

Quality Management of Point-of-care testing (POCT) process in nurse-managed anticoagulation clinics

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OBJECTIVE: Point-of-care tests (POCT) are known as laboratory tests, which are done outside of the traditional laboratory to reduce the turnaround time. Point-of-care testing offers the significant advantage of rapidly available test results, which have the potential to expedite clinical decision making and improve patient outcomes. Although POCT simplifies the testing process, it may be more prone to errors and can clearly impact on results and thus patient safety. POC tests are usually carried out by clinical personnel such as nurses. They are often unfamiliar with laboratory procedures regarding the importance of proper patient preparation, sample collection, instrument calibration and maintenance as well as quality control. Operators' training and motivation is crucial in order to achieve quality and patient safety in POCT. In addition, system planning and management of the entire POCT process with the support of the laboratory professionals are essential. The aim of this study was to describe and to compare the present POCT quality management and the role of the local laboratory in it in two different nurse-managed anticoagulation clinics in Finland.

METHODS: The research data was collected by interviewing five nurses who worked in a nurse-managed anticoagulation clinic in primary health care setting. Four of the interviewees worked in a nurse-managed anticoagulation clinic located in Healthcare Centre in the city of Oulu (later clinic 1 Oulu) and in a nurse-managed anticoagulation clinic located in Healthcare Centre in the city of Kemi (later clinic 2 Kemi). The interview data was analysed by theory bound content analysis. Sub-categories were derived from the data. They were divided into four main categories. Three of them were categorized into three stages, depending on whether they are done before, during or after analysis; called pre-analytical, analytical and post-analytical phases. The fourth category was concerned with the support of the local laboratory.

RESULTS: In the pre-analytical phase, the first step is test ordering and patient identification. Patient identification is done by reading a barcode from a patient's identification card in clinic 1 Oulu. The barcode reader helps in avoiding wrong or absent patient identification. Manual patient identification, which is done in clinic 2 Kemi, may lead to a number of mistakes. In the worst case scenario, the test result may be transferred to a wrong patient's medical record. The second step in pre-analytical phase is sample collection. With proper training, it is possible to avoid errors such as inappropriate or inconsistent specimen type, volume or application to the POCT device's strip. In addition, in both anticoagulation clinics there are POCT devices in place, which have automated sample detection: for example, an error code occurs if a sample too small is applied to the test strip. In the analytical phase, the most important thing is to use correctly calibrated and controlled device and test strips, which are stored properly. In the post-analytical phase, the result validation, reporting, documentation and acting on the result have the key roles. The most important factor in users' training and quality management of the entire POCT process is the role of the local support laboratory.

CONCLUSION: The results indicate that a web-based point-of-care management system helps to improve patient care and quality. The current web-based point-of-care management system requires patient and operator identification. The system is locked when quality control assessment fails or it is not performed in required time and finally transfers the results directly to the patients' permanent medical record. At first, the local support laboratory's POCT coordinator trained the nurses properly. After they had passed the required training and signed their personal "driver licences," they were qualified to use the POCT device. In addition, in any event of concern about the POCT process, nurses were supported by the local laboratory. The nurses' training is essential in achieving full maintenance of quality of POCT. Together with a web-based point-of-care management system and ongoing training, the local support laboratory is able to manage POCT quality properly.