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CORRESPONDENCE

We may return unduly long letters to the author for shortening so that we can offer readers as wide a selection as possible. We receive so many letters each week that we have to omit some of them. Letters must be signed personally by all their authors. We cannot acknowledge their receipt unless a stamped addressed envelope or an international reply coupon is enclosed.

Interpretation of clinical laboratory data

SIR,—An ever-increasing number of laboratory tests are being carried out every day—and night—in hospital laboratories. All those involved in requesting these tests and those actually carrying out the analyses must be aware of the fact that several sources of error may threaten the reliability of the final results. There are the blood sampling technique, clerical errors, analytical errors, etc. Time and energy of numerous staff members of various disciplines are invested to conquer these problems and minimise the risks.

Why then is it that so often when results of laboratory investigations are published in the literature a considerable lack of care is demonstrated? Why not ascertain that the reader of the paper is able to interpret correctly the data presented? One simple but important piece of information missing too often is the nature of the material that was analysed. The terms "blood," "serum," and "plasma" frequently are so exuberantly mingled that one hesitates to believe that this was all actually sent to the laboratory. For instance, we find the following examples in the *BMJ:* serum calcium, plasma parathyroid hormone (4 August, p 309); blood urea, plasma urate, serum potassium (11 August, p 360); serum bilirubin, plasma albumin, plasma bilirubin (18 August, p 416)—despite a perfect example of full information (4 August, p 235).

Current textbooks on clinical chemistry[1] point out how and when these materials should be collected and handled. The point is always stressed that, depending on the material, analytical findings may be significantly different. Even results from plasma depend on whether it was made with the use of heparin, (EDTA), citrate, oxalate, or fluoride. An important part of the extensive literature on this subject was reinvestigated and reviewed a few years ago.[2] Such facts as a 10% difference in K^+ in serum or plasma and several mmol/l difference in the Na^+ levels are described. Plasma and serum glucose may differ 1 mmol/l (18 mg/100 ml). Cholesterol values of serum and plasma made with oxalate are 17-20% different.[3] Another matter is the various temperatures at which the enzyme activity is measured. Values found at 37°C are often twice those measured at 25°C. No one can interpret such values unless this temperature is stated, or the reference range as obtained by the laboratory in a defined, healthy sample of the population is given for comparison.

Probably these important details might be presented in a much improved manner if the manuscript were to be checked by the clinical chemist or chemical pathologist, who without doubt will be perfectly ready to do so. With approval we quote Dent, who once wrote[4]: "Surely it is not asking too much for people to state what has been analysed in any particular case and make sure that they get it right. Only in this way can we eventually educate people to send the right samples to the pathology