10-16

Fiscal year - 1966
18 months - 1-1-65
6-30-66

DIAGNOSTIC LABORATORIES

ANNUAL REPORT OF THE WASSERMANN LABORATORY
FOR PERIOD JANUARY 1, 1965 THROUGH JUNE 30, 1966

Kenneth F. Girard, Ph.D., Assistant Director

GENERAL SUMMARY

During the period (18 months) January 1, 1965 through June 30, 1966 the Wassermann Laboratory performed 715,152 tests while processing 713,253 specimens. During this period a total of 99,500 syphilis serology blood specimens were tested to comply with the premarital law, and 83,560 to comply with the prenatal law. Out-of-State premarital certificates were issued to 2759 applicants.

The Wassermann Laboratory participated again during this period in the National Evaluation of Serologic tests for syphilis conducted by the U. S. Public Health Service, and standard tube Hinton tests were performed on two hundred test serums. In this Federal Program results obtained by the Wassermann Laboratory correlated well with those obtained by the Venereal Disease Research Laboratory in Atlanta.

In addition, two thousand, one hundred and thirty-three (2,133) tests were performed on seven hundred and eighty (780) specimens that were examined for rabies. During the above 18-month period a total of five animals - all bats - were found positive for rabies:

| City or Town | Date | Associated with Human Biting | Species |
|---|---|---|---|
| Northampton | March, '65 | No | Big Brown Bat |
| Upton | June, '65 | No | Big Brown Bat |
| Whatley | Aug. '65 | No | Big Brown Bat |
| Boston | June, '66 | No | Little Brown Bat |
| Granby | June, '66 | No | Little Brown Bat |

The routine application of the rabies fluorescent antibody tests to rabies specimens was instituted during July, 1965, and the preparation, cutting, and staining of paraffin sections of gasserian ganglia was discontinued at that time. Since September, 1961, when the first rabies positive bat was detected in Massachusetts, 17 rabies infected bats have been diagnosed by the Wassermann Laboratory, 16 of which were collected within Massachusetts.* As of June 30, 1966 no animals other than bats have been found rabid in Massachusetts since 1949 although rabies in foxes and skunks was observed in Connecticut, near the Massachusetts border, during 1965 and 1966.

*one was collected at Jaffrey, N.H.

# STUDY OF THE FLUORESCENT TREPONEMAL ANTIBODY-ABSORPTION TEST FOR SYPHILIS.*

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Starting March 1, 1966 and continuing through June 30, 1966 a study of the above test was undertaken by the Wassermann Laboratory in order to evaluate the procedure and relate it to certain other laboratory tests for syphilis. The FTA-ABS test, which was developed by Dr. William H. Deacon and Staff at the Venereal Disease Research Laboratory of the Communicable Disease Center, had been reported to be of equal specificity and to be slightly more sensitive than the Treponema Pallidum Immobilization Test. The availability of a relatively simple and definitive test for syphilis was of such importance to our laboratory that it was considered urgent to obtain necessary reagents and acquire proficiency in the method. In this regard, considerable help was received from Dr. Deacon and his associates at the Venereal Disease Research Laboratory. Two hundred and thirty-two (232) serums representing diagnostic problem cases were received through the Division of Communicable Diseases-Venereal Diseases for Rapid Protein Complement Fixation Tests and were also tested by the quantitative Hinton and the FTA-ABS tests. The following results were obtained:

| | |
|---|---|
| Total serums tested by all three procedures: | 232 |
| Reactive FTA-ABS with non-reactive RPCF: | 37 |
| Reactive RPCF with non-reactive FTA-ABS: | 5 |
| Reactive RPCF and Reactive FTA-ABS: | 64 |
| Non-reactive RPCF and Non-reactive FTA-ABS: | 115 |
| Anti-Complementary by RPCF: | 11 |
| but FTA-ABS was: Reactive, 5 serums and non-Reactive, 6 serums. | |

The above results are essentially in agreement with reports of Deacon and others, who found that the FTA-ABS was significantly more sensitive than the RPCF in all stages of syphilis. The 5 serums found Reactive by the RPCF and Non-Reactive by the FTA-ABS gave the following quantitative Hinton results:

| Mass. Lab. No. | FTA-ABS | RPCF | Quantitative Hinton |
|---|---|---|---|
| 9038 | WR | WR | WR in undiluted serum only |
| 9078 | WR | WR | Reactive at 2 dils |
| 9092 | WR | WR | Non-reactive |
| 9096 | WR | WR | Reactive in undiluted serum only |
| 9200 | WR | WR | Reactive at 4 dils |

From the foregoing it appears that whenever a serum is found reactive by the RPCF invariably it is also reactive by the FTA-ABS, whereas a reactive FTA-ABS is frequently not accompanied by a reactive RPCF. Only 6 serums in this study group were found FTA-ABS reactive with completely non-reactive quantitative Hinton findings, and only one of these serums was Hinton reactive at 8 dils or more. On the other hand 33 serums were found non-reactive by the RPCF, but with reactive Hintons and FTA-ABS tests. Only 4 serums were non-reactive by the FTA-ABS test that also showed both reactive Hintons and RPCF tests. Thus correlation between the FTA-ABS and the quantitative Hinton test was considerably better than between the RPCF and the quantitative Hinton test.

Although further evaluation of the FTA-ABS seems desirable before drawing any definite conclusions, if these findings are sustained, it would seem reasonable to consider discontinuing the RPCF altogether and substituting the FTA-ABS for diagnostic problem cases

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* Excerpt from the Annual Report, Fiscal 1966, Division of Diagnostic Laboratories, The Wassermann Laboratory, Mass. Dept. Public Health.

# STUDY OF THE HINTON SLIDE TEST

A slide modification of the Hinton tube test was developed and a parallel study was conducted employing 997 serums routinely submitted for testing by the Quantitative Hinton Tube Test. Split specimens were tested independently by the Hinton slide and tube methods and the results of each testing procedure were separately tabulated and then compared. On the last 695 specimens, the VDRL Slide Quantitative Test was also performed to yield a comparison of this method with the Hinton Tube and Slide Tests.

In quantitative testing, agreement is usually defined as identical titers or agreement within plus or minus one serial dilution. Employing this criterion, 90.7% agreement was obtained with the Hinton Slide and Hinton Tube Tests. 84% agreement was obtained between the VDRL Slide and Hinton Tube Test. On serums showing a difference of two or more dilutions between the two Hinton methods, 22 gave higher titers with the Hinton Slide Test, and 19 had higher titers in the Hinton Tube Test.

The Hinton antigen suspensions employed in both the Slide and Tube methods are useable for up to three weeks, while the usual VDRL antigen suspension must be prepared fresh daily. The slide Hinton can be performed in ten minutes as opposed to 16 hours for the Tube Hinton. One tenth as much serum and antigen are required for the Hinton Slide method as for the Tube method. The high degree of correlation of the Slide Hinton with the Tube Hinton in this study suggests the possibility of its use as an adjunct to the Tube test when a prompt result is desired or in cases where insufficient serum is submitted for routine Hinton testing by the Tube technique.

DIAGNOSTIC LABORATORIES
WASSERMANN LABORATORY
SPECIMENS AND TESTS - JANUARY 1, 1965 - JUNE 30, 1966

| | |
|---|---|
| **BLOOD SERUMS** (Syphilis Serology) | |
| Number of Specimens | 697,622 |
| Tests | |
| Hinton Qualitative | 671,109 |
| Hinton Quantitative | 18,814 |
| Davies-Hinton Micro Flocculation | 5,228 |
| Reiter Protein Complement Fixation-Qualitative | 2,884 |
| Reiter Protein Complement Fixation-Quantitative | 233 |
| **SPINAL FLUIDS** (Syphilis Serology) | |
| Number of Specimens | 14,633 |
| Tests | |
| Davies-Hinton | 14,633 |
| **MISCELLANEOUS** (Serology) | |
| Number of Specimens | 18 |
| Tests | |
| Glanders Complement Fixation Test | 11 |
| Rabies Neutralizing Antibody Test* | 7 |
| **ANIMAL HEADS FOR RABIES EXAMINATION** | |
| Number of Specimens | 780 |
| Tests | |
| Impressions (Negri Bodies) | 780 |
| Impressions (Fluorescent Antibody) | 526 |
| Sections (Cassorian Ganglion)** | 88 |
| Mouse Inoculations | 739 |
| TOTAL SPECIMENS | 713,253 |
| TOTAL TESTS | 715,252 |

*done at the Communicable Disease Center
**discontinued June 30, 1965