

Specific Errors and Other Comments Noted in Final Draft of Air Quality
Criteria for Lead (December 1977)

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1-6 2 The value of 20 to 40 $\mu\text{g/liter}$ for processed milk does not apply to canned evaporated milk, which should be identified separately as containing 200 to 400 $\mu\text{g Pb/liter}$.

1-15 14 "... essential nutrients such as calcium... protein..." This list should also include zinc.

1-15 4 lines up from the bottom "... storage approaches 95%..." This sentence would be clearer if it read "... such storage in bone approaches 95%..."

1-32 The discussion of the "Billick data" from New York City should include the very strong possibility that the changes observed may be related to changes in the population screened. If I know conscientious public health nurses, they will seek out those children who are known to them to be at high risk first. When this is accomplished, they may well turn to lower risk children. This very real possibility could not, of course, be evaluated prior to an in depth analysis of the data.

9-17 to 9-18 On page 18 in which the procedure of Chisolm and Brown is briefly described, it is stated that "coproporphyrin employed as the standard." This is incorrect. Protoporphyrin is used as the primary standard. Coproporphyrin is used only as a secondary standard to adjust for instrumental drift. The same comment also applies to the methods of Piomelli and Granick, et al. Historically, the use of coproporphyrin as a primary standard was necessary because of the unavailability of protoporphyrin standard reference material. This fact and various instrumental considerations contributes importantly to interlaboratory variation. Now that protoporphyrin standards are available, this error should be corrected.

11-11 2nd para. This paragraph summarizes work by Moore, et al. It might be of interest to add the Pb-B level at which the myocardial mitochondrial changes were observed and significant inhibition of cardiac ferrochelatase was found. These changes were observed at Pb-B = 53 μg .

11-18 bottom line "... encephalopathy at a previous time. " A more precise statement would be "... encephalopathy at a previous time and higher Pb-B."

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11-27 6 "...first reported by Nakao, et al...in 1968." This statement is incorrect. Nakao, et al and deBruin were not the first to observe that ALAD is inhibited by lead. This observation was made in the first published report on the purification and properties of δ -amino-levulinic acid dehydratase by Gibson, Neuberger and Scott (Biochem. J. 61:618, 1955) and shortly thereafter in 1956 by Drexel and Falk, as well as by Granick and Mauzerall in 1958.

11-29 1 "...ALAD activity may be used to estimate blood lead with a good degree of accuracy." This is incorrect from the methodologic point of view. In the usual assays depicting the ALAD Pb-B relationship, there is wide scatter about the regression line. Only if DTT and zinc are added to optimize in vitro assays can one get a reasonably close approximation of Pb-B by determining ALAD.

11-30 3 "Its use for this purpose..." The correct statement is "Its use in children for this purpose has, however, been rejected." This measurement has, however, been widely used in adults and indeed, in subsequent chapters, considerable use has been made of this technique in the development of dose-response data.

11-30 For reasons stated in my letter, I cannot accept the discussion of the Pb-B-ALAU relationship, as described on this and the next page.

11-39 8 "...a group in which iron-deficiency anemia is uncommon!" The data gathered in the Ten-State Nutrition Survey, as well as a rather large body of data in the hematology literature indicate that iron deficiency is common in adolescents and adult females. In the case of adult females, the daily requirement for iron is higher than it is in males. In this and other areas in which the difference in the FEP response between adult males and females is discussed, it is appropriate to place emphasis on the difference in iron requirements rather than on hypothetical and as yet unproven hormonal factors.

11-62 On this and subsequent pages, the work of de la Burd  and Choate is listed together with others as a retrospective study. This is not true. The work of de la Burd  and Choate is the only prospective study on the question of neurobehavioral impairment that has been done. Mothers were followed during pregnancy and infants during early infancy. Only those considered normal at nine months of age were selected for study. The lady should receive credit for this fact. Although this study has its weaknesses, the fact that it is prospective is one of its great strengths. (In general, I consider the portion of the chapter on CNS effects in children as quite good.)

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11-79 6 lines up from the bottom "... several with sickle cell trait ." This is incorrect, and therefore misleading. Among the few case reports of clinically evident peripheral neuropathy in children, there is a striking clustering of patients with sickle cell disease (hemoglobin Types SS and SC), but not in those with sickle cell trait (hemoglobin Type SA). In several other places in the document, sickle cell trait has been included as a follow-up to this incorrect statement. The sickling diseases together occur in well under 1% of the black population.

11-139 6 and related material in the rest of this para. "... first noted in acute lead poisoning by Wilson..." This is incorrect. Wilson and coworkers were the first to report the occurrence of hyperaminoaciduria in lead poisoning. Glycosuria had, of course, long been known. They did not note the occurrence of hypophosphatemia and hyperphosphaturia which, functionally, is the important component of the Fanconi syndrome. The first report of the full Fanconi syndrome is that of Chisolm, Harrison, Eberlein and Harrison (A. M. A. Am. J. Dis. Child. 89:159-168, 1955).

11-146 5 "... stillbirths and abortions." This is incorrect. Lane's report concerns the occurrence of three stillbirths in 15 pregnancies carried apparently to term. He made no comment concerning abortions.

11-151 last para. This paragraph concerns Fahim's studies in pregnant women. While emphasis is placed upon residence in a lead belt area, Fahim's data suggest that there is a relationship between preterm delivery and premature membrane rupture related to blood lead concentration, irrespective of residence. Similar elevations in Pb-B were also found in the control area.

11-152 3 The paragraph starting on line 3 concerning the case report by Palmisano should be omitted. Emphasis in this paragraph is placed upon lead data, but not on the fact that the mother was a chronic alcoholic. The findings in the infant fit quite well with the fetal alcohol syndrome, which on clinical grounds, was probably the major factor in this case.

11-171 1 "... yield values lower than the actual blood lead levels." This sentence carries the implication that polarographic techniques are not as accurate as dithizone and other techniques for the measurement of lead. There is a good deal in the analytical literature to indicate that electrochemical techniques, including polarographic methods, are inherently more accurate than dithizone and atomic absorption methods.

12-15 2 "... and 36 µg/dl..." Is this a typographical error?

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12-55 13 "... The lead levels were about 25,000 ppm..." This sentence is not clear. Did you mean the soil lead levels?

12-69 8 "... A consistent correlation between air and blood lead..." This sentence does not seem to agree with the data in Table 12-26 just below. Are there some typographical errors involved in the table or did you mean no consistent correlation?

12-98 8 lines up from the bottom This paragraph cites studies by Sayre in Rochester, N. Y. These workers were able to make a distinction between old and modern urban housing. Lead values were higher in the old urban housing than in the modern urban housing. This point has been omitted from this paragraph.

13-13 (13.5.1.3) The title of this section is "Effect of lead on δ -amino-levulinate dehydratase (δ -ALAD) and δ -aminolevulinic acid (δ -ALA) excretion". Discussion of δ -ALA excretion has been omitted from this section.

13-14 3 "... ALAD inhibition is virtually complete..." The scientifically correct statement is as follows: "ALAD inhibition, as measured by various in vitro assays in peripheral blood, is virtually complete..."

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