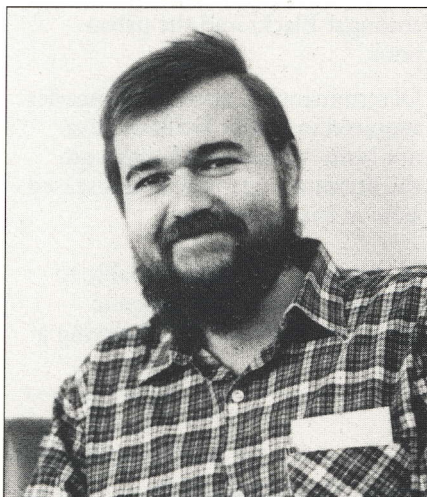


# Measles in South Africa: A Comprehensive Health Interpretation of the Data. Part IV. Conclusions and Recommendations.

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## Curriculum vitae

Paulo Ferrinho had his school education in Mocambique and then went on to the University of Cape Town to obtain the MBChB in 1980. He did his internship at the Groote Schuur hospital in Cape Town and then worked at the Gelukspan Community Hospital from 1982 to 1986. After that he became a registrar in Community Health at the University of the Witwatersrand. At the moment he is the Clinic Manager and Director for Research of the Alexandra Health Centre and University Clinic/Institute for Urban Primary Health Care. Although specialising in Community Health, his professional interest remains in support to primary health care.

## Summary

*In South Africa (SA) there is a commitment to and indications that resources are being allocated for the eradication of measles. Still there has been no comprehensive review of the epidemiology of the disease in SA. This understanding is important to identify factors and trends to guide public health practice. This series of articles tries to cover this gap.*

*Part I reviews briefly the international literature on the epidemiology of the disease and describes the methodology followed, the sources of data and analysis strategy. The other articles review South African reports on morbidity-mortality and relationships to age, population group, sex and geographical distribution (part II); part III reviews other factors influencing measles morbidity and mortality in SA (protein-energy-malnutrition, age at infection, urbanisation, socio-economic status and health care); and part IV contains appropriate conclusions and recommendations.*

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## KEYWORDS:

Measles; Epidemiology;  
 Government; Organizational  
 Objectives.

## Introduction

There are a number of conclusions and recommendations to be drawn from this article. The conclusions will be subdivided according to headings on data, incidence, mortality and pathogenesis.

## Conclusions

### 1. Data

- The mechanism for routine measles surveillance is limited to notifications of disease and death due to measles.
- Ignorance of the notifying officers, and lack of a network of officers with notifying powers in rural areas, and amongst the urban poor, results in gross under-reporting of measles.
- Data from death certificates are not analyzed and reported to their full potential.
- The quality of published data is not always made explicit.

### 2. Incidence

- The seasonal pattern of measles varies from region to region and seems to vary with population movement.
- Notwithstanding data limitations there are clearly defined areas of high measles morbidity such as the Transkei, Lebowa, Kwazulu and the Eastern Cape.
- The incidence of measles is still high in South Africa.
- The incidence of measles in SA over time, although showing a negative slope, is not showing statistically significant changes. This indicates that, at least for the past decade, control efforts have

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failed to reduce morbidity due to measles.

- Twenty five percent (25%) of deaths due to diarrhoeal diseases in SA could be prevented by measles vaccine.
- Peak notified incidence is in the age group 5 to 9 years.
- Measles acquired in health facilities is not uncommon.
- Vaccination coverage of 70% or higher seems to be associated with

The quality of published data not always made clear

lower infection rates. The South African data does not support the contention that shifting the age of vaccination against measles to coincide with the third dose of DWT would increase vaccination coverage.

3. Mortality

- The overall measles mortality rate has dropped.
- The case fatality rate (CFR) is high and rising although this is not statistically significant.
- The highest CFR and age specific mortality rates occur in infants. Mortality in the very young is particularly high.
- As the mean age at infection rises, so does the mean age at death, but at a lower rate.
- Mortality dropped significantly before 1979-1980 in all population groups except Whites (no data for

Blacks). In more recent years, since 1979, the rates decreased significantly only for Coloureds.

- The share of the mortality load shows different age patterns for each population group. It is increasing for Coloured infants, for Asian children 1 to 4 years old and for African 5 to 9 years old. It is decreasing for Coloured children 1 to 4 years old and for Whites over the age of 20 years.
- It seems that measles acquired in health facilities carries a particularly poor prognosis.
- Vitamin A supplementation reduces morbidity and mortality in children with severe measles.

4. Determinants of incidence and of pathogenesis of severe measles

- The observed epidemiological patterns are dependent on vaccination coverage and overcrowding.
- Although the data do not allow categorical conclusions, the evidence is compatible with explanations of increasing measles severity in terms of increasing dose of infection. In SA the poor and

Control efforts failed to reduce measles morbidity

urbanized Blacks are, probably because of the degree of overcrowding and poor ventilation, the group at highest risk for high dose of infection. Therefore measles is more common, occurs earlier and carries higher mortality

amongst Blacks and the urban poor.

- Determinants of severity of measles acquired in health facilities have not been studied in SA although the literature relates it to a diseased state in the recent past.

With the data presently available to us we have a picture of endemic measles country-wide, still carrying a

Measles vaccine could prevent 25% of deaths due to diarrhoeal disease

high CFR, particularly in the urban poor and in some rural areas. Overcrowding, a common problem in SA, predisposes the urban poor to higher doses of infection and more severe measles. Poor vaccination is still an important determinant of incidence.

Recommendations

This extensive review of the South African data allows us to advance recommendations in 3 areas: measures to improve data; measures to prevent the disease; and measures to reduce complications and mortality.

1. Measures to improve data

Despite the fact that there are systems for regular collection of measles morbidity and mortality data, it is obvious from this study that there are large gaps in our knowledge about measles in SA.

This could be improved almost

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immediately by careful attention to the different steps involved in data collection, starting with the training of the reporting officers.

Both doctors and nurses should be repeatedly reminded of their statutory duty to notify measles. Notification books should also be made available at all clinics, health centres and hospitals also when these are staffed only by professional nurses.

The data being reported are biased because of a systematic lack of data from high prevalence areas, either because of poor service cover or for political reasons (in the case of the independent homelands). These require infrastructural development and the will to overcome artificial political barriers and to pool essential health information collected in a standard way.

Sentinel sites should be identified and data collected there could be used for health service development. This

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### Vit A reduces morbidity and mortality in severely sick children

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approach was successfully experimented within the Ivory Coast.<sup>1</sup>

Further to this, disease outbreaks should be actively investigated along the lines of the surveillance system presently being implemented in Johannesburg, using methods reported in the literature.

There is a need for better regional reporting of data obtained from

death certificates and notifications. A recent development that is most welcome is the reporting of notification data by age group. Essential information that should be available include mean age at infection, age distribution of cases and deaths, overall and age specific CFR, nature of the settlement and information on key risk factors such as overcrowding.

Hospital data should be monitored and evaluated regularly according to standard definitions and methods of collection and reporting.

It is apparent to us that it is important to develop the position of Health Information Officers within the health system personnel structure who would assume responsibility for the supervision of data collection, for data analysis, reporting and initiation of public health measures to address the problems identified.

Where routine surveillance systems do not provide a reliable data basis, it is important to gather information from community surveys using standardized methodologies.<sup>2,3,4</sup> Still, in situations where the denominations and numerators can be reliably approximated, vaccination coverage can be reliably calculated,<sup>5</sup> using methodologies already described.<sup>6</sup>

### 2. *Measures to reduce the incidence of the disease*

Any policies to correct the inequities of the existing situation should address immediately the problem of poor vaccination coverage. More medium to long term it is important to promote anti-crowding measures.

Vaccination remains the most

important means of measles control. Determinants of vaccination coverage in SA have been studied in a number of surveys. The essential ingredient, which was missing until 1989, was a commitment of political and state structures to measles eradication. Since 1989 this commitment has been made clear by statements from state departments and officials and by

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### Statutory duty to notify measles

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the allocation of resources to monitor progress towards measles eradication. More recently, statements by the Minister of Health and Population Development, create hope that extra-resources will be committed to the PHC services so essential to promote high vaccination coverage. At the moment the level of notified measles in South Africa is a clear indicator that effective vaccination coverage is still inadequate. As South Africa has a network of PHC infra-structures and personnel it is important that these should be galvanised into a consistent, on-going, outreach based programme to increase vaccination coverage above 90% nationwide and to maintain it at that level. This should involve a national policy with at least: national, regional and local objectives; training of personnel; allocation of resources (including time and transport); vaccine supplies; cold chain; measles surveillance and vaccination surveillance. The observation that peak incidence is at the 5-9 years old age group suggests that besides the current practice of vaccination at 9 months, vaccination should be repeated at primary school entry.

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Anti-crowding measures would involve more caring housing policies and improved housing conditions as well as measures to reduce the number of siblings (family spacing methods). The urban poor are already and will remain in the future a priority to be specifically targeted.

3. *Measures to reduce mortality*

Vaccination as practiced today in South Africa will reduce incidence and increase the mean age at infection. The impact on mortality will be greater than expected from the elimination of measles alone. Measles causes excess mortality that may occur for many months after the acute attack and this will also be reduced. Vaccination may also, indirectly, reduce mortality among un-immunised children still getting measles by reducing clustering and in-house transmission of the virus, therefore reducing the infective dose for the at-risk children.

Guidelines for clinicians along the lines of those developed by Morley

Effective vaccination coverage still inadequate in RSA

for East and West Africa<sup>7,8</sup> might help to improve patient care and reduce mortality.

The WHO recommends that in the presence of CFR in excess of 1% vitamin A should be routinely prescribed to all children with measles.<sup>9,10</sup> In view of local data on vitamin A deficiency and following the results of the Cape Town

study<sup>11,12</sup> it might be wise to implement such policy while waiting for more detailed epidemiological data.

We would like to end with a word of caution and a call for action. Firstly, although measles is eminently controllable, its control requires commitment at the highest levels and ongoing consistent efforts. In SA the disease is still far from controlled and the children of this country need

Repeating vaccination at primary school entry

more than press releases, policy statements and vaccination surveys (which seem to have been the core of the "measles campaign"). Secondly, even if periurban areas seem to be at risk for severe measles, still over half of all the measles cases are reported from the homelands, mostly rural areas, where cases, as for the urban slums, are grossly under-notified. The data from this report suggest that early resources should be directed at areas like the Eastern Cape, Kwazulu, Lebowa, and Ciskei as well as at the urban poor.

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