PERIODIC REPORTS HAVE EMPHASIZED the lack of stability of repeated tuberculin skin tests in children. Kunofsky and Katz reported on two large groups in two schools for mental defectives. Reversion rates of 4 to 19 per cent were found. Marks et al. reported reversion rates between 12 and 26 per cent, depending on criteria used, during a one-year period of observation of 1,100 tuberculin positive children.

Adams et al. found the reversion rate for early converters to vary inversely with the initial degree of tuberculin positivity. Using National Tuberculosis Association definitions for tuberculin positivity, they found that children who were recent converters with a 1+ tuberculin skin test reaction had a reversion rate of 76 per cent within two years; 2+ initial tuberculin reactions had a reversion rate of 50 per cent; 3+ initial reactions had a rate of 38 per cent; and 4+ initial tuberculin reactions had a reversion rate of 17 per cent. The 160 children were mainly under 16 years of age, and 50 per cent were under six years of age.

Kent and Blum report a one year reversion rate of 7.6 per cent among school children. In their series, the reversion rate dropped sharply for children older than 12 years.

Dahlstrom et al. reported a reversion rate of 3.6 per cent per year for untreated and 15 per cent for children treated with isoniazid.

Kunofsky and Katz stated: "Although most emphasis is placed in this study upon changes involving decreases or loss of sensitivity, the unstable tuberculin reaction may, and often does, move in the other direction, toward an increase." This has been our experience in a previous study of weekly tuberculin skin tests (Fig. 1). Tuberculin skin tests were performed weekly on the same patients by the same physician. Variable diameters of induration reflect variations in technique, biologic variables, etc.

In view of the reported instability of the tuberculin test, a group of 50 unselected children were studied with the cooperation of the Long Beach Health Department. These children were found to have positive tuberculin skin tests either during a survey or at a routine physical examination, and were referred to the Chest Clinic of the Long Beach Health Department. The tuberculin skin test, using intermediate PPD (0.0001 mg.) was repeated at least once in most cases and often several times. The children varied in age from one to 16 years. Twenty-five were one to five years of age, ten were six to ten years of age, and 15 were 11 to 16 years of age. Thirty-two were white, ten Negro, five Japanese, two Hawaiian, and one Guamanian.

Twenty had minimal pulmonary lesions on x-ray examination and 30 had none, but all received isoniazid, dosage depending on age and weight. Tuberculin skin tests were repeated annually. Eleven were retested as long as three to nine years after their initial positive tuberculin skin reactions.

Although there was variation in the diameter of induration, all repeat skin tests remained positive except in one child. This was a two-year-old girl of Guamanian descent who had no pulmonary lesion. Her initial tuberculin skin test with intermediate PPD (5 T.U.) yielded an induration of 20 mm. diameter. Repeat skin tests using intermediate and No. 2 PPD were negative after one year of isoniazid. Two years after the initial positive skin test, her intermed-
Figure 1: Tuberculin skin tests, using PPD No. 1 (0.0002 mg.) were performed weekly. Diameters of induration of weekly tests of two patients are illustrated. Note the variation in diameters of induration, although the tuberculin skin test remained positive at each testing.*

ate PPD skin test was negative, but PPD No. 2 produced 5 mm. of induration.

It is difficult to explain the persistence of tuberculin positivity in 98 per cent of these children, in contrast to other reports. It is apparent that isoniazid therapy did not affect the positivity of the tuberculin skin test. The diameter of induration varied, but this is to be anticipated.*

A study of 100 consecutive adults admitted with active pulmonary tuberculosis revealed that all had positive tuberculin skin tests. These patients were treated with various tuberculosis drug regimens, usually isoniazid 300 mgm. and PAS 12 grams daily. Tuberculin skin tests were repeated at the time of discharge, and all remained tuberculin positive.

**SUMMARY**

Serial tuberculin skin tests in the same person will produce variable results. Reported tuberculin test reversion rates in children vary from 2 to 26 per cent. In some individuals, a questionably positive skin test is the sole base-line for future tests, and high "reversion rates" may result. It is suggested that a child have at least two positive tuberculin skin tests, i.e., induration of 5 mm. or more in diameter read by experienced personnel, before being considered a tuberculin converter. Further studies on children so tested may clarify the wide variation in reported reversion rates.

**RESUMEN**

Las pruebas en serie en la misma persona producirán resultados variables. La reversión de la prueba de la tuberculina en los niños varía de 2 a 26 por ciento. En algunos individuos una reacción positiva dudosa es la base única para futuras pruebas y de esto puede resultar una elevada proporción de reversiones.

Se sugiere que el niño tenga por lo menos dos reacciones tuberculinicas positivas cutáneas, induración de 5 mm. o más de diámetro leída por personal experimentado antes de considerarlo un viraje. Estudios ulteriores en niños así investigados pueden aclarar la gran variación que existe en las proporciones de virajes publicadas.

**ZUSAMMENFASSUNG**

Serienmässige Tuberkulin-Hautteste bei der gleichen Versuchsperson ist imstande, zu ganz
verschiedenen Ergebnissen zu führen. Die berichte-
tenen Tuberkulin-Reversionsraten bei Kindern
schwanken zwischen 2 und 26%. Bei manchen
Individuen ist eine fragliche positive Hautprobe,
die einzige Grundlage für weitere Tests und
darauf können hohe "Reversions-Raten" folgen.

Es wird vorgeschlagen, daß ein Kind wenig-
stens 2 positive Tuberkulin-Hautreaktionen auf-
weisen müsse, d.h. Induration von 5 mm oder
mehr im Durchmesser und abgelesen durch er-
fahrenes Personal, ehe das Kind als ein Tuberk-
ulin-Konverter angesehen werden kann. Weitere
Untersuchungen an so geprüften Kindern dürften
imstande sein, die erhebliche Variation der bish-
er mitgeteilten Reversionsraten aufzuklären.

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RESISTANCE TO DRUG THERAPY

Negro patients in a sanatorium in the state of
Virginia were divided into two groups on the basis
of whether or not there was a history of prior
therapy for their disease. Of the patients who gave
no history of prior therapy, 56 per cent had organ-
isms that were susceptible to streptomycin, INH
and PAS. Of the organisms isolated, 12 per cent
showed resistance to a single drug. 18 per cent to
two drugs, and 14 per cent to three drugs. Of these
patients who gave a prior history of treatment of
their tuberculosis, only 33 per cent had organisms
sensitive to all three drugs. Many patients who had
tuberculosis organisms that were resistant to drugs
on admission did recover, even with organisms show-
ing in vitro resistance to all three drugs. This seems
to be an indication of the important role of native
and acquired host resistance in the recovery process.
It was noted that patients who had received prior
therapy for their disease went into a chronic
stage of the disease or died of their tuberculosis
three and one-half times more frequently than those
patients who had had no prior therapy.

Gerszen, E., Brummer, D. L., Allison, M. J. and
Hench, M. E.: "Increased Resistance of Mycobacterium

COEXISTING PULMONARY FUNGUS INFECTION AND TUBERCULOSIS

Thirty-two cases of active pulmonary histoplas-
omas are reported with two cases of co-existing
active tuberculosis and with four cases of co-
exsisting infection. Bacteriologic evidence of other acid-fast
organisms which may be saprophytes are also re-
ported. Attention is called to the fact that no myco-
logical evidence of co-existing infection in active
cases of tuberculosis has been found. A more aggres-
sive and continuous search for H. capsulatum should be
made in these cases.

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Fungus Infection and Tuberculosis at Distinct Two State

SERUM LEVEL VARIATIONS

The results of microbiologic assays for antimi-
brially active isoniazid, SM and PAS in serum are
presented. Marked individual variations of serum
levels of active isoniazid and SM in healthy adults
and tuberculous patients with or without previous
chemotherapy were observed, but there was little
variation of serum level in any given case on re-
peated tests during long term chemotherapy with
the drugs. PAS serum levels in patients receiving
PAS were higher than levels in patients without
previous PAS therapy, even though individual vari-
ations of serum levels were observed.

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Term Administration on the Serum Level," Acta Tuberc.