Summary of the general discussion

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In the general discussion several subjects related to the previously stated communications were commented. This report includes the items more that the participants considered more interesting as well as the conclusions that reached a wide consensus.

Among the participants, those who are mentioned hereinafter in alphabetical order, actively contributed to the discussion: Virtudes Álvarez Funes, Luis Cortina Tarrats, Jesús Domínguez Bueno, Helmut Dubois, René Dybkaer, Montse Ferré Masferrer, Josep Maria Gelabert Orench, F. Javier Gella Tomás, Joan Guixer Guillem, Javier Hellín del Castillo, Francesc Martos Fernández, Roser Mas Serra, Jaume Miró Balagué, Miguel Noblejas Castellanos, Antoni Nogueras Brunet, Maite Panadero García, Trevor W. Steele y Maria dels Àngels Vernetta Porta. X. Fuentes Arderiu was the moderator.

The differences between of some laboratory processes, such as calibration and verification, were discussed in full. It was clear that it is very important to use the definitions of the *International vocabulary of basic and general terms in metrology* (also known as VIM), published by the International Standard Organization (ISO) in 1993, as unique terminological reference to avoid mistakes.

[**calibration**: set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards (VIM)]

[**verification**: confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (EN ISO 9000:2000)]

An approach was made to the differentiation between "instrumental calibration" (that refers to the calibration of the parts of an analyser liable of being calibrated such as pipettes or wavelength selectors) and "metrological calibration of the analysers" (which refers to the usual calibration performed at regular intervals to make the measurements). Since an analyser is a measurement system that can include several devices liable to calibration, there was a general agreement to consider that when a measurement system (analyser) is calibrated in the clinical laboratory, the global calibration of all the parts involved in the expected measurement is being performed. Therefore, with regard to the analysers, in a

certification or accreditation process only this calibration should be requested.

Further on it was clarified that according to the document *Guide to the expression of uncertainty in measurements* (also known as GUM), published by the ISO in 1993, the estimation of the uncertainty is not the estimation of the measurement error (called "total error" in the texts that do not follow the terminology recommended by the ISO) but the estimation of the standard uncertainties generated by each one of the sources of uncertainty affecting a certain measurement procedure.

There was a long discussion about the validation of the software programs both of those that constitute a lab information system and of those that are part of the software system of an analyser. The existence of any standard related to this subject was not identified [nevertheless, information concerning this matter can be found in the web <http://www.labcompliance.com/index.htm>]. It was pointed out that the differences existing among the computer algorithms used for the calculation of the results of the measurement systems based on immunochemical procedures can be an important source of uncertainty of measurement.

Concerning the validation of the analysers, of the computer systems and of the in vitro diagnostic products in general, after a long and intense discussion, the widespread conclusion was reached that to consider a product as validated, the following requirements should be fulfilled: the specifications of the in vitro diagnostic products have to satisfy the customer requirements, these *in vitro* diagnostic products should be manufactured according to the Directive 98/79 CE and the manufacturer should be certified according to the ISO 9001 standard. Thus, it will be enough a report submitted by the manufacturer to the customer stating the verifications carried out in order to check that the transfer and the installation of the product, if appropriate, have not modified its specifications.

It was admitted that, in spite of the fact that the Directive 98/79 CE requires that, whenever it is appropriate, the analytic specificity of the in vitro diagnostic products is studied, it is very difficult that this study is carried out taking into consideration a high number of possible interferents. As for the medicines, it would be necessary to study all the interferences that the drugs commonly administered to treat a certain disease may cause to the procedure in issue.

Finally, the old problem of the production of reference values was discussed. Two well differentiated positions were held: While one position defended that

the standard does not require from the industry the production of reference values appropriate for each biologically homogeneous population to which the diagnostic procedure has to be applied, the other one maintained that the spirit of the standard is just the opposite. The discussion concluded reminding that a way to solve this conflict easily is to carry out co-operative projects between the in vitro diagnostic industry and several clinical laboratories to produce multicentric reference values, just as some recent experiences have proved. [*Clin Chem Lab Med* 2000;38:1013-9; *Clin Chim Acta* 2001;304:143-6; *Clin Chem Lab Med* 2001;39:166-9; *Scand J Clin Lab Invest* 2001; not published yet].

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