reagents were loaded into a cuvette rotor, then analyzed, with the following loader settings:

<table>
<thead>
<tr>
<th>Settings, %</th>
<th>Actual volume, µL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample vol</td>
<td>5</td>
</tr>
<tr>
<td>Total sample vol</td>
<td>10</td>
</tr>
<tr>
<td>Reagent vol</td>
<td>60</td>
</tr>
<tr>
<td>Total reagent vol</td>
<td>150</td>
</tr>
<tr>
<td>Reagent/diluent switch</td>
<td>Reagent</td>
</tr>
<tr>
<td>Second reagent switch</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Other instrument settings:
1) Factor
2) Lower limit 0 mg/L
3) Upper limit 40 mg/L
4) Blanking filter 8 (690 nm)
5) Reading filter 0 (590 nm)
6) Delay interval 3 s
7) Data time interval 300 s
8) Reserved
9) No. data points 2
10) Start mode 0

Notes: Assay performed at 37 °C; Substrate tape 2; Program code 45.

Assay of aqueous standards, concentrations between 25 and 200 mg/L, indicated the assay to be linear up to 200 mg/L. Accuracy was assessed by measuring analytical recovery. Aqueous solutions of oxalate, 25, 50, 75, 100, and 200 mg/L, were extracted and quantitatively measured; respective recoveries were 97.6, 100.0, 100.6, 100.1, and 102.4% (mean 100.1%). Reproducibility studies on control pools containing normal and above-normal oxalate concentrations showed between-run CVs of 8.0 and 7.2%.

We compared the manual and automated oxalate procedures by assaying aliquots of 24-h urine specimens from 10 patients. The mean oxalate concentration by the manual enzymatic method (20.2 mg/24 h) was not significantly different from that (23.7 mg/24 h) determined by the automated technique (paired t-test = 2.31; P > 0.02). The manual oxalate oxidase method was significantly correlated (r = 0.91, P < 0.001) with the automated enzymatic procedure. Regression analysis gave a slope of 0.98, with an intercept of 3.99. These results are consistent with those of other investigators who compared both enzymatic and non-enzymatic manual methods (3).

References

Immunoturbidimetry (RA™ System, Technicon) of Serum Theophylline in a Hitachi 705, P. Gobbels, J. Boulanger, P. Ers, and A. Adam (Lab. de Biologie clinique, Centre Hospitalier de Sainte Ode, B-6970 Baconfoy, Belgium)

We have adapted to the Hitachi 705 (Nakaworks, Katsuda, Japan) the RA™ System theophylline method (Technicon, Tarrytown, NY) in which monoclonal antibodies coupled to latex particles are used for theophylline measurement in serum.

The Hitachi 705 is programmed for theophylline assay as follows:

- Temp: 37 °C
- Sample vol, µL: 3
- R2: 180-12 (S)
- Wavelength 2: 600 nm
- Std. conc: 0-0-0
- Rgt. Blk. Abc: 0
- Abs. limit (rate): 25000
- Factor: −10000

With the set of ready-to-use calibrators supplied by the reagent manufacturer, the lower limit of detection (mean ±3 SD of 20 measurements of the zero standard) was 0.1 mg/L. Repeated assays, at three concentrations (6, 15, 40 mg/L, n = 15), produced within-run CVs for theophylline ≤1%. For the same range of concentrations, day-to-day CVs were 3.5% for 5, 2.1% for 15, and 2.1% for 40 mg/L. Results (n = 140) obtained by this assay agreed with those obtained by the EMT® method (Syva, Palo Alto, CA): y = 1.1x − 0.66, r = 0.99.

Thus Technicon’s immunoturbidimetric assay for serum theophylline quantification can be adapted to the Hitachi 705 without any special preparation. The results are analytically reliable and agree with those obtained by another immunological method. In addition, the Technicon reagents are more economical to use than the reagents previously used in our laboratory (Syva’s EMT method). The stability of these reagents makes them easily applicable to emergency situations and individual drug monitoring.

Informix Database Management Software in the Clinical Chemistry Laboratory, Kent R. James, Mark G. F. Jones, and Donald J. Mikkelson (Dept. of Clin. Chem., Waikato Hosp., Private Bag, Hamilton, New Zealand)

In our experience with Informix (Relational Database Systems Inc.), a relational database management package using fourth-generation technology, programs are easy to write and are accessible to users with limited data-processing experience. We therefore decided to explore the potential of Informix in the clinical laboratory by using it to computerize a subset of clinical chemistry tests, e.g., blood gases. We used a Zilog System 8000 11 PLUS micro computer (Zilog Inc., Campbell, CA 95008) with the Unix multituser operating system (Bell Laboratories, Murray Hill, NJ) (1). The Zilog has a 16-bit Z8000A central processor with 1 megabyte of main memory and 104 megabytes of secondary memory on two hard disks.

The various features of the resulting system are accessed via Informix-created menus. The database consists of two major files, one for patients and one for specimens and results. The patient number is the unique patient identifier and is used to join the patient’s record to its respective specimen records. Access to these files for data entry and retrieval and modification or deletion of records is via a forms-based screen. When a sample arrives for analysis, the patient file is queried through one of the indexed fields (patient number or patient name). If the patient is known to the system, the screen displays all of the details, which may be updated if required before the operator moves to the specimen results file to add the results for analytes assayed and other relevant details. After these have been added, the system calculates (e.g.) HCO₃⁻, CO₂, and base excess and performs temperature corrections. Some of the mathemati-