is advanced inwards until the end perforates a film that separates the drawer from the fixative in the outer jacket.
- (xi) The slide holder has a gasket ring that fits tightly within the drawer.

- (xii) When the slide is advanced inwards the gasket creates a positive pressure that forces the fixative to enter the drawer compartment and fix the cells.
- (xiii) During transport of the device, the tight gasket prevents leakage or evaporation of the alcohol and the slide from coming into contact with the sides of the drawer.