IFCC Scientific Division – Goals, activities and future directions

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Chair IFCC Scientific Division

The overall goal of the Scientific Division (SD) of the IFCC is to advance the science of Clinical Chemistry and its application to the practice of Clinical Laboratory Medicine. Within this context the SD seeks to identify research areas, technical innovations and diagnostic strategies of relevance to Clinical Chemistry and Laboratory Medicine and to assist the transfer of these to the profession. In addition, the SD aims to identify scientific and technological problems in current practice and provide solutions and guidelines on how to overcome them, and to establish standards for scientific and technical aspects of good laboratory practice. The SD also has a role in responding to the scientific and technical needs of IFCC Member Societies, IFCC Corporate Members and external agencies, and participates actively in the scientific programs of IFCC congresses and other scientific meetings. All these activities focus on better patient care and when necessary are carried out after close consultation with our clinical partners.

The SD initiates and manages projects with its own resources or through its Committees (C) and Working Groups (WG). Work is conducted in cooperation with other IFCC units and with relevant National and International Organisations. The SD ensures that each of its C/WGs functions under clear terms of reference together with an agreed schedule of activity. The SD assists in the development of project proposals, undertakes an annual review of progress and reviews and approves any documents that result from the work.

The SD Cs are theme orientated, and typically carry out a range of projects in an area of particular importance to the Laboratory Medicine community. WGs are task orientated, and focus on a single goal or closely related set of goals which can usually be achieved in a limited timescale. The SD currently coordinates the activities of eight Cs and twelve WGs (Table 1).

Proposals for new C/WGs often originate from within the SD, but they may also be proposed to the SD by any member of an IFCC affiliated organisation. The best initial approach is to discuss an idea with the SD Chair or one of the Members of the SD Executive, and then to prepare a formal proposal which will be considered for approval at an SD meeting.

There are a wide range of current C/WG activities, and it is only possible to review some of the most important issues here. The Committee on Nomenclature, Properties and Units (C-NPU) maintains a generic database of properties and units which can be accessed via the IFCC homepage. This is a crucial and often underappreciated function that provides the basis for much of clinical laboratory science. The Committee on Molecular Diagnostics (C-MD) is liaising with other international laboratory organisations and with regulatory authorities to promote standardisation in molecular diagnostic testing. C-MD is also developing proposals to establish a network of IFCC molecular diagnostics reference laboratories. The Committee on Plasma Proteins (C-PP) is currently carrying out work on the development of new reference materials for plasma protein analysis and in addition is investigating the possibility to establish common reference intervals for the most important plasma proteins. The C-PP is closely monitoring emerging technologies in the field of proteomics with the aim of producing guidance on standardisation and clinical utility of these methodologies at an appropriate stage. The Committee on Standardisation of Markers of Cardiac Damage (C-SMCD) (a joint initiative between the IFCC and the American Association for Clinical Chemistry) has a broad remit to produce analytical and clinical recommendations pertaining to standardisation and evaluation of available biomarkers. The C-SMCD has published a number of important recommendations in this area, and is currently working on the development of a troponin I secondary reference material and on the standardisation of B-type natriuretic peptide assays. The Committee on Reference Systems of Enzymes (C-RSE) has developed and published reference measurement procedures for six enzyme activities which will enable global standardisation in this important field of Laboratory Medicine. C-RSE has created a network of reference laboratories which has demonstrated its competence to certify high-order reference materials, e.g. in joint IFCC-IRMM projects. The Committee on Reference Intervals and Decision Limits (C-RIDL) is a relatively new C with the important goal of promoting a standardised approach to the establishment of reference intervals, by the adoption of common reference intervals and decision limits established using methods traceable to validated reference systems. For this reason, the C-RIDL liaises closely with the Committee on Traceability in Laboratory Medicine (C-TLM). C-TLM supports all activities of different Cs and WGs of the SD with respect to the implementation of the concept of traceability to higher order reference systems. An IFCC External Quality Assessment Scheme (EQAS) has been created for the participation of reference laboratories to demonstrate their competence as reference measurement service providers. The Committee on Point of Care

Testing (C-POCT) is contributing to the development of international standards for POCT, and is currently working on quality control of glucose testing in different health care settings.

While the tasks of all of the WGs are important, the work of three in particular will be highlighted here. The WG on Standardization of HbA1c (WG-HbA1c) has successfully developed a reference system for this measurand. It is intended to develop an implementation program to educate laboratory professionals and clinicians about the importance of this activity over the next year, to help establish international standardisation of HbA1c measurements for the benefit of patients with diabetes. The WG on Standardisation of Glomerular Filtration Rate Assessment (WG-GFRA) is developing recommendations for serum creatinine measurement and with regard to more accurate estimation of GFR. Estimation of GFR has been introduced as a routine test in a number of countries, and lack of standardisation of creatinine assays has led to substantial uncertainties about the accuracy of such estimates. The WG-GFRA will bring forward proposals to establish a reference laboratory network for creatinine to assist manufacturers in validating traceability of their methods and EQAS organizers in targeting commutable control materials. The WG on Standardization of Thyroid Function Tests (WG-STFT) has embarked on an important program of work aiming to improve standardisation of total T_4 and free T_4 assays. Substantial progress has been made and discussions are beginning with clinical societies dealing with thyroid disease and the diagnostics industry about the benefits which can be achieved by assay standardisation.

As can be seen, the work of the SD stretches across the full remit of Clinical Chemistry, and seeks to address the issues of greatest importance to the profession, to our clinical colleagues and patients. Members of the SD are always happy to discuss ongoing or future projects with interested parties, and suggestions as to other areas which the SD might address in the future are welcome.

Table 1
Synopsis of Committees and Working Groups active in IFCC Scientific Division

COMMITTEE	CHAIR
Committee on Nomenclature, Properties and Units (C-NPU)	F. Pontet (FR)
Committee on Molecular Diagnostics (C-MD)	F. Rousseau (CA)
Committee on Plasma Proteins (C-PP)	G. Merlini (IT)
Committee on Standardization of Markers of Cardiac Damage (C-SMCD)	F. Apple (USA)
Committee on Reference Systems of Enzymes (C-RSE)	G. Schumann (DE)
Committee on Point of Care Testing (C-POCT)	A. Okorodudu (USA)
Committee on Traceability in Laboratory Medicine (C-TLM)	A. Kessler (DE)
Committee on Reference Intervals and Decision Limits (C-RIDL)	F. Ceriotti (IT)
WORKING GROUP	**CHAIR**
Working Group on Selective Electrodes and Biosensors (WG-SEB)	A. Lewenstam (FI)
Working Group on Apolipoproteins (WG-A)	G.L. Myers (USA)
Working Group on Standardization of Human Chorionic Gonadotropin (WG-SHCG)	C. Sturgeon (UK)
Working Group on Standardization of HbA1c (WG-HbA1c)	G. John (UK)
Working Group on Standardization of Thyroid Function Tests (WG-STFT)	L. Thienpont (BE)
Working Group on Standardization of Hemoglobin A2 (WG-SHbA2)	A. Mosca (IT)
Working Group on Standardization of Carbohydrate-Deficient Transferrin (WG-CDT)	A. Helander (SE)
Working Group on Standardization of Cystatin C (WG-SCC)	A. Grubb (SE)
Working Group on Standardization of Glomerular Filtration Rate Assessment (WG-GFRA)	N. Greenberg (USA)
Working Group on Standardization of Albumin Assay in Urine (WG-SMA)	M. McQueen (CA)
Working Group on Standardization of Pregnancy-Associated Plasma Protein A (WG-PAPPA)	K. Spencer (UK)
Working Group on Growth Hormone (WG-GH)	M. Bidlingmaier (DE)
Working Group on Standardization of Insulin Assays (WG-SIA)	M. Steffes (USA)