Workpackage N 4 - Development of a Virtual Medical Microbiology Laboratory (VMML)

Related assumption and risks (max 400 characters)

The EU partner teams are composed of staff highly skilled in Biomedicine and IT technologies. The SCU teams include the staff already trained in IT technologies in the UK, Italy and France as a part of the current EACEA-158627 project. Additional training will be provided here in WP3. We therefore do not envisage any serious risks associated with the completion of this task. Enough resources are allocated for the computing systems and software as defined in WP2.

Description of the workpackage (max. 2000 characters)

For designing the virtual packages within the proposed VMML the activities that take place in a real-life medical microbiology laboratory will be defined in WP2. In this WP these activities will be developed and converted into virtual simulation using advanced software, computer technology and expertise acquired during the training outlined in WP3.

Development of the virtual packages will be based on:

(a) a database for the classification of microorganisms – causative agents;
(b) an extensive image library;
(c) video-recorded live experiments;
(d) an extensive list of on-line references;

The following core scenarios will be developed into virtual packages:

(a) laboratory organization and design;
(b) necessary equipment, its operation and care;
(a) health and safety procedures, identifying wrong practices in the virtual lab;
(c) preparation and simulation of experiments designed for teaching and research purposes;
(d) sample taking, examination and classification of microorganisms;
(e) detailed examination of selected Case studies in infectious diseases. This is an approach that provides a logical basis for understanding the natural history of infection. Some studies will be of the most common infectious diseases cases and others where organisms are too dangerous to handled in standard microbiology laboratories or require special facilities eg. Tuberculosis and HIV. The major subject-specific technological approaches for the implementation of this WP will be as follows:

(a) 3D-imagery of laboratory;
(b) cartoon-generated laboratory scenarios;
(c) mathematical models;
(d) second life elements.

This work will be carried out by all the members of the Consortium and National ICDVL triangles. It will, in addition, become a subject for interdisciplinary PhD projects in Biomedicine and IT technologies at SCU and EU partner universities. Some of the sub-projects will be designed for research at the MSc level.

This workpackage will be completed within months 13-27 of the project.