schools are federally required only to identify friable asbestos containing materials and notify those affected. Federal regulations, in force, neither require corrective action nor provide decision guidelines. Because I believe such guidelines are necessary and because they will presumably reappear and be evaluated, I wish to comment on the authors’ analysis of the original EPA Algorithm.

There are 90,000 public schools in the United States. Of the two-thirds constructed from 1946–1973 when spray-on asbestos enjoyed wide use, a relatively small number (6–12 percent) actually contain spray-on asbestos. An even smaller number (3–4 percent) contain friable spray-on asbestos in areas of student exposure to an extent sufficient to warrant corrective action under the EPA Algorithm. The authors’ analysis underutilizes this information.

Studying only sites which in fact do contain spray-on asbestos has led the authors to unduly deflate the Algorithm’s specificity. Including 41 study sites free of this material would increase the specificity from the 53 percent reported to 96 percent. If, as some might argue, the Algorithm is only to be used at schools proven to contain spray-on asbestos, the specificity of 53 percent would be offset by the then 30–40 percent prevalence of schools requiring corrective action. Either broadening the Algorithm’s study spectrum or limiting its sphere of practical application would lead the Algorithm to be right half the time it opted for corrective action.

If we could rely on the 50 per cent positive predictive value, and the 98–99 per cent negative predictive value suggested by the authors’ data, 90 per cent of the schools would be quickly exonerated. The remaining 10 per cent would only require a second, more specific test. Unfortunately, air sampling cannot be considered an appropriate second test for school settings.

The Algorithm’s reported sensitivity of 98 per cent poorly reflects the characteristically marked underreporting by school administrators. I would recommend that industrial hygienists—not school administrators—inspect all schools constructed before 1973, characterize all spray-on as well as non-spray-on asbestos exposure sources, and base corrective action needs on a yet to be agreed upon algorithm. Vermont has shown that the implementation of such recommenda-

tions need not present an overwhelming burden.

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REFERENCES

Response from Findley, et al.

Dr. Kern’s assertion that we have in a sense deflated the Algorithm’s specificity is mathematically correct, but is not consistent with the EPA Algorithm we evaluated. The process starts by first determining through laboratory tests if any friable material contains asbestos. Thus, specificity should be evaluated in the context of the presence of asbestos.

Even using Dr. Kern’s estimate of 96 percent specificity would still yield a 4 per cent false positive rate. The predictive value (PV) of the algorithm for action (to encapsulate or remove) was judged to be 75 per cent (127/167). This would imply that 3 out of 4 decisions to take any action actually needed some action as judged by the experts. The PV for a decision to remove was only 61 per cent (67/110). Finally, the implications of the predictive value must not be ignored in the context of only those schools “proven to contain spray-on asbestos.” While it is easy to argue the obvious—removal of the risk entirely is the only optimal solution—the economics mitigate against it. Therefore we find ourselves faced with serious risks and a proposed risk assessment protocol which when applied as in our test population yielded agreement with our panel of experts of 58 per cent, 16 per cent, 67 per cent, 49 per cent and 88 per cent for the five sites we surveyed. The poor predictive value and wide variability from the “suggested” action leaves great potential for unnecessary concern on the part of the community, expenditures, and unnecessary risks of legal actions. Finally, in the two situations where removal was recommended by the experts, 12 per cent and 33 per cent of the lay individuals recommended less stringent action.

In our paper we computed sensitivity as action, either encapsulation or removal. We did not make a major point of differences in classification, since it is our belief that either action would lead to more professional advice presumably leading to the correct action. An algorithm which has so much variability has tremendous potential to confuse and incite a community while adding little over common sense and suggestions to obtain professional advice. The use of “EPA Algorithm” may also convey a false sense of security ("the Algorithm’s exquisite sensitivity") while leaving potential risks untouched. However, in conclusion we do agree with Dr. Kern’s suggestion regarding industrial hygienists and use of a modified algorithm.

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On Variability in Children’s BP Measurements

I have read with interest the article by Osborne, Mullin, and Roberson, The Variability of Blood Pressure Measurements in Children, in a recent issue of the Journal (Am J Public Health 1983; 73:1207–1210). There are two important causes of variability unaccounted for in this article on sources of variability.

First, the authors state, “Observers were blind to each others’ measurements and to previous measurements.”