Editorial

Graham H. Beastall and Ian D. Watson

**Clinical Chemistry and Laboratory Medicine: an appreciation**

The International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) and the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM) congratulate *Clinical Chemistry and Laboratory Medicine* on the occasion of its 50th anniversary. As Presidents of IFCC and EFLM we express our thanks and appreciation to the present and former Editors-in-Chief and to the publishers (DeGruyter) for their contribution to improving the quality and understanding of clinical chemistry and laboratory medicine in the interests of improved patient care.

*Clinical Chemistry and Laboratory Medicine* is a journal published in association with IFCC and EFLM, which means that it is the ‘official’ journal of both Federations. *Clinical Chemistry and Laboratory Medicine* is also the official journal of nine national societies of clinical chemistry and laboratory medicine. This combination gives *Clinical Chemistry and Laboratory Medicine* a unique place in publishing articles of interest to laboratory medicine specialists.

Fifty years ago clinical chemistry and laboratory medicine was an emerging specialism within medicine. The repertoire of laboratory investigations was limited, automation was at an early stage of development and laboratory informatics was little more than a concept. The structure of DNA had been known for <10 years and the technique of immunoassay had only just been discovered. Quality management was not on anyone’s agenda. From these simple statements it is clear to see the huge advances that have been made during the past 50 years to enable the transition into a major branch of medicine that influences up to 70% of clinical decisions. Today, laboratory medicine has a repertoire of almost 1000 investigations that are delivered in a wide range of clinical settings to a level of quality that cannot be surpassed in any other branch of medicine. *Clinical Chemistry and Laboratory Medicine* has played an important role in supporting that remarkable transition.

The core business of any reputable scientific journal is the publication of original research articles. The quality of these articles may be measured indirectly through the impact factor assigned to the journal. In a highly competitive publishing market the recent yearly improvement in the impact factor achieved by *Clinical Chemistry and Laboratory Medicine* is a notable achievement. The presentation of these original articles in areas of clinical application is a simple but effective tool that helps the journal to develop focus and helps the reader to appreciate the latest developments in his/her particular field of interest.

The huge expansion of laboratory medicine has led to a vast scientific and clinical literature. For laboratory medicine specialists who are responsible for service delivery, including clinical interpretation and future service development, this vast literature is challenging. The availability of Reviews; Mini Reviews; Opinion Papers; Point and Counterpoint; and Guidelines and Recommendations helps these specialists to acquire knowledge and insight in a convenient and timely manner.

For our international organisations the publication of the endeavours of our various Working Groups need to be disseminated to communicate the best practice guidance to the members of our national societies. *Clinical Chemistry and Laboratory Medicine* has been an effective vehicle for such communications as well as regulatory information and occasionally more ‘philosophical’ items of professional relevance.

Laboratory medicine is now at the forefront of understanding and implementing the products of the ‘omics’ revolution. To date the unravelling of the structure of the human genome has led to a massive increase of knowledge and understanding of the basis of human disease. New diagnostics are being developed from this knowledge but it is taking a long time for these diagnostics to find their way into routine clinical practice. There is a growing recognition that Translational Research is an important part of this journey as new diagnostics require rigorous clinical as well as technical validation against the high standards that arise from the introduction of evidence-based laboratory medicine. Meeting the regulatory requirements for a new diagnostic method is demanding of time and resource and so manufacturers have to pay careful attention to the likely cost effectiveness of any
new product. For the laboratory medicine specialist the introduction of an expensive new diagnostic may only be possible if the cost can be justified in terms of downstream patient benefit and/or a reduction in overall costs of diagnosis and management. Finally, to compound the challenge of introducing new diagnostics there is increasing realisation that the diagnostic method may be of most value as part of an algorithm that also involves clinical features and imaging data. Journals are increasingly recognising the need for a multi-stakeholder approach towards the initial clinical validation of new diagnostics and the subsequent derivation of clinical practice guidelines that optimise the use of the diagnostic method within the wider patient pathway.

It is not possible to predict how clinical chemistry and laboratory medicine may look in a further 50 years time. However, we can have a good idea of how our profession may look in 10 years time. We will be supporting medicine that is increasingly personalised, predictive, preventive and participatory (4P medicine). Traditional diagnostics will continue to be important and they will be available at higher quality with an increased proportion available at the point of care as well as in the central laboratory. The multi-stakeholder culture will be to the forefront of medicine and laboratory diagnostics will be central to all aspects of 4P medicine. Examples will include greater use of pharmacogenomics, companion diagnostics and support for patients who will lead the monitoring of their own chronic disease conditions. Informatics will be ever more important with both doctors and patients able to access records from anywhere in the country. This will put increased pressure on laboratory medicine specialists and the manufacturers of in vitro diagnostics to reduce between method variability through programmes of standardisation and harmonisation.

All of the above will provide both challenges and opportunities for scientific and clinical journals as new models of reporting clinical outcomes will be required in a 4P rather than in a population-based environment. The thirst for instant knowledge and open access publishing will increase the pressure on publishers and new business models will be required as printed journals are replaced by electronic libraries.

Throughout this there will continue to be a need for good science and for studies that translate that science into information and knowledge for the laboratory medicine specialist to use in the multidisciplinary clinical team. We are confident that Clinical Chemistry and Laboratory Medicine will succeed in positioning itself to act as a journal of choice for laboratory medicine specialists to publish their research and as a necessary resource for facilitating the delivery of high quality clinical chemistry and laboratory medicine services to the informed patient and to the wider clinical community.

Conflict of interest statement

Authors’ conflict of interest disclosure: The authors stated that there are no conflicts of interest regarding publication of this article. Research funding: None declared. Employment or leadership: None declared. Honorarium: None declared.

*Corresponding author: Graham H. Beastall, President, International Federation of Clinical Chemistry and Laboratory Medicine, IFCC Office, Via Carlo Farini 81, 20159 Milan, Italy, Phone: +39 02 66809912, Fax: +39 02 60781646, E-mail: president@ifcc.org

Ian D. Watson: President, European Federation of Clinical Chemistry and Laboratory Medicine, Milan, Italy