

## An Explanation of Endocavity Ultrasound Transducers

By Julie Kirk

Endocavity ultrasound transducers, also called probes, are designed to fit in specific body orifices on a patient and allows an internal examination to be performed.

The different types of endocavity transducers are: transvaginal, transrectal and transesophageal. They use high frequency soundwaves that bounce off the internal organs/structures to create an ultrasound image.

The transvaginal probe is used to assess the female reproductive organs. The patient will be on her back, hips raised and feet in the stirrups. The probe itself is covered with a condom or probe cover and then inserted a few inches into the vaginal canal where the uterus, cervix, endometrium, ovaries and fallopian tubes can be evaluated and imaged. Common reasons to have a transvaginal ultrasound include: pelvic pain, abnormal or excessive bleeding, infertility, IUD placement and to check for cysts or fibroids. Procedures performed with the transvaginal probe include: saline-infused sonohystogram (SIS) and in vitro fertilization (IVF) procedures under ultrasound guidance.

Transvaginal ultrasound is also useful during pregnancy. In the first trimester, it is used to confirm an early gestation, to diagnose a possible miscarriage, to check for a source of abnormal bleeding or to rule out an ectopic pregnancy. In the second and third trimesters, a transvaginal exam may be necessary to check for changes in cervical length, which could indicate pregnancy complications or possible premature delivery. It can also determine placenta location and establish if there is a marginal, partial or complete previa.

A transrectal ultrasound is most commonly used to evaluate male pelvic organs such as the prostate and surrounding structures. Difficulty urinating, elevated blood work (PSA – prostate-specific antigen) or a nodule felt during a digital rectal exam by the doctor are reasons why a patient may have this type of ultrasound. To perform a transrectal ultrasound, the patient lays on their left side with their knees bent. A probe cover is placed over the transrectal probe and lubricating gel is applied. The probe is then inserted into the rectum and the prostate is evaluated and imaged. If necessary, tissue samples can be obtained with a needle biopsy during the ultrasound.

Transesophageal echocardiography (TEE) can be performed on adults or children. In this procedure, a long, thin, flexible tube is used to guide the ultrasound transducer down the esophagus. TEE provides detailed images of the heart because the esophagus is located directly behind the heart. By rotating and adjusting the tip of the transducer, the heart can be examined from several different angles. The TEE is beneficial when good visualization cannot be obtained with a transthoracic echocardiogram. The TEE has the ability to find problems in the heart's structure or function and can also help diagnose heart or blood vessel disease or

conditions. Some examples of what TEE can help diagnose include: heart attack, coronary heart disease, congenital heart disease, aortic aneurysm, endocarditis, heart valve disease/problems, blood clots and tumors.

The patient will need anesthesia and/or sedation for the TEE to help minimize discomfort.

The endocavity transducers that perform internal ultrasounds have successfully demonstrated that they are significantly beneficial in helping diagnose various diseases and conditions.