also with the antibody to the heavy chain responsible, to
distinguish intact immunoglobulin from free light chains.
Figure 1 shows a typical pattern.

So far, we have processed 125 samples by both techniques
and have found complete agreement of results for 123. In the
remaining two, the Bence Jones proteins were shown only
by immunoblotting. These data do not really show a superi-
or sensitivity for the immunoblotting technique, probably
because we concentrate the urine 100-fold or more in the
comparison assay. Nevertheless, we prefer immunoblotting
because it is time saving (5 h vs two days) and cost saving
(no concentration device is needed, and antiserum are used at
very high dilution).

This technique is only qualitative. Whether the quantity
of Bence Jones proteins is clinically relevant then remains
to be seen.

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Benzathine Interference in the EMIT®(R)-st™ Urine
Amphetamine Assay, *N. R. Badcock and G. D. Zonnetti*
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Australia)

The rapid "one-step" homogeneous immunoassay for
amphetamine (EMIT®(R)-st™: Syva Corp., Palo Alto, CA) is
designed to detect commonly abused amphetamines in
urine. Certain amphetamine-like compounds such as ephed-
rine, phenylpropanolamine, diethylpropion (I), and labeta-
lol (2) also produce positive results in the assay. Some of
them—those that have a hydroxy group attached to the β-
carbon atom of the isopropylamine side chain—can be
distinguished from "true" amphetamines, i.e., d,l-amphet-
mine, d-amphetamine, and methamphetamine, with the EMIT
amphetamine confirmation kit (3). We describe the
case of a teenage girl whose urine was strongly positive for
amphetamine, both in the EMIT-st™ amphetamine assay
and in the EMIT amphetamine confirmation testing, al-
though no amphetamine or amphetamine-like compound
had been ingested.

The etiology of a choreiform movement disorder in this
13-year-old aboriginal girl could not be established, and a
drug screen was ordered. No current medications or antido-
tal treatment was mentioned. Toxicological screening of a 24-
h urine collection with the EMIT-st™ amphetamine assay
suggested the presence of an "amphetamine" (ΔA = +208).
Re-testing of the same urine specimen with the EMIT am-
phetamine confirmation kit, again produced a strongly
positive result (ΔA = +173). Mass spectrometry, however,
showed the presence of benzathine and excluded other basic
drugs. Subsequent inquiries revealed that the patient had
been treated for several days with benzathine penicillin V
suspension (LPV benzathine, 500 mg q.i.d.). Both the EMIT-
st™ amphetamine assay and the EMIT amphetamine confr-
matory test were positive when the LPV suspension (250
mg/5 mL) was diluted 1000-fold with water. In contrast,
neither urine specimens collected from patients treated with
penicillin V tablets (potassium salt) nor an aqueous solution
of one of these tablets (250 mg/5 mL) was positive when
subjected to the EMIT-st™ amphetamine assay.

Benzathine penicillin V, a bactericidal antibiotic, can be
administered intramuscularly or, as in the above case,
orally as a suspension. The benzathine (N,N'-dibenzylethyl-
enediamine) component of the formulation is not derived
from β-phenylisopropylamine and is thus not structurally
similar to amphetamines. It is not listed as a cross reactant
in the package information sheet (I). Despite this, urine
from a patient given benzathine penicillin V suspension
cross reacted in both the EMIT-st™ amphetamine assay
and the EMIT amphetamine confirmation testing. The case
underlines the need to confirm positive toxicology screen
results by different methodologies and emphasizes the im-
portance of the clinician recognizing and reporting medical
therapy when requesting drug screens.

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Despite Correlation, Random Spot and 24-h Urine
Specimens Are Not Interchangeable, *Elizabeth M. S.
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Krieg et al. (I) recently examined 10 analytes in 24-h and
morning urine specimens from 80 healthy individuals. Re-
ference intervals were wide but in general agreement for the
two types of specimen, and there was significant correlation
between values. It was concluded that the composition of
morning urine reflects 24-h excretion.

| Table 1. Reference Intervals for 24-h and Random Spot
| Urines |
| group | 24-h collection | Random spot |
| Sodium | Output, mmol/d | Conc., mmol/L | Conc., mmol/L |
| Men | 45-317 | 44-166 | 36-190 |
| Women | 58-189 | 38-182 | 34-154 |
| Potassium | Men | 32-114 | 24-84 | 18-128 |
| Women | 24-116 | 22-72 | 16-114 |
| Urea | Men | 187-514 | 88-400 | 98-522 |
| Women | 111-380 | 90-386 | 46-424 |
| Creatinine | Men | 7.5-18.5 | 5.5-15.7 | 3.6-22.3 |
| Women | 5.0-13.0 | 3.6-13.4 | 1.7-19.0 |
| Calcium | Men | 1.7-9.6 | 0.7-6.1 | 1.0-8.2 |
| Women | 1.3-7.0 | 0.9-5.6 | 0.7-7.5 |
| Phosphate | Men | 10.9-41.3 | 7.4-35.8 | 3.4-45.8 |
| Women | 9.2-32.6 | 8.6-32.2 | 1.8-38.2 |

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