Curriculum for Hemostasis Laboratory training

**Curriculum in brief**

The student will gain knowledge about minimum requirement for safe and correct diagnosis and monitoring of common and rare bleeding disorders as well as more extensive investigations necessary to further refine the bleeding phenotype.

The training module would contain a mix of theoretical and practical elements over 4-6 weeks of training with the aim to cover the following aspects of laboratory coagulation diagnosis of bleeding disorders:

- Laboratory safety and quality management
- Screening assays and specific factor assays
- Global hemostasis assays
- Inhibitor assays
- Platelet function analyses
- Basic pharmacokinetics

**Theoretical curriculum**

At the beginning of the visit we will discuss our mission together with the student and try to personalize the objectives of the course and plan the different practical workshops in time. The theoretical sessions will be covered by power-point presentations, discussions based on specific books chapters that deal with laboratory coagulation and quality management with special emphasis on coagulation assays. In most of the sessions the assays will be accompanied by patient cases illustrating the use of the different assays.

**Practical curriculum**

Approximately two weeks of the course will be spent on practical elements with the following workshops:

- One day with manual vs. automated screening assays, i.e. the APT-time and PT reactions. This will give necessary insights about the performance of common screening assays and the limitations with different reagents, including preanalytical aspects, and when complementary methods should be applied.
- Two days covering one-stage and chromogenic factor VIII:C and IX:C assays involving the assay discrepancy phenomenon and measurements of FVIII/FIX concentrates.
- One day with inhibitor testing including performing the tests and calculation inhibitor titers.
- Three days covering the test battery needed for VWD diagnosis involving the VWF:Ag, VWF:RCo, VWF:CBA and VWF multimer analyses. Other tests such as VWF:FVIIIIB, VWF:RIPA and VWF antibody tests will be included on special request by the student.
- One day with focus rare bleeding disorders, e.g., tests for FII, FV, FVII, FX, FXI, and FXIII.
- One day with global assays, i.e. thrombelastography and thrombin generation.
- One day with platelet assessments using aggregometry.
- There will also be practical lessons about the local internal and external quality assessments of coagulation assays and other quality aspects needed to fulfill the requirements for a laboratory accreditation.

Upon special request the course could contain other workshops covering DNA-analysis, flow cytometry, ADAMTS13 measurements and other special tests performed at our center.

**Other elements of the course**

All students that attend the course will be given an insight in the work at the local clinical coagulation unit and the necessity of establishing an environment that promotes lab-clinic interactions. This will be done by auscultation at the haemophilia clinic and participation at the weekly meetings between the lab and clinic.

**Laboratory personnel involved in the course**

The course will be led by a chemist and a MD specialized in clinical chemistry, both with doctoral degree (PhD) in coagulation experimental work and extensive experience of teaching at basic and advanced levels. Different laboratory scientists that have advanced training in the assays to be used during the course will lead the wet workshops.

**Readings and study aid**

The student will be provided a working space with a stationary computer with access to the Internet and Lund University study resources. Much of the laboratory training will be based on the tests described in the latest edition of the WFH publication “Diagnosis of Hemophilia and Other Bleeding Disorders: A Laboratory Manual together with locally produced written material and power point presentations.