

POINT OF CARE TESTING FOR HAEMOSTASIS THE LABORATORIES POINT OF VIEW

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Point of Care Testing (POCT) is often described as bedside testing, decentralized testing, or extra-laboratory testing. Here, we will define POCT as diagnostic testing at or near the site of the patient. The main utility of POCT lies in the value of the immediacy of response. POCT can be useful in those circumstances where the central laboratory cannot fulfil the urgent clinical needs. Another benefit of POCT, especially in the neonatal ICU, is the potential for reducing blood loss (and possibly transfusion needs), because POCT devices, in general, use a smaller volume compared to standard laboratory equipment. Additional advantages of POCT are often: limitation of administrative handling, flexibility in testing, and reduction of the preanalytical phase. In contrast, drawbacks of POCT are: massive training and education of nurses/doctors/patients is needed, less control on the pre-analytical phase of testing, connectivity to LIS/ZIS is essential, analytical performance does not always match with central laboratory performance and POCT is often more expensive than the laboratory on a cost-per-test basis. Because of these limitations it is essential that: the central laboratory takes responsibility for all POCT, a Point of Care team is available, connectivity to LIS/HIS is established, and an extensive quality control program is available (including an accredited external quality assessment program!). The POCT team (POC-coordinator, POC technicians and Clinical Chemist) is responsible for: full laboratory-based technical validation of analysers, training of nurses and doctors, certification of training or competence, posttraining surveillance, update sessions and continuing education.

Point of Care coagulation testing has been described as the most rapidly growing POC application in the hospital setting. Tests profiles currently available for coagulation point of care testing are: PT, INR, APTT, thrombin time, activated clotting time, tests to monitor low molecular weight heparin, platelet factor 4 heparin antibodies, thrombelastography/thrombelastometry and D-dimer testing. As can be applied to all POCT, the clinical need of these tests is based on the question whether POCT speeds up decision making and results in better counseling, fewer visits to the hospital, better therapy, and in general affects patient outcome in a positive way. Implementation of POC APTT and PT testing in the in-patient setting may require evaluation and adjustment of institution-established therapeutic targets, clinical decision points, and general workflow in the area affected by this testing. POC PT-INR testing is mainly required in the patient self testing and patient self management paradigms for oral anticoagulation therapy management. The strongest impact on improving patient outcome is applicable to POC ACT testing in cardiac surgery and cardiac catheterization laboratories.

In the near future POCT (in haemostasis), following new developments in micro/nano-technology, wi-fi, graphical interfaces, electronic circuits, in vivo sensors and e-health records, will be even better, faster, easier, more robust and broadly applicable. Problems related to the technical quality of results will more likely be due to poor compliance with standard operating procedures than to the analytical performance of the analyser. Therefore, one of the most important tasks of the laboratory now and in the future will be to improve awareness of the importance of all steps in the preanalytical phase and to take care of an extensive POCT quality control program. Consequently, the laboratory will play a central role in the implementation and management of Point of Care Testing.

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