cal functions required for these calculations are not standard in Informix but are available from a C program library (2). Information may be retrieved across two or more relations by using joins between them. An interactive nonproce-
dural query language, "Informer," enables the user to extract information from the database and manipulate it as desired, on an ad hoc basis.

Reports such as the day sheet and cumulative patient report, which are required regularly, are generated by the Ace report writer and Unix C shell command scripts. The system generates cumulative reports only for those patients who have had new results since the last report printing, and for these patients only the current page is printed. However, any specified page or all pages on a given patient can be printed when desired. Pages are numbered. Full pages carry a "File Permanently" flag for the ward clerks. If an extra report is required for a second destination, this must be noted when the specimen is logged onto the system; the extra copy is produced the next time reports are generated.

A management module allows for reports on such things as the average number of specimens received each hour of the day and from which wards or medical staff. Moreover, Informix keeps an audit trail of all changes made to a database since it was last backed up onto magnetic tape. Thus any data accidentally lost can be completely recovered.

The blood-gas project has been operating successfully in stable form for the last eight months and has found total user acceptance. The time required by the authors for software support after the first three months of live running has been negligible.

The Unix operating system is hardware independent, being supported by many other brands of computer from stand-alone micros to mainframes. Application programs written in Informix can be transported to other computers that use the same operating system. Informix also runs under the MS-DOS operating system. In our opinion, Informix and Unix can provide the clinical laboratory with inhouse software that is totally responsive to the needs of the user.

References

Accuracy of Ektachem DT System for Urea Improved by Using 70 g/L Albumin Solution as Diluent, J. M. Orrell, A. R. Pettigrew, and M. H. Dominiczak (Dept. of Pathol. Biochem., Western Infirmary, Glasgow G11 6NT, Scotland, U.K.)

The upper limit of linearity for urea on the "Ektachem DT" system (Eastman Kodak, Rochester, NY) is 35.7 mmol/L (2.146 g/L). Urea concentrations in excess of this are frequently found in patients from renal and intensive-care units, necessitating dilution of their serum. For samples with urea concentrations outside the analyzer's range, isotonic saline (NaCl 9 g/L) is recommended as diluent (1), but for the enzyme assays on the Ektachem 400 a 70 g/L solution of bovine serum albumin (BSA) is recommended as diluent (2). We tested the performance of the urea assay in the Ektachem DT60 (y) and compared it with our in-house methodology (SMAC; Technicon Corp., Tarrytown, NY), using undiluted serum (urea concentrations 2.8–27.3 mmol/L) or serum diluted with equal volumes of isotonic saline or 70 g/L human albumin solution (Behring) in isotonic saline. Before dilution, values for urea ranged from 4.9 to 50.4 mmol/L, the urea assay in the SMAC in the latter samples being linear within this range. Equations describing the correlation between results by these methods were:

undiluted serum: \( y = 1.09x - 0.15 \) mmol/L (n = 49, r = 0.996);

serum diluted in saline: \( y = 1.0x - 1.54 \) mmol/L (n = 13, r = 0.998);

serum diluted in saline containing albumin: \( y = 1.07x - 1.89 \) mmol/L (n = 13, r = 0.994);

For the eight samples within the same concentration range (4.9–27.3 mmol/L) there was a significant difference between values obtained for undiluted and saline-diluted samples (paired t-test: \( P < 0.01 \)), between undiluted and albumin-diluted samples (paired t-test: \( P < 0.05 \)), and also between saline-diluted and albumin-diluted samples (paired t-test: \( P < 0.01 \), n = 13, range 4.9–50.4 mmol/L), the slope of the correlation line for the albumin-diluted sample being closer to that of the undiluted sera. The differences are such that, for undiluted serum with a urea concentration of 40 mmol/L (2.404 g/L) by SMAC, the expected Ektachem value would be 43.5 mmol/L (2.614 g/L). Dilution with isotonic saline would give 38.6 mmol/L (2.320 g/L) and with 70 g/L albumin solution in saline 40.9 mmol/L (2.458 g/L). These differences are relatively small, but in intensive-care and renal units, where dry-chemistry systems are sometimes used in parallel with existing laboratory service, as precise an integration as possible is required. Hence we recommended the use of the albumin/saline diluent for samples in which the concentration of urea exceeds 35 mmol/L (2.100 g/L).

References

Clinical Performance of the Abbott "Vision System": Reference Intervals and Specimen Type Comparisons, Andrew Maturen,1 Therese A. Francoeur,2 Annette L. Wynn,2 David L. Reid,1 and Christopher P. Anderson1 (1 Dept. of Pathol. and Med. Lab. Sciences, Univ. of Illinois at Chicago, Chicago, IL 60612; and 2 Abbott Laboratories, North Chicago, IL)

The Vision System (Abbott) is a bench-top, random-access chemistry analyzer for use in physicians' offices and satellite laboratories (Clin Chem 1985;31:1457–63 and 1986;32: 1413). Its two-dimensional centrifugal capabilities occasion the manufacturer's claim that several specimen types (see below) are acceptable.

We investigated normal reference intervals for the first six methods to become available on the system: glucose (GLU), urea nitrogen (BUN), uric acid (UA), cholesterol (CHOL), triglycerides (TRIG), and alkaline phosphatase (ALP), and the equivalency of results among several speci-