be avoided if our aim is to create a good work environment. The exact meaning of words such as “adverse,” “toxic,” “disease,” or “illness” is important but the process of defining them must not obstruct the improvement of the work environment.


Correspondence

improvement of the submission... reprinted. (1993;50:1051-2) criticises the Industrial Injuries Advisory Council (IIAC) for its decision to recommend the prescription of chronic bronchitis and emphysema for coal miners. He notes, presumably sardonically, that it was “perhaps coincidental” that the IIAC report was sent to the Secretary of State in November 1992, shortly after the announcement of large scale impending pit closures.

In fact it is plain from the face of the IIAC report that it was sent to the Secretary of State in August 1992—that is, two months before the Government’s announcement of pit closures. The report was not officially published until November. Delays of several months between submission and publication are quite usual and so a conspiracy theory (or at least one that implies IIAC) seems entirely unwarranted. The present writer is not without criticisms of the role of the IIAC (but it does help to get one’s facts right.)

Coal mining, emphysema, and compensation revisited

Editor,—Journalists should always check their facts. The same principle presumably applies to higher forms of life. Morgan (1993;50:1051-2) criticises the Industrial Injuries Advisory Council (IIAC) for its decision to recommend the prescription of chronic bronchitis and emphysema for coal miners. He notes, presumably sardonically, that it was “perhaps coincidental” that the IIAC report was sent to the Secretary of State in November 1992, shortly after the announcement of large scale impending pit closures.

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The correction of urinary mercury concentrations in untimed, random urine samples.

Editor,—We note with interest the continuing number of reports defining dose-effect relations for occupational exposure to mercury (Hg) that have used urinary Hg concentration in both untimed, random samples (spot urines) either as a cumulative exposure dose or a simple dose index. However, these studies often use spot urinary Hg concentrations readily available from routine biological monitoring strategies in the chloralkali and other Hg utilising industries. Diurnal variation in the metal’s excretion has been noted, but the higher concentrations found in morning samples compared with afternoon and evening samples have been suggested as being of no practical relevance for biological monitoring schemes. Urinary Hg concentrations are said to reflect integrated exposure over the preceding weeks or months in workers with long term exposure. There has been debate about whether or not the forms of correction for urinary concentration are better in reducing intra-individual variation of urinary Hg and thus making a single spot measurement more closely reflect true Hg excretion.

The current approach (Brooke et al., 1989; Calvert et al., 1990) is to correct for creatinine. However, this method would not correct for variations in creatinine excretion, a factor known to influence urinary Hg concentration. Several studies have been reported on the variability of urinary Hg concentration within and between days. Some of the variation not corrected for creatinine correction may be more reproducible between subjects than SQ correction. It should be noted that, even with creatinine correction, the mean CVr of around 15% with the imprecision of our method implies that two consecutive daily spot urine samples, taken at a time to reflect the true urinary Hg concentration, could statistically be around 45%-50% apart (t = 2/CVr). It has been widely accepted in clinical pathology that acceptable analytical imprecision should be less or equal to half the average intra-individual biological variation (CVr).

This value for urinary Hg corrected for creatinine can be derived from the formula CVr = CVr + CVr. Thus we suggest that the combined analytical precision of spot urinary Hg and creatinine method should be less than 7.3%.

Correction for creatinine and, perhaps slightly less satisfactory, correction for SQ decrease the uncertainty of a spot urinary Hg concentration in reflecting accurately the true Hg excretion in an individual subject. Corrected spot urinary Hg results have proved their use both in routine biological monitoring and in studies describing dose-effect relations that may aid in setting standards. It is important, however, that the limitations and errors associated with their use as dose measures are understood.

HJ MASON
Occupational Medicine and Hygiene Laboratory.
HSE, Sheffield.
IM CALDER
HSE, Luton.

Comparison of mean CVs of corrected urinary Hg results with uncorrected results

<table>
<thead>
<tr>
<th>CVr</th>
<th>Creatinine corrected mean (SD)</th>
<th>CVr</th>
<th>SG(1.016) corrected mean (SD)</th>
<th>CVr</th>
<th>Omolality corrected mean (SD)</th>
<th>CVr</th>
<th>Uncorrected (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within day (100 subjects)</td>
<td>22.4 (7.9%)</td>
<td>p &lt; 0.001</td>
<td>32.2 (12.3%)</td>
<td>p &lt; 0.001</td>
<td>36.5 (15.1%)</td>
<td>p &lt; 0.001</td>
<td>47.3 (22.2%)</td>
</tr>
<tr>
<td>Between day (10 subjects)</td>
<td>15.6 (7.2%)</td>
<td>p &lt; 0.001</td>
<td>22.0 (14.0%)</td>
<td>p &gt; 0.05</td>
<td>37.3 (23.6%)</td>
<td>p &gt; 0.05</td>
<td>37.3 (23.6%)</td>
</tr>
</tbody>
</table>


