I. Other Infections

Tuberculosis

Bodmer T, Gurtner A, Scholkmann M, *et al*. Evaluation of the COBAS AMPLICOR MTB system. Journal of Clinical Microbiology 1997;35(6):1604-05

Chander J, Subrahmanyan S, Gupta R. Sensitivity of EIA in the diagnosis of tuberculosis using 38 kDa antigen. Journal of the Indian Medical Association 1996;94(10):376-378

Chiang IH, Suo J, Bai TP, *et al*. Serodiagnosis of Tuberculosis. American Journal of Respiratory Critical Care 1997;156:906-911

Devallois A, Legrand E, Rastogi N. Evaluation of Amplicor MTB test as adjunct to smears and culture for direct detection of mycobacterium tuberculosis in the French Caribbean. Journal of Clinical Microbiology 1996;34(5):1065-1068

Duchin JS, Jereb JA, Nolan CM, *et al*. Comparison of sensitivities to two commercially available tuberculin skin test reagents in persons with recent tuberculosis. Clinical Infectious Disease 1997;25:661-665

Fandinho FCO, Grinsztejn B, Veloso VG, *et al*. Diagnosis of disseminated mycobacterial infection: testing a simple and inexpensive method for use in developing countries. Bulletin of the World Health Organization 1997;75(4):361-366

Huebner RE, Schein MF, Bass JB. The tuberculin skin test. Clinical Infectious Disease 1993;17:968-975

Stender H, Mollerup TA, Lund K, *et al*. Direct detection and identification of Mycobacterium tuberculosis in smear positive sputum samples by fluorescence in situ hybridization (FISH) using peptide nucleic acid (PNA) probes. International Journal of Tuberculosis and Lung Disease 1999;3(9):830-837

Trebucq A, Ait-Khaled N, Gninafon M, *et al*. Information management in national tuberculosis control programmes and national health information systems. International Journal of Tuberculosis and Lung Disease 1998;2(10):852-856

Tupasi TE, Radhakrishna S, Rivera AB. The 1997 nationwide tuberculosis prevalence survey in the Philippines. International Journal of Tuberculosis and Lung Disease 1999;3(6):471-477

Van Deun A, Roorda FA, Chambugonj N, *et al*. Reproducibility of sputum smear examination for acid-fast bacilli: practical problems met during cross-checking. International Journal of Tuberculosis and Lung Disease1999;3(9):823-829

Author:	**Bodmer T, Gurtner A, Scholkmann M, *et al.***
Title:	**Evaluation of the COBAS AMPLICOR MTB system.**
Source:	**Journal of Clinical Microbiology 1997;35(6):1604-05**

This study evaluated the performance of a semiautomated polymerase chain reaction (PCR) amplification system (COBAS amplicor MTB system) by retrospective analysis of frozen respiratory specimen. The sensitivities and specificities of COBAS and fluorescence microscopy compared to culture were 92.6 versus 95.6% and 99.6 and 95.3%, respectively.

Author:	**Chander J, Subrahmanyan S, Gupta R.**
Title:	**Sensitivity of EIA in the diagnosis of tuberculosis using 38 kDa antigen.**
Source:	**Journal of the Indian Medical Association 1996;94(10):376-378**

This study examines the sensitivity of EIA in the diagnosis of tuberculosis using 38 kDa antigen. Sputum of patients who reported to a hospital in India with suspected signs and symptoms of pulmonary tuberculosis, were examined for the presence of acid-fast bacilli, using the routine Ziehl-Nelson staining. The positive cases were referred for treatment and the rest were referred for supplementary tests like x-ray, Mantoux test, FNAC and the presence of IgG antibodies in their serum against recombinant 38 kDa antigen derived from mycobacterium tuberculosis, using micro-ELISA plates. Final observations of the tests showed that EIA test using 38 kDa antigen had a sensitivity and a specificity of 91.89% and 81.72%, respectively. It is concluded that EIA for tuberculosis is more sensitive compared to the routine acid-fast bacilli staining.
Surveillance

Author:	**Chiang IH, Suo J, Bai TP, *et al.***
Title:	**Serodiagnosis of Tuberculosis.**
Source:	**American Journal of Respiratory Critical Care 1997;156:906-911**

This study compares the efficacy of different myobacterial specific antigens and assesses the applicability of the combination of several different antigens in the diagnosis of tuberculosis in Chinese patients. Three enzyme linked immunosorbent assays (ELISA) derived by Antigen 60, 38kda, and Kp90 were evaluated. Quantified levels of sensitivity and specificity were compared with those in a non-tuberculosis. Antigen 60 IgG was more antigenic an more effective in its determination than was 38kda IgG and Kp90 IgA. It is concluded that the sensitivity and specificity of presently available antigens for serodiagnosis of tuberculosis still remains limited at around 80% which makes it a poor diagnostic tool for disease confirmation. In low incidence areas, its clinical value may be useful in disease exclusion. A combination of several different antigens provides no more improved diagnostic yield than what can be provided by cutoff value adjustment in a single antigen serologic test.

Author:	**Devallois A, Legrand E, Rastogi N.**
Title:	**Evaluation of Amplicor MTB test as adjunct to smears and culture for direct detection of mycobacterium tuberculosis in the French Caribbean**
Source:	**Journal of Clinical Microbiology 1996;34(5):1065-1068**

The purpose of this study was to evaluate the Amplicor Mycobacterium tuberculosis (MTB) test, a PCR based test by comparing PCR-results with standard bacteriological data, including those obtained by acid-fast microscopy, culture, and biochemical identification as well as final clinical diagnosis for each patient. It is concluded that the Amplicor MTB test is highly specific and rapid for routine use in a clinical laboratory. However, in order to obtain a high degree of sensitivity, it should be run as an adjunct to smears and culture with at least three samples for each patient. A single-sample PCR-negative result must be considered carefully because of potential false-negative.

Author:	**Duchin JS, Jereb JA, Nolan CM, *et al*.**
Title:	**Comparison of sensitivities to two commercially available tuberculin skin test reagents in persons with recent tuberculosis**
Source:	**Clinical Infectious Disease 1997;25:661-665**

This study compares tuberculin skin test (TST) results and compared the sensitivity of the two commercially available TSTs in 51 human immunodeficiency virus (HIV) negative persons with culture-confirmed active tuberculosis. Simultaneous TSTs were done with use of the Mantoux method and 5-tuberculin unit purified protein derivative (PPD) tuberculin preparations from single lots of Aplisol and Tubersol. The differences in skin reaction sizes was ≤ 2 mm in 55% and ≥ 5 mm in 18% of patients. With a cutoff of either 5 mm or 10 mm to define a positive reaction, all results were concordant with sensitivity of 100% and 96% respectively. Indistinguishable reaction size distributions and median TST results for the two commercially available PPD TST reagents, Aplisol and Tubersol, in a population with recent culture-proven tuberculosis were found.

Author:	**Fandinho FCO, Grinsztejn B, Veloso VG, *et al*.**
Title:	**Diagnosis of disseminated mycobacterial infection: testing a simple and inexpensive method for use in developing countries**
Source:	**Bulletin of the World Health Organization 1997;75(4):361-366**

With the development of the acquired immunodeficiency syndrome (AIDS) epidemic, the isolation of mycobacteria from blood has become a common problem for clinical laboratories. This prospective study compares the efficiency of two different methods for detecting mycobacterial growth from the peripheral blood of AIDS patients: (1) direct inoculation onto a biphasic medium, and (2) a inexpensive, non-commercial lysis-centrifugation method. The use of a non-commercial lysis-centrifugation technique is inexpensive, reliable, and can be an alternative method for the diagnosis of mycobacteraemia in developing countries.

Author:	**Huebner RE, Schein MF, Bass JB.**
Title:	**The tuberculin skin test**
Source:	**Clinical Infectious Disease 1993;17:968-975**

This article provides background information about the development, administration and reading of the tuberculin skin test, its sensitivity and specificity and its utility. The tuberculin skin test is one of the most widely used diagnostic tests ever developed. The test is valuable when used periodically for the surveillance of tuberculin-negative persons at risk for exposure to mycobacterium tuberculosis.

Author:	**Stender H, Mollerup TA, Lund K, *et al*.**
Title:	**Direct detection and identification of Mycobacterium tuberculosis in smear positive sputum samples by fluorescence in situ hybridization (FISH) using peptide nucleic acid (PNA) probes**
Source:	**International Journal of Tuberculosis and Lung Disease 1999;3(9):830-837**

This study demonstrated the use of fluorescein-labelled peptide nucleic acid (PNA) probes for detection and identification of Mycobacterium tuberculosis in smear positive sputum samples. Two smear-positive specimens from patients with clinical signs of tuberculosis were collected at one of five medical centers in Bangkok, Thailand, serving a metropolitan population with a high prevalence of tuberculosis. The sensitivity and specificity of the PNA probes were investigated by fluorescence in situ-hybridization (FISH) using cultures of mycobacterium strains representing species of the mycobacterium tuberculosis complex and non-tuberculous mycobacterium, respectively. Mycobacterium tuberculosis strains were detected by FISH using specific fluorescein-labelled PNA probes directly in smear-positive samples without changing the morphology of the cells. It is concluded that PNA probes allow for rapid diagnosis of tuberculosis in smear-positive cases.

Author:	**Trebucq A, Ait-Khaled N, Gninafon M, *et al*.**
Title:	**Information management in national tuberculosis control programmes and national health information systems**
Source:	**International Journal of Tuberculosis and Lung Disease 1998;2(10):852-856**

This article discusses the need for a good notification system for the success of national tuberculosis programs (NTP) and attempts to answer the question whether to utilize the National Health Information System (NHIS) or the NTP. Advantages and disadvantages of both systems are described. Experience from several countries shows that unlike the NHIS, only the data generated by the NTP are reliable and complete, and arrive rapidly enough to be used for program management. It is therefore, the duty of the NTP to collect this information and transmit it to the NHIS at each level of the health system.

Author:	**Tupasi TE, Radhakrishna S, Rivera AB.**
Title:	**The 1997 nationwide tuberculosis prevalence survey in the Philippines**
Source:	**International Journal of Tuberculosis and Lung Disease 1999;3(6):471-477**

The objective of this paper is to determine the prevalence of Tuberculosis (TB) as a basis for setting the targets of the National Tuberculosis Control Program. A multi-stage cluster survey of a random sample of 21,960 subjects was undertaken. BCG scar verification, tuberculin testing and chest radiography screening were done on selected subjects. Sputum samples were collected and analyzed using acid-fast smear by modified Kinyoun's technique. Cultures on Lowenstein Jensen were done to demonstrate Mycobacterium tuberculosis. Results of the survey show that morbidity from tuberculosis remains high in the Philippines. Compared to the first survey in 1981-1983, the decline in the prevalence of bacillary disease is minimal. Replicating the directly observed treatment (DOTS) through its planned incremental implementation nationwide should greatly enhance the National TB control program of the Philippines.

Author:	**Van Deun A, Roorda FA, Chambugonj N, *et al.***
Title:	**Reproducibility of sputum smear examination for acid-fast bacilli: practical problems met during cross-checking**
Source:	**International Journal of Tuberculosis and Lung Disease1999;3(9):823-829**

This study examines the reproducibility of sputum smears for acid fast bacilli (AFB) used in a tuberculosis (TB) control program in Bangladesh. All of the trials were performed using the facilities of a routine TB project in a low-technology country. Factors that may adversely affect repeatability of the AFB smear and which should be taken into account for interpretation of cross-checking of routine smears were documented. It is concluded that possible interfering factors, such as the instability of the fuchsin color used for the test or the contamination of smears should be taken into account when organizing proficiency testing and interpreting its results.

Hepatitis C

Palacios A, Taylor L, Haue L, *et al*. Development of low cost peptide-based anti-hepatitis C virus screening and confirmatory assays: Comparison with commercially available tests. Journal of Medical Virology 1999;58:221-226

Tibbs CJ, Palmer SJ, Coker R, *et al.* Prevalence of Hepatitis C in tropical communities: the importance of confirmatory assays. Journal of Medical Virology 1991;34(3):143-147

Author:	**Palacios A, Taylor L, Haue L, *et al*.**
Title:	**Development of low cost peptide-based anti-hepatitis C virus screening and confirmatory assays: comparison with commercially available tests**
Source:	**Journal of Medical Virology 1999;58:221-226**

The aim of this study was to develop low cost in-house screening and confirmatory assays for the detection of hepatitis C-virus (HCV) using synthetic peptide as the primary antigen source and to compare these assays with commercial reagents currently in use. The efficacy of the screening of anti-HCV enzyme immunoassay (EIA)-Spep assay was compared with both Abbott EIA 2.0 and Ortho EIA 2.0 anti-HCV detection kits and the confirmatory EIA-Cpep assay was compared with the Abbott Matrix anti-HCV confirmation test. It is concluded that alternative low cost reagents developed locally as described in this article could be a useful tool in the control of HCV spread throughout the developing world.

Author:	**Tibbs CJ, Palmer SJ, Coker R, *et al.***
Title:	**Prevalence of Hepatitis C in tropical communities: the importance of confirmatory assays**
Source:	**Journal of Medical Virology 1991;34(3):143-147**

The prevalence of antibody to hepatitis C virus (HCV) was estimated in 3 tropical populations using 2 screening enzyme-linked immunosorbent assays (ELISAs) to detect antibody to c100-3 antigen and 2 supplementary assays designed to test the specificity of these tests. 74.2%, 12.3% and 22.5% of sera were reactive in the initial screening assay of specimens from Kiribati, Vanuatu and Zaire, respectively. The proportion of reactive sera, which were also reactive in the second screening ELISA varied between populations. Reactive sera were selected at random for confirmatory testing. It is concluded that reliance on a single screening ELISA to estimate the prevalence of anti-HCV in stored sera from tropical communities may lead to a gross over-estimate of the true prevalence in these populations.

Encephalitis

Bundo K, Igarashi A. Antibody-capture ELISA for detection of immunoglobulin M antibodies in sera from Japanese encephalitis and dengue hemorrhagic fever patients. Journal of Virological Methods 1985;11:15-22

Burke DS, Nisalak A, Hoke CH. Field trial of a Japanese encephalitis diagnostic kit. Journal of Medical Virology 1986;18:41-9

Solomon T, Thao LTT, Dung NM, Kneen R, Hung NT, Nisalak A, Vaughn DW, Farrar J, Hien TT, White NJ, Cardosa MJ. Rapid diagnosis of Japanese encephalitis by using an immunoglobulin M dot enzyme immunoassay. Journal of Clinical Microbiology 1998;36(7):2030-34

Troendle-Atkins J, Demmler GJ, Buffone GJ. Rapid diagnosis of herpes simplex virus encephalitis by using the polymerase chain reaction. Journal of Pediatrics 1993;123(3):376-80

Author:	**Bundo K, Igarashi A**
Title:	**Antibody-capture ELISA for detection of immunoglobulin M antibodies in sera from Japanese encephalitis and dengue hemorrhagic fever patients**
Source:	**Journal of Virological Methods 1985;11:15-22**

Many hemagglutination-inhibition (HI) test cannot distinguish between dengue hemorrhagic fever (DHF) and Japanese encephalitis (JE), because both viruses belong to the same flavivirus. This study extended the method of using IgM-capture ELISA for the differential diagnosis of dengue and Japanese encephalitis. 33 DHF and 19 JE patients from Chiang Mai, Thailand, 11 DHF from Chanthaburi, Thailand, and 42 JE cases from Japan gave paired sera. 149 individual sera from JE-non-endemic areas served as controls. The specimens can be considered positive with JE when IgM ELISA titer against JE was over 200 and 4 fold or more than assayed by any types of dengue antigens. 41 of 42 (97.6%) of JE patients in Japan, 7 of 8 (87.5%) primary encephalitis in Thailand, and 4 of 11 (36.4%) secondary encephalitis is Thailand were considered JE. Diagnostic criteria on JE and dengue by the IgM capture ELISA can be applied to the serodiagnosis of DHF and JE.

Author:	**Burke DS, Nisalak A, Hoke CH**
Title:	**Field trial of a Japanese encephalitis diagnostic kit**
Source:	**Journal of Medical Virology 1986;18:41-9**

This study developed a simplified enzyme-linked immunosorbent assay kit for detection of JEV IgM and tested its use in an endemic region. Patients with acute JE produce virus-specific antibodies within their cerebrospinal fluid (CSF). Lumbar CSF and venous blood were collected from 66 patients admitted to a Thai hospital with acute encephalitis as a possible diagnosis. Another blood sample was taken 4-8 days after admission. All specimens were tested for the presence of IgM and IgG. 73% of the 48 JE infected people were correctly identified - none of the 17 non-infected patients were falsely diagnosed. This study demonstrated that an early and rapid diagnosis of JE can be made by a trained technician using an immunoassay kit. Detection of JE IgM in CSF (not in serum) was used as the criterion; normal CSF contains almost no IgM, but in acute viral encephalitis, the CSF IgM is elevated due to intrathecal synthesis of virus-specific immunoglobulin. CSF offers both superior sensitivity and specificity over that of serum. The test used simple pre-weighed, ready to use packets and did not require any special lab equipment. The authors believe this method will be practical worldwide.

Author:	**Solomon T, Thao LTT, Dung NM, Kneen R, Hung NT, Nisalak A, Vaughn DW, Farrar J, Hien TT, White NJ, Cardosa MJ**
Title:	**Rapid diagnosis of Japanese encephalitis by using an immunoglobulin M dot enzyme immunoassay**
Source:	**Journal of Clinical Microbiology 1998;36(7):2030-34**

This study sought to develop and conduct field trials of an IgM dot enzyme immunoassay for JEV that can distinguish between infection by dengue virus and by JEV. This nitrocellulose membrane-based immunoglobulin M (IgM) capture dot enzyme immunoassay (MAC DOT) is rapid, simple, and requires no special equipment. The field study conducted in Vietnam collected 155 cerebrospinal fluid (CSF) samples and 341 serum samples from 111 children and 83 adults suspected of having encephalitis. Two observers visually scored the MAC DOT and compared

the results with those of the standard IgM capture enzyme-linked immunosorbent assay. From the 179 patients with adequate specimens (using both CSF and serum results), MAC DOT had a sensitivity of 98.3% (118/119), specificity of 99.2%, positive predictive value of 98%, and negative predictive value of 99%. MAC DOT also identified three samples as dengue-virus-positive. Inter-observer agreement for all samples was very good (kappa value of 0.83). The authors conclude that "the JEV MAC DOT is a rapid and reliable diagnostic test for JE. The only electrical equipment it requires is a refrigerator. Its simplicity and long storage life (12 months at 4 degrees Celsius) make it appropriate for use in rural hospitals.