

# Routine screening of hospital blood samples for syphilis

## A pilot study in Mount Isa, Queensland

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**ABSTRACT:** During a seven-month study, 4005 blood samples taken for haematological investigations at the Mount Isa Base Hospital, Queensland, were routinely screened for syphilis. Two hundred and twenty-nine of these yielded serological evidence of syphilis. One hundred and eighty-eight persons were either aware of, or had recorded evidence of, previous infection. Serological evidence of hitherto unsuspected syphilis was found in 24 persons. Seventeen persons with serological evidence of

syphilis, but without a recorded history of the disease, could not be contacted. The relatively high prevalence (1%) of undetected syphilis in this population sample led to the continuation of routine screening at Mount Isa Base Hospital. Hospitals which serve towns with similar demographic profiles may find routine screening for syphilis of all blood samples, taken for unrelated investigations, a useful procedure.

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ALL BLOOD SAMPLES taken for haematological investigations at the Mount Isa Base Hospital, Queensland, for a period of seven months were routinely screened for syphilis. Two factors led to us initiating this procedure. First, clinical presentation both of gonorrhoea and of syphilis was a common feature of casualty and outpatient practice. Second, two patients admitted to hospital for other reasons — an 84-year-old caucasian woman and a 45-year-old Aboriginal man — had tertiary manifestations of syphilis: they were both blind. Fundoscopy revealed optic atrophy, and the diagnosis of syphilis was confirmed by serological tests and active titres.

### Materials and Methods

All specimens were obtained from plasma collected from ethylenediaminetetra-acetic acid (EDTA) samples taken from 4005 patients referred for haematological examinations to the Pathology Department, Mount Isa Base Hospital, during the period May 26, 1980, to December 23, 1980.

We carried out a rapid plasma reagin (RPR) card test<sup>1</sup> on the specimens in accordance with the Commonwealth Serum Laboratories' rapid plasma reagin RPR kit. The method employed was the one described by Portnoy.<sup>2</sup>

We collected a further clotted specimen, when possible, on reactive specimens and referred it to the Laboratory of Microbiology and Pathology, Brisbane, for RPR titre, a fluorescent treponemal absorption (FTA-ABS) test, and the treponema pallidum haemagglutination (TPHA) test. Reactive results in the FTA-ABS and/or TPHA were taken as serological evidence of infection with syphilis.

### Results

The results of RPR test on 4005 blood samples were:

Non-reactive	3776	(94.3%)
Reactive	229	(5.7%)
Reactive known	188	(4.7%)
Reactive unknown	24	(0.6%)
Reactive untraced	17	(0.4%)
Total	4005	(100.0%)

The average age of 229 persons whose blood samples showed a

positive reaction to the RPR test was 37.1 years (range, six to 84 years). Forty-one persons had no recorded history of syphilis infection; 17 of these could not be traced. In the remaining group of 24, there were 13 men (54%) and 11 women (46%).

After preliminary screening, patients whose blood samples showed a positive reaction had samples taken for further haematological investigations. False positive results were therefore excluded in all but the group of 17 patients who could not be traced.

The youngest unsuspecting patient who demonstrated active serological reaction was a six-year-old girl with primary signs of perianal syphilis. The oldest patient was the 84-year-old woman with optic atrophy.

### Discussion

The routine, indicated usage of prescribed antibiotics cannot be expected to cure an associated, but unsuspected, syphilis; doses are subclinical.<sup>3</sup> A predictable percentage of untreated cases of syphilis progress to the tertiary stages of the disease.<sup>4</sup> Such factors emphasise the need for early detection.

The cost-effectiveness of routine screening is a necessary concern. The cost of initial screening and follow-up can be measured against the saving made through appropriate detection and treatment. The relatively high prevalence of undetected syphilis in our population sample, plus the simple and inexpensive nature of each test (15 cents), have led to the continuance of routine screening procedures at the Mount Isa Base Hospital. Community agencies (Department of Aboriginal and Islander Affairs health teams, and community and home care nursing services) are involved in the follow-up and location of patients with unsuspected illness. There is no record in the recent literature of routine screening being practised in any other Australian hospital. Hospitals serving towns with similar demographic profiles may well find the routine screening of all blood samples for syphilis a useful and rewarding procedure.

### Acknowledgements

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