Pre-analytical Variables in the Hemostasis Laboratory

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Accurate and reliable laboratory results are critical to providing optimum patient care. The delivery of high quality laboratory results relies not only on proper sample analysis and reporting but also on the integrity of the sample prior to analysis. The pre-analytical phase of testing refers to that period of time between patient identification and sample analysis. In today's laboratory, errors in the preanalytical phase of testing represent the greatest source of inaccurate laboratory results. Compared to other departments in the laboratory, samples for hemostasis testing are particularly susceptible to preanalytical conditions that may impair sample integrity. The impact of these variables on laboratory results may be clinically significant. Pre-analytical errors may reflect for example, patient mis-identification, collecting samples into an incorrect matrix or an improper fill volume, or result from unsuitable conditions during sample transportation and storage. One important source of sample vulnerability is the *in vitro* lability of many of the components of the hemostatic system, including platelets and clotting factors. Improper specimen handling can lead to clinically significant loss or even gain of activity of individual coagulation components with the potential for mis-diagnosis and therapeutic misadventures. Standardization of the pre-analytical phase of hemostasis testing can improve the reliability and quality of coagulation test data. This presentation will review the conditions associated with specimen collection, processing, transport and storage that should be followed and the types of errors that may occur if these conditions are not met.