

# SAFE PRACTICES *in Patient Care*

Helping to promote a culture of safety

**T**hermometers are essential tools for the delivery of patient care, and the basic monitoring of patient temperature should be a safe practice. Preventing thermometer contamination and microbial transmission are fundamental to proper nursing care. In their article, Ms. Beiningen and Ms. Klinkenberg describe prevention strategies for two of the most common thermometers, electronic and infrared, which are used with multiple patients. Hand hygiene, protective coverings, attention to environmental and touch contamination, and routine disinfection procedures are powerful, effective preventive strategies.

Examination of the bone marrow is the most valuable diagnostic test to evaluate hematologic disorders. Bone marrow aspiration and biopsy are also used to stage lymphoproliferative disorders and for prognostic purposes in chronic lymphoproliferative disorders such as chronic lymphatic leukemia. The value of bone marrow examination continues to grow as advances are made in diagnostic testing and more applications are discovered. The safety and comfort of the procedure have improved with the development of more precise collection equipment. While physicians usually perform the procedure, there is greater reliance on nurse practitioners and nurses. In her article, Ms. Trewhitt describes how this new responsibility is an opportunity for nursing to advocate for patient safety and comfort.

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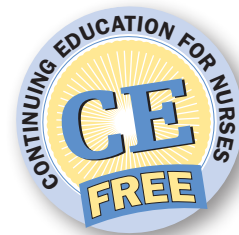
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## Infection Control in Thermometry

By *Gwen M. Beiningen, RN, MS, CIC,*  
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**A**s part of the health-status assessment, hospitalized patients have frequent temperature measurements. These measurements are important in the provision of quality health-care. As with other multiple patient-use devices, the potential for contamination of thermometers and microbial transmission generates concern.

Bacteriologic studies of infrared and electronic thermometers have found evidence of contamination on the devices and their handles, cases, and probe covers. This contamination has been implicated in microbial transmission and disease outbreaks.<sup>1-10</sup> These inherent risks are comparable to those of other multiple patient-use devices.

Touch contamination and inadequate disinfection are reported as likely causes of device contamination and possible transmission.<sup>1-10</sup> In addition, the thermometer may be an important vector of microbes, as it can potentially introduce organisms directly into the patient's gastrointestinal tract.<sup>1</sup> Understanding these risks provides insight into prevention.

### Types of thermometers

There is a variety of clinical thermometers. Some require contact with mucous membranes, such as the mouth, rectal cavity, or ear canal, while others require skin contact. In intensive care units (ICUs), probes within blood lines are used for more invasive measurements.

The oldest type is the glass-bulb thermometer. Mercury-containing glass-bulb thermometers are being phased out of health-care use. Disposable dot-matrix (phase-change) thermometers are made of either a thin flexible plastic strip or adhesive strip or patch. These products are available for oral, rectal (with a protective sheath), temporal, or

Preventing the touching  
and environmental  
contamination of probes  
and probe disinfection  
are the most basic and  
fundamental  
steps in preventing  
microbial spread.

axillary measurements. This article will not discuss glass-bulb and dot-matrix thermometers.

Electronic and infrared thermometers allow for faster, more convenient temperature measurement. Predictive electronic thermometers commonly contain a sensor, i.e., thermoresistor or thermistor. These sensors alter resistance with temperature changes. A computer or other circuit measures the resistance and converts it to a temperature reading. Several models on the market are designed for oral or axillary use. Others have a specifically designated rectal probe.

Infrared thermometers detect heat on the skin surface. They do not emit anything but sense natural thermal radiation emitted

*Continued on page 5*