of noncaucasian subjects (1.8% of the sample studied were noncaucasian) compared with the national figure of 10%. The doctor/patient ratio in Dunedin may differ from other regions, and the specialist referral rate may also differ. Respiratory physicians (full-time equivalents per 100,000 population) are fewer in Otago than in several more northern hospital areas. The influence of these factors on the community management of asthma is difficult to determine. However, it is possible that they significantly alter the main conclusions of the study.

In summary, this study highlights the lack of patient understanding of simple disease pathology and confusion about drug use in asthma. Guidance from an asthma educator or others with appropriate background, as presently being instituted in some centres, may be useful to reinforce or supplement information provided by the general practitioners, practice nurses and hospital staff. Monitoring of lung function by peak expiratory flow rate meters should be encouraged, written records kept and examined, and treatment kept under regular review. Smoking should be actively discouraged. Each patient with troublesome asthma should have a crisis plan, preferably written, and know when and how to seek medical help. With appropriate long-term management and regular follow-up, emergencies should be rare. That New Zealand continues to have mortality rates for asthma in young people that are higher than those in any other similar community, suggests the need for even greater improvements in this common condition.

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References

Streptococcus suis bacteraemia

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Abstract
Streptococcus suis is a zoonotic pathogen which causes meningitis, arthritis and septicemia in pigs, and rarely meningitis or septicemia in humans. This organism has recently been isolated from pigs in New Zealand, where it appears to be widely distributed in pig herds. This case is the first report of human infection in New Zealand.

Introduction
Streptococcus suis type 2 (Lancefield group R) was isolated from pigs in New Zealand by Robertson in 1985 [1], and appears to be widely distributed in pigs in New Zealand [2]. It is a rare cause of human infection, and most reported cases have involved adults who handled pigs or their carcases and developed purulent meningitis.

The patient
A 5-year-old Samoan male who had resided in New Zealand for 5 years was admitted to Auckland Hospital on 8 November 1985 with a three week history of dysuria, frequency, fever, sweating and lethargy. Diabetes mellitus, treated with insulin, had been diagnosed in August 1986. He had, however, not taken any insulin for three weeks before admission. On examination he was febrile (T 37.6°C) and had a tachycardia (pulse rate 96/min, regular), but was not toxic. He was not clinically dehydrated, his limbs were well perfused and his breath did not smell of ketones. Heart sounds were dual with no murmurs nor added sound. He had some articular skin lesions on his fingers, but no other peripheral stigmata of endocarditis. Laboratory tests showed a peripheral white blood cell count of 9.7 × 109/L, with 7.5 × 109/L segmented neutrophils and 0.97 × 109/L band neutrophils, and mild toxic changes were seen in the blood film. The ESIR was 27 mm/hr, and the blood glucose was 22 mmol/L. The urine showed ketones + + , glucose 0.5%, no white blood cells, no red blood cells, and was sterile on culture. Blood cultures showed growth of gram positive cocci in all four bottles, with small translucent, alpahaemolytic colonies on blood agar. The organism was identified by API-Strep system profile as Streptococcus suis, and reacted strongly with Lancefield group R antiserum. Further blood cultures were taken, and all grew the same organism. The organism was cultured from five separate sets of blood cultures (10 bottles) taken over a three day period. The MIC and MBC of penicillin were 0.015 mg/L.

An echocardiogram showed no detectable valve lesions, and both the chest x-ray and ECG were normal. Insulin was restarted and following consultation with the infectious diseases and microbiology services, he was commenced on intravenous benzylpenicillin, two meagunits four hourly and gentamicin, 80 mg every eight hours. It was felt that given the possibility of five separate sets of blood cultures, the lack of an obvious focus of infection and the articular skin lesions, an intravascular focus of infection was most likely.
Using the strict case definitions of endocarditis proposed by Von Reyn et al [4], he would be classed as "possible endocarditis," on the basis of either "at least two positive blood cultures without an extracardiac source, and fever" (this applies only when the blood culture isolate is a viridans streptococcus), or "persistently positive blood cultures plus vascular phenomena" (the cutaneous lesions on his fingers were consistent with vascular phenomena associated with subacute bacterial endocarditis). He was therefore treated for two weeks with intravenous penicillin plus gentamicin, this being adequate treatment for sensitive viridans streptococcal endocarditis.

As he was never clinically toxic, and had become afebrile before antibiotics were started, it was not possible to assess his response to therapy clinically. His laboratory parameters showed improvement, however, with a decrease in the number of segmental neutrophils, the disappearance of band neutrophils and toxic changes in the blood film and a drop in his ESR from 27 to 7 mm/hr.

He was discharged on the third day after admission, his oral temperature and blood cultures taken two weeks after discharge showed no growth.

Due to the known association of this organism with pigs, the patient was asked about contact with pigs. He had no occupational exposure to pigs, but was partial to eating pork, and would cut up and prepare pig carcasses for cooking, including pig heads.

The isolate from this patient has been shown to be pathogenic for pigs when injected into the cerebrospinal fluid, and the pathogenicity for other laboratory animals is being investigated at present. In contrast, pig isolates tested by Robertson in New Zealand have not been pathogenic for pigs when administered intravenously, and the CSF, although some produced disease when administered intravenously to pigs. (personal communication)

Discussion

S. suis was first recognised as an animal pathogen in 1963 by de Moor [2] who reported studies on streptococci isolated from septicaemic infections in pigs. The organism has only recently been isolated in New Zealand from pigs [1]. It affects weaned and grower pigs producing meningitis, arthritis and septicaemia [5]. S. suis is carried in the palatine tonsils of pigs, and work by Robertson in New Zealand indicates that within infected herds, probably up to 100% of pigs are carriers [6].

Streptococcus suis type 2 (Lancefield group R) was recognised as a zoonotic human pathogen in 1968 when two cases of meningitis and a fatal case of septicaemia were reported from Denmark [7]. It is a rare zoonotic agent with less than 100 reported cases. Most reported cases have involved adults who handled pigs or their meat products. A case was reported in a woman who enjoyed eating raw meat balls [8]. Most cases have occurred in European countries and in Hong Kong. In Hong Kong S. suis type 2 is the most common cause of meningitis in adults [9] and this high incidence is probably related to their culinary preference for fresh pork, in particular for barbecued piglets. About 10,000 piglets are imported live each day in Hong Kong.

Reported cases have incriminated a percutaneous route of infection, with minor cuts or abrasions being recorded 2-3 days before the onset of clinical signs.

It is interesting to speculate on how this patient became infected. He obviously had direct contact with both pig carees and pig carcasses. This infection could have been via ingestion or through skin abrasions. However, this patient also self-administered insulin and the possibility of a needle contaminated with S. suis type 2 cannot be ignored. Coupled with his diabetes, there could also have been a greater susceptibility to streptococcal infection as had been recorded with group B streptococcus in diabetes [10].

In humans S. suis type 2 produces a meningitis—septicaemia, and meningitis is often accompanied by permanent vestibular and auditory dysfunction. Early loss of hearing is a prominent feature of the meningitic presentation, and may be due to a specific ototoxic. Although nearly all reported patients have had a purulent meningitis, a clinical picture of septicaemia without meningitis has been reported [11]. Other complications of S. suis infection include arthritis, uveitis and endophthalmitis [12].

In gram stain smears, S. suis is a gram positive diplococcus which sometimes forms short chains. Because group R antisera is not used routinely in medical laboratories, the disease may be under-diagnosed. The organism could be mistaken for viridans streptococci, enterococci (it is resistant to 40% bile), S. pneumoniae, S. agalactiae or even Listeria monocytogenes, as colonies are sometimes surrounded by a narrow zone of beta haemolysis [6]. It is therefore important to fully identify streptococci isolated from blood cultures, and not rely on presumptive characterstics such as colonial and gram stain morphology or resistance to 40% bile.

Because S. suis is widely distributed in pigs in New Zealand, it is necessary to consider infection by this organism in the appropriate clinical setting, particularly if patients have contact with pigs or pig carcasses.

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References


But the NHS is not inefficient. At £373 a head, for close to comprehensive care, the NHS is, in Nicholas Timmin's words 'a bargain buy in international terms, producing a highly cost-effective and controllable service. Where insurance-premium or reimbursement-funded systems cost between 10% and 20% in administration, the NHS spends about five percent on its bureaucracy. A switch to an insurance-based system would almost certainly push health care spending up by at least £1 billion, most of which would go on administrators.'


Litigation in the USA is an effective deterrent to any doctor asked to treat an inflight emergency. There are many cases on record like that of the doctor who successfully resuscitated a passenger after a heart attack and saved his life, only to be promptly sued for breaching the medicolegal rules. A Good Samaritan clause, which would protect doctors in this sort of situation, struggled through Congress for some time but failed to become Federal law. In France it is illegal for a doctor to refuse help. In New Zealand accidents are covered by the Accident Compensation Commission.