

significant. No such changes were seen in the control group. This indicated that the additional measure did improve overall morbidity.

Comparison of the average number of visits at which patients were symptom-free also shows a significant increase in the experimental group only (Table III).

We conclude that the additional measures introduced made a significant and clinically meaningful difference to overall patient well-being through an important decrease in morbidity. Patients were taught optimal use of the MDI where co-ordination skills were adequate. Where not, the MDI was replaced by powder inhalation (rotacaps). Before the introduction of the new measures both groups were routinely on oxtriphylline three times daily which, if taken regularly, should result in blood levels comparable to those obtained with the sustained-release theophylline preparation given later to the experimental group. As the blood levels were consistently monitored after the introduction of the new measures and compliance actively encouraged, the average blood levels may in fact have been better in the experimental group. This may partially explain the improved response. It is however not possible to determine with any measure of certainty which of the changes resulted in what part of the improvement found. The authors believe all changes collectively contributed to the improvement.

In addition compliance was improved by use of theophylline blood levels to indicate non-compliance on the part of patients. We found blood theophylline levels more suitable for this purpose than, for example, the weighing of aerosol canisters.

By also repeatedly explaining the nature of the disease and why drugs need to be used prophylactically, the health team created an impression of caring, further improving trust and compliance. This is all the more important in a group of patients with a poor socio-economic background.

By observing patients carefully, we noticed how quickly patients tend to forget what they had been told and also how quickly they fell back into bad habits, using their MDIs wrongly if not constantly reminded and shown how to do it correctly.

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#### REFERENCES

1. Clarke NM. Asthma self-management education. Research and implications for clinical practice. *Chest* 1989; **95**: 1110-1113.
2. White PT, Pharoah CA, Anderson HR, Freeling P. Randomised controlled trial of small group education on the outcome of chronic asthma in general practice. *J Coll Gen Pract* 1989; **39** (322, May): 182-186.
3. McLeod DT, Sleigh JW. Asthma admissions to intensive care: a five year study. *Cent Afr J Med* 1987; **33**(11): 258-262.
4. Working Group of the South African Pulmonology Society. Guidelines for the management of asthma in adults in South Africa. *S Afr Med J* 1992; **81**: 319-322.
5. Woolcock AJ, Jenkins CR. Management of asthma: a decreasing role for bronchodilators. *Modern Medicine of South Africa* 1991; **Aug**: 73-93.

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## Retrospective analysis of snakebite at a rural hospital in Zululand

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Aspects of the epidemiology and clinical features of 81 consecutive patients admitted with snakebite to a rural hospital in Zululand are reviewed.

Most bites occurred during the hot season, 40% in children under 10 years of age. Thirty per cent of bites occurred at night. Most bites showed features of local envenoming only, but systemic features (neurotoxicity and haemorrhage) were encountered. Snakebite caused significant morbidity and mortality. Thirty-one per cent of admissions needed surgery; almost 50% needed more than one operation. Five per cent, all children, died. The extent of local envenoming on admission proved to be a highly sensitive indicator of risk of worsening of local envenoming, and of the development of systemic signs.

The analysis has allowed the development of rational guidelines on the management of snakebite in this hospital which, it is hoped, will reduce mortality rates, and has identified several areas warranting further research.

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Venomous snakebite causes significant morbidity and mortality in many parts of the world. Clear guidelines on the management of snakebite are available,<sup>1,3</sup> but much variation and uncertainty may still occur in clinical practice.<sup>4</sup>

There are about 130 species of snake in southern Africa;<sup>5</sup> most are not poisonous and even fewer are potentially life-threatening. A wide variety of venomous snakes is found in Zululand,<sup>6</sup> and the population is very fearful of them. Snakebite is not notifiable in South Africa and although it has been stated that the annual mortality rate in this country is negligible,<sup>7</sup> this may not be so, as the incidence of snakebite is usually underestimated owing to lack of reliable epidemiological data.<sup>2</sup>

There is no recent published analysis of snakebite in Zululand. This retrospective analysis was carried out to clarify aspects of the epidemiology and clinical features of snakebite in this region, and to develop guidelines for the hospital management thereof. This is particularly important in so far as many rural hospitals are staffed by foreign doctors who stay for short periods and may not be familiar with the management of snakebite.

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