Validation of the 30-Minute Rule at the University of Minnesota Medical Center: An Institutional Perspective

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Blood components must be maintained within stipulated temperature ranges when stored in the blood bank and upon release to patient units. For years it has been assumed that red blood cell (RBC) units maintain an appropriate temperature for at least 30 minutes after release from blood bank control. This generalized 30-minute rule has been used to allow reshelving of blood products returned to the blood bank within 30 minutes of release. Until recently, however, the validity of this rule remained untested. The purpose of this study is the validation of the 30-minute rule at the University of Minnesota Medical Center. Methods: Outdated adult RBC units were labeled with activated HemoTemp II temperature monitoring stickers from Biosynergy, Inc. per manufacturer directions. These units were left at room temperature and checked at 5 minute intervals until they exceeded the acceptable temperature range (>10°C), as indicated by an irreversible color change on the monitoring sticker. This process was repeated for 200 mL units, 150 mL units in the original and aliquot bags and 100 mL and 50 mL aliquots in pediatric bags. A subset of these units were then placed back in the refrigerator and monitored until they reached 4-6°C, as indicated by the reversible temperature indicator on the monitoring sticker. Results: Adult and 200 mL units reached >10°C between 30 and 45 minutes, 150 mL units reached >10°C between 20 and 35 minutes. Units in pediatric bags reached >10°C between 30 and 45 minutes for volumes of 100 mL, and 20 to 30 minutes for volumes of 50 mL. The time for adult units to return to 4-6°C ranged from 120 to 150 minutes. Conclusions: These data indicate that the 30-minute rule is an acceptable guideline for the re-shelving of adult units returned to the blood bank. Pediatric units breach 10°C in less than 30 minutes, however, which will require an adjustment to our re-shelving protocols. In addition, it takes a minimum of 2 hours for a unit to return to 4-6°C after it has been re-shelved. This indicates the need for a time-out period to be included in the reshelving protocol in order to ensure unit integrity prior to re-release.