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Editorial Open Access

Phlebotomist Labelling Primary Blood Tubes for Clinical Laboratory Tests: An Important Step to Medical Diagnostics

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Editorial

The phlebotomist, formally known as phlebotomy technician, is an integral member of the medical laboratory team whose primary function is the collection of blood samples from patients by venipuncture or micro techniques. Besides blood collection, another main aim of the phlebotomist is to make possible the correct transportation of the laboratory specimens; moreover this health practitioner represents often the patient's only contact with the medical laboratory [1]. This kind of healthcare professional is officially regulated only in few countries (e.g. U.S and Canada) [2]. In many other countries the phlebotomist's activity is mainly performed by diverse health care professionals (e.g. nurses, assistant-nurses, clinical laboratory staff or physicians).

However, the diagnostic blood specimen collected by phlebotomy is the most common type of specimen drawn or sent to laboratory medicine for further analysis (e.g. patient- diagnostics or follow up). Thus, being phlebotomy preliminary to diagnosis, management and treatment of patients in healthcare, it must be viewed as a critical procedure for patient safety [3]. We have read with interest the article by Nilsson et al. where the authors address important aspects about the adherence to guidelines of Venous Blood Specimen Collection (VBSC) among 101 senior nursing students [4]. This editorial aims to highlight and discuss the interesting outcome properly reported by Nilsson et al. [4], regarding suitable primary blood tube labelling. According to these authors the Sweden national best practice VBSC guideline is almost identical to the Clinical and Laboratory Standard Institute (CLSI) H03-A6 standard.

Moreover, they call attention on the fact that CLSI H03-A6 standard [5] has rigorous recommendation for libeling primary blood tubes after phlebotomy and those Sweden national VBSC guidelines are unclear as regards when to label the primary blood tube [4]. Valenstein et al. in 2006 properly categorized errors involving clinical laboratories from 120 institutions and showed that 55.5% of identification errors were from unsuitable primary blood tubes labelling (Table 1) [6]. Wallin et al. and Soderberg et al. had shown that most of non-laboratory staff labelled specimens after collection. These authors classified this practice as a substantial risk of labeling errors. In both studies (Wallin et al. and Soderberg et al), labeling of primary tubes alongside the patient prior to the phlebotomy was proposed to be the correct procedure and presumably was the practice taught during phlebotomy training and recommended in the work instructions available to their staff [7,8].

Causes	N (%)
Primary specimen label error	2691 (55.5)
Initial registration/ order entry error	1088 (22.4)
Other clerical error	604 (12.4)
Other reason for error	205 (4.2)
Aliquot/block/slide label error	184 (3.8)
Result entry error	80 (1.7)
Total	4582 (100)

Table 1: Causes of 4852 identification errors involving laboratory medicine from 120 institutions categorized by Valenstein et al. [6]

This disputed procedure, primary vacuum tubes labelling before- vs. after-collection was put in discussion by Hawkins in 2011 who had shown that also CLSI had recommended the labelling before collection in old standard (H03-A3, 1991), nevertheless the present CLSI H03-A6, 2007, explicitly states that "tubes must be positively identified after filling, not before, with a firmly attached label" [9]. The results reported by Nilsson et al. show that only 2% of the students responded in line with the guideline recommendation to 'always' label the primary tube alongside the patient prior to the phlebotomy and this is similar to the level of non-adherence seen in hospital ward staff (2.4% adherence) [4]. But, is it this a real non-adherence to guideline recommendation? In our opinion it reflects a strong adherence to CLSI H03-A6 standard recommendation. Although CLSI guideline H3-A6 resolutely states that tubes must be labeled after the collection, there is no undisputable evidence to support that recommendation. Indeed this document recommends labeling tubes just after identification of the patient and verification of tube compliance with the prescribed laboratory tests, prior to venipuncture procedure [3]. Moreover our working group showed that the CLSI H03-A6 standard is widely distributed and implemented. In fact 1888 laboratories out of 2781 applied CLSI H03-A6 standard in their daily practices [10]. As regards the Croatian national recommendations for venous blood sampling, if the tube has to be labeled after venipuncture, the action should be done in front of the patient, while he is still sitting in front of the phlebotomist. Otherwise, there is possibility that the tube is left unlabeled [3]. The essential information for primary blood tubes traceability is: i) patient's name (first and last); ii) patient's date of

birth (i.e. day/ month/year); iii) laboratory identification number, preferably with barcode; iv) Patient's health insurance identification number; v) time and date of sampling; and vi) identification of phlebotomist. The working group of Grankvist and Soderberg et al., is expert on phlebotomist evaluation but we fully agree with the Croatian national recommendation that labelling primary blood tubes need essential information for guarantee both primary tubes traceability and patient safety; and there is no undisputable evidence to support the recommendation to label primary tubes before- or after-venipuncture [3].

One important contribution of the study of Nilsson et al. was to recall our attention to the necessity to start to disseminate the guidelines and standards not only to the laboratory professionals but as early as possible, to students too [4]. Presently CLSI is reviewing the H03-A6 standard (replaced to GP41-A6 standard), and a new version is expected soon, thus making everybody anxious in the waiting of this new standard.

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