ABSTRACT

This quantitative, descriptive study was conducted to identify the relationship between extension tubing length and infusate temperature at the distal end of an intravenous infusion line with an in-line active fluid warming device. Data were collected during 1 day of trials. The study was conducted at a 325-bed urban medical center located in a northwestern Pennsylvania city. There are 19 operating rooms within this facility. The proposal for this study was submitted to the university's Institutional Review Board (IRB) and the medical center's IRB and Nursing Research Approval Committee prior to data collection. The study did not require human participants—only the testing of equipment was conducted. Because inanimate objects do not require protection, anonymity, or confidentiality—the review process focused on the appropriateness of methods. All trials were conducted in a single operating room within the study setting. A total of 10 paired trials were conducted. Infusate temperatures were recorded at five specific flow rates with—and without—the use of extension tubing. For each flow rate, two paired trials were conducted. Data were collected using a data collection sheet developed specifically for this study. Ambient temperature and infusate temperature readings were taken and recorded at the same time for each trial set. Individual trial data were then recorded onto a collected data summary sheet for analysis. Data were analyzed using descriptive statistics. A student's *t* test was calculated to identify the relationship between infusate temperature and the length of the extension tubing.