

In addition, monitoring the in vivo response to treatment requires a subsystem organized for collection and analysis of parasitoscopic diagnoses and for follow-up of the results obtained in treating serious cases.

It is also becoming necessary to develop methodologies for forecasting, registering, and following up epidemics, the evolution of parasite resistance to drugs, and the evolution of vector resistance to insecticides. The systems using these methodologies should include field ecologic and meteorologic information—supplemented as appropriate by information obtained from satellites and other sources.

Source: Pan American Health Organization, Status of Malaria Programs in the Americas, XXXV Report, PAHO document CD32/INF/2 prepared for the XXXII meeting of the PAHO Directing Council, Washington, D.C., 1987.

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EPIDEMIC SCABIES AND ASSOCIATED ACUTE GLOMERULONEPHRITIS IN TRINIDAD¹

Scabies is caused by the mite *Sarcoptes scabiei* (1). The female mite is most active at night, burrowing into the skin to feed; and this activity causes an intense irritation that leads to scratching.

The sites most commonly affected are the webs of the fingers, anterior surfaces of the wrists and elbows, anterior axillary folds, scrotum and penis, nipples and abdomen, buttocks, and the area behind the knees. Scabies may also be found in unusual locations (e.g., on the head and scalp of infants); and new forms of scabies (scabies incognita) may arise after treatment with topical agents such as corticosteroids (2). Scabies can also produce erythema, pseudolymphomatous nodular lesions, urticaria-like papules, and other vesicular or bullous lesions. This variability probably reflects the host's immunologic response to the ectoparasite. In immunodeficient individuals, a generalized dermatitis with extensive scaling is common.

Epidemiologic studies have shown that human scabies has a global presence affecting all races and social classes and is present in all climatic zones from the arctic to the equator. Worldwide, there are estimated to be over 300 million cases of scabies per year (3). In most countries, however, scabies is not a reportable disease and research has tended to stagnate, mainly because of difficulty in developing a successful laboratory method for culturing the mites. Countries where the reporting of scabies is mandatory are Czechoslovakia, Denmark, Norway, and Poland.

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The reservoir of scabies is man. Various animal mites—including other members of the genus *Sarcoptes*—can live on man. In contrast to the *S. scabiei* variety parasitic on humans, however, they do not reproduce in human skin. Transmission of *S. scabiei* is by direct skin-to-skin contact or via fomites contaminated immediately beforehand.

In Trinidad and Tobago, scabies infestations with secondary infection by beta-hemolytic nephritogenic streptococci leading to acute glomerulonephritis (AGN) have previously been reported (4). The AGN epidemic of 1952–1954, involving 396 reported cases, was probably due to antecedent streptococcus-infected scabietic lesions. However, the most flagrant outbreak of AGN in Trinidad occurred in 1971, when 745 cases were admitted to the San Fernando General Hospital following a scabies outbreak. The causative streptococcal agent was the Group A M type 55, which had reappeared in the community after an absence of six years.

No further epidemics were recorded in the 1970s, and the first scabies cases reported in the 1980s to the National Surveillance Unit were reported in 1982. Since then the number of cases reported annually has increased, this increase being especially marked in 1986 (see Table 1). As of mid-1987 the epidemic appeared to be continuing unabated, with over 2,300 cases being reported in the first four months alone. (It should be noted, in this regard, that health care workers' increased awareness—following education efforts by staff members of the National Surveillance Unit—may have improved reporting.)

TABLE 1. Scabies cases reported to the National Surveillance Unit, Ministry of Health, Trinidad and Tobago, 1980–1986.

Year	Scabies cases	
	No.	Rate per 100,000 inhabitants
1980	0	0
1981	0	0
1982	95	8.7
1983	112	9.7
1984	282	24.2
1985	703	59.5
1986	4,885	410.1

Figure 1 shows admissions for AGN to the San Fernando General Hospital in South Trinidad, where there is a streptococcal surveillance program. In 1986 there were 181 admissions, and during the first four months of 1987 there were 64 more. In this vein it is worth noting, as Figure 2 shows, that the number of streptococcal isolates from skin lesions has increased over the past four years.

While it is generally agreed that post-streptococcal AGN rarely recurs, the long-term prognosis is less clear. Some studies (5, 6) have suggested that a substantial proportion of the affected patients will develop progressive renal disease. Studies of post-streptococcal AGN patients in Trinidad suggest that there is a low rate (3%) of progression to chronic renal disease (7). However, unpublished data suggest this rate could be expected to increase somewhat if a longer follow-up period were employed.

These differences may be explained in part by the age at onset of nephritis (later onset seems to be associated with increased risk of chronic disease), the streptococcus strains ('throat' strains or 'skin' strains) involved, and whether or not the cases were sporadic or part of an epidemic.

FIGURE 1. Monthly admissions to the San Fernando General Hospital for acute glomerulonephritis, January 1983 through April 1987.

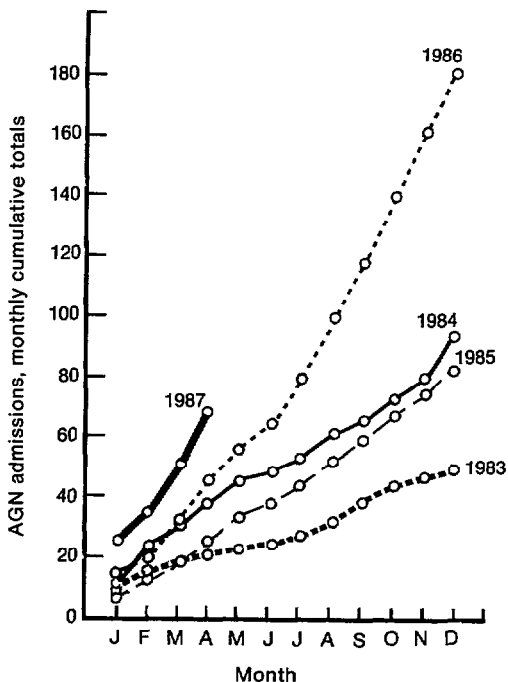
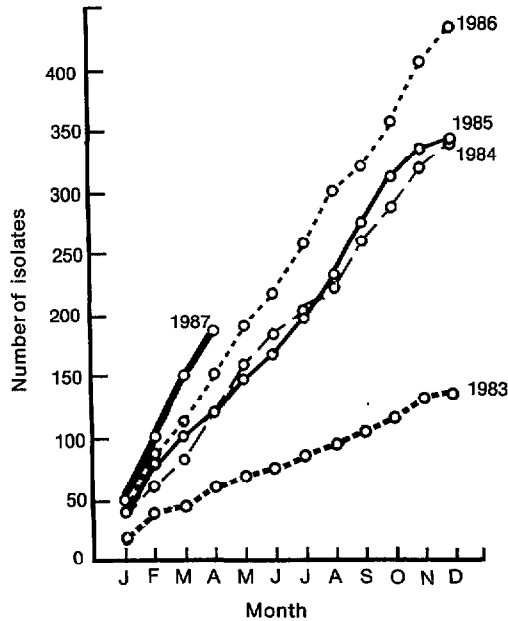


FIGURE 2. Streptococcal isolates from skin lesions, January 1983 through April 1987.



CAREC Editorial Comment

Scabies by itself is a relatively minor condition, though the itching can be distressing. However, the secondary infection of scabietic lesions contributes to the burden of skin sepsis in the community and predisposes to the much more serious acute glomerulonephritis in an environment where beta-hemolytic streptococci are prevalent. Thus, there are considerable costs associated with the present epidemic—from the personal discomfort through the skin sepsis to hospitalization and long-term renal disease. Almost certainly, a cost-benefit analysis of the present epidemic would show a significant positive benefit-cost ratio for effective control measures.

This begs an epidemiologic question: What proportion of the current wave of AGN is attributable to scabies and the associated skin sepsis—or, put another way, how many cases of AGN might be prevented by strategies that virtually eliminate scabies in the community? Of relevance to this question is the suggestion (see Table 1 and Figure 1) that the increased number of admissions for AGN began before the scabies epidemic really took off, although there is a clear association between reported scabies and admissions for AGN.

The data must be interpreted with caution, because Table 1 shows scabies cases nationwide, while Figure 1 only shows AGN admissions to one major hospital, data on AGN admissions to all institutions not being available. Thus, there is a clear need to monitor the incidence of AGN nationwide.

Another circumstance adding to the uncertainty is that skin and throat sepsis not associated with scabies may have increased in the community with the economic downturn that began in the early 1980s. A case-control study comparing the histories of one group of children with AGN and another without AGN would be a relatively cheap way of shedding some light on these questions.

Regarding control, there is a need for more education of the public and health workers about scabies and its modes of transmission. Treatment should be undertaken on a coordinated mass basis (among other things, entire families of patients with cases should be treated). In addition, a need exists to ensure the availability of certain highly effective specific treatment drugs—such as benzyl benzoate (lorexane) and tetraethylthiuram monosulfide (Tetmosol®).

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