

## Preanalytical Variables: Room for Improvement

Most errors affecting laboratory test results occur in the preanalytical phase, primarily because of the difficulty in achieving standardised procedures for sample collection.

Advances in instrument technology and automation have simplified tasks in laboratory diagnostics and improved the quality of test results. Meanwhile, errors occurring during the preanalytical phase – from the time the test is ordered by the physician until the sample is ready for analysis – can account for up to 93% of the errors currently encountered during the total [diagnostic process](#)<sup>1</sup>, a review of multiple studies in 2002 showed similarly [high levels of errors](#).<sup>2</sup>

Overall, [insufficient specimen quality and quantity](#)<sup>3</sup> may account for over 60% of preanalytical errors. Other **preanalytical variables** involve:

- [Personnel with appropriate training & understanding of blood collection process](#)<sup>4</sup>
- [Patient identification and preparation](#)<sup>5,6</sup>
- [Sample collection device, container, and procedure](#)<sup>4</sup>
- [Sample handling, separation, transport and storage](#)<sup>4</sup>

The human role in sample collection makes complete elimination of errors associated with laboratory testing unrealistic. However, **good practices** and compliance with the new **strategies for error prevention** can lead to a substantial reduction in preanalytical errors. [These practices include](#):<sup>7</sup>

- Increased error detection, reporting and tracking
- Process and risk analysis
- Process redesign
- Enhanced healthcare professional training
- Improved communication among healthcare professionals

Says EPSC member Prof. Pierangelo Bonini, “As soon as possible, we must use appropriate information technology to gather information about preanalytical activity both inside and outside the clinical lab, where and when it is performed. Then, armed with this information, we will be in a position to identify best practices and gain control over preanalytical variables through standardizing procedures and adopting appropriate technologies.”

The EPSC is focusing first on a preanalytical variable with significant room for improvement: [haemolysis](#).

The EPSC presented a workshop at EuroMedLab 2007 (3-7 June, Amsterdam): ***Improving Patient Outcomes Through Excellence in the Preanalytical Phase***.

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### References:

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