

Missed opportunities for measles immunisation in selected western Cape hospitals

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Summary

Measles is still a major cause of childhood mortality and morbidity in South Africa. The World Health Organisation (WHO) has recently recommended that greater attention be paid to opportunities for immunisation in the curative sector. This study quantified the extent of missed opportunities for measles immunisation in children attending primary, secondary and tertiary level curative hospitals in the western Cape. Exit interviews of 1068 carers of children aged between 6 and 59 months inclusive showed that 2,4 - 40,7% of carers had been requested to produce a Road-to-Health card, and that 4,8 - 43,1% of carers had a card available. The proportion of children with documented evidence of measles immunisation available ranged from 4,8% to 40,0% between facilities. The study demonstrated that a considerable number of potential opportunities to immunise children against measles are currently being missed in children attending hospitals and day hospitals in the western Cape. The study documents the effect of a fragmented approach to health care, and indicates a need for rapid integration of preventive and curative components of health care into a metropolitan-based primary health care service.

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Globally, measles results in considerable morbidity and mortality despite the presence of an efficacious vaccine.¹ Measles is a major health problem in South Africa;²⁻⁵ 15 004 measles cases and 310 deaths were notified in 1989.⁶ (These figures are probably a fraction of the true incidence and mortality.) Two major epidemics were reported during the 1980s, one in Port Elizabeth in 1982, and another in KwaZulu/Natal in 1988.⁵

The World Health Organisation (WHO), through its Expanded Programme for Immunisation (EPI), recommends

that all contacts with health services, whether for curative or preventive health care, be used to immunise children who do not have proof of immunisation.^{1,7} Recent WHO reports⁷⁻¹³ indicate that there is an untapped potential for immunisation in children attending curative facilities. Studies in developing countries have shown that a significant proportion of children leave health facilities without being fully immunised for age.⁸⁻¹² Interviews conducted on departure from health care facilities in several African countries have shown that as many as 45% of attenders aged 12 - 23 months may be in need of further immunisation.¹¹ However, reported studies have all had small sample sizes, with information collected over periods as short as 3 hours.⁹

The Department of National Health and Population Development launched a national campaign against measles in early 1990. In the western Cape this took the form of a measles immunisation campaign in February and March. The present study was initiated at the request of the Western Cape Measles Working Group, and was timed to take place immediately before the start of the measles campaign. The aim was to determine the proportion of children leaving curative health facilities in the western Cape who did not have evidence of measles immunisation. It was intended that this information would be used in future health service planning to ensure that opportunities for immunisation are not missed. Relevant health authorities were consulted in the design phase of the study and informed of the results, to facilitate the implementation of recommendations arising from the study.

Methods

The western Cape was defined as including the greater Cape Town area as well as the surrounding rural areas and towns. Several hospitals and day hospitals (polyclinics) were selected to represent the range of public sector curative facilities in this region. The curative facilities selected comprised 2 major teaching hospitals in the greater Cape Town area with large paediatric outpatient departments (one catering exclusively for children); 2 secondary referral hospitals (one in central Cape Town and one in a small country town) and 4 day hospitals. All the day hospitals served communities of low socio-economic status. Two were in established townships in the Cape Town area and 1 in an established dormitory town near Cape Town, and the 4th was located in a large rapidly developing peri-urban settlement near Cape Town, with limited infrastructure and health service provision.

The study was carried out over a 2-week period from the end of January 1990, immediately before commencement of the measles immunisation campaign. All carers leaving the hospital with child patients aged between 6 and 59 months inclusive, were interviewed at the exits of the facilities selected. They were asked the age of the child and whether the Road-to-Health (RTH) card had been requested. Measles immunisation details were recorded from the child's RTH card when available. If documentation of immunisation was not available, the carer was asked whether the child had been immunised against measles. Interviews were carried out over a 48-hour period

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(including a Sunday) at the tertiary hospitals, and over 1 weekday at the other facilities with the time periods depending on when the facilities were open. (No interviews were carried out after hours at the secondary level hospitals owing to the small numbers of paediatric patients.) Interviews were carried out on consecutive days at the different facilities, with days being allocated on a convenience basis. At the primary and secondary level hospitals days were chosen so as not to coincide with special paediatric clinics. Interviews were conducted by trained fieldworkers who were not health service employees. In order to prevent a change in the usual immunisation practice, only a few senior staff members of the facilities studied were informed of the purpose of the study in advance.

A missed opportunity for measles immunisation was defined as an attendance by a child aged between 6 and 59 months without evidence of measles immunisation, which ended without an immunisation being given. Two definitions for measles immunisation were used: (i) 'strict': RTH card or other documentation of measles immunisation; and (ii) 'lenient': documentation of measles immunisation or a history of measles immunisation given by the carer.

In order to prevent further missed opportunities all children in the study found to be unimmunised, as well as children whose immunisation status was uncertain, were referred to the local authority clinic nearest their home for immunisation.

The results of a small survey of missed opportunities for measles immunisation in children consulting general practitioners have been reported separately.¹⁴

Results

The results are shown according to facility in Table I. The proportion of carers who reported that they had been asked to produce their child's RTH card ranged from 2,4% to 40,7% between hospitals. The card was most frequently requested by a nurse. RTH card availability ranged from 4,8% to 43,1%, being highest at the tertiary-level children's hospital. Both the proportion of carers who were requested to produce their child's RTH card and the proportion with a RTH card available was considerably worse at the rural secondary hospital than at the other facilities studied; only 2 of the 42 children attending

this hospital had RTH cards available, and only 1 carer reported that their child's card had been requested. The overall proportion of potential missed opportunities for measles immunisation varied considerably between hospitals and according to the definition used (Table I).

More detailed analyses were carried out on the children attending the tertiary-level children's hospital (Tables II and III). At this hospital 90,3% of the 628 children studied had visited an outpatient department. Both RTH card availability and requests for the card decreased significantly with age (Table II). There were not statistically significant differences in RTH card availability or requests to produce the card between the two days studied (Sunday and Monday), or by the time of departure (working hours compared to after hours).

TABLE II. AVAILABILITY AND REQUESTS FOR RTH CARDS AT A TERTIARY LEVEL HOSPITAL BY AGE OF THE CHILD

Age (mo.)	No. in age group†	Card available* (%)	Card requested** (%)
6 - 8	78	64,1	48,7
9 - 11	74	51,4	47,3
12 - 23	203	52,2	40,9
24 - 59	267	28,6‡	24,0

† 6 records omitted owing to missing information on age.
‡ 1 record omitted owing to missing information on card availability.
* $\chi^2 = 45,7; 3 \text{ df}; P < 0,001.$
** $\chi^2 = 28,6; 3 \text{ df}; P < 0,001.$

There was a statistically significant association between RTH card availability and requests to see the card at this hospital (Table III). Of those who had a card available, 57,4% had been requested to show the card during the hospital visit, compared with only 18,2% of those who did not have a card available. However, 75 out of 220 children (34,1%) whose cards had been requested during the hospital visit left the hospital without documented evidence of measles immunisation.

TABLE I. KEY RESULTS BY FACILITY

	Tertiary-level hospitals		Secondary-level hospitals		Day hospitals			
	A	B	Rural	Urban	Urban	Urban	Urban	Peri-urban
Sample size (No.)	628	167	42	13	43	60	47	68
Age (%)								
6 - 11 mo.	24,4‡	18,6	23,8	38,5	11,9	25,0	17,0	29,4
12 - 59 mo.	75,6	81,4	76,2	61,5	88,1	75,0	83,0	70,6
RTH card requested (%)	35,0	40,7	2,4	38,5	39,5	40,0	23,4	29,4
RTH card available (%)	43,1§	35,9	4,8	38,5	27,9	28,8§	38,3	36,8
Measles vaccine given during visit (No.)	28	5	0	3	1	0	0	1
Missed opportunities for measles immunisation (%)								
Strict definition*	60,0	66,5	95,2	69,2	74,4	70,0	68,1	69,1
Lenient definition†	15,9	10,2	35,7	38,5	9,3	1,7	14,9	35,3

* No documentation of measles immunisation available.
† No documentation of measles immunisation available, or history of measles immunisation given by the carer.
‡ 6 records omitted owing to missing information on age.
§ 1 record omitted owing to missing information.

TABLE III. ASSOCIATION BETWEEN AVAILABILITY AND REQUESTS FOR RTH CARDS AT A TERTIARY LEVEL HOSPITAL

RTH card available	RTH card requested	No.†	%
Yes	Yes	155	24,7
Yes	No	115	18,3
No	Yes	64	10,2
No	No	293	46,7

† 1 record omitted owing to missing information on card availability.

* $\chi^2 = 105,4$; 3 df; $P < 0,001$.

Qualitative assessments in the hospitals included in this study suggest that measles immunisation is currently given lower priority than many curative tasks. Some staff members felt that people were aware of the need to have their children immunised against measles, and that it was therefore not necessary for them to check RTH cards. It was also felt that it was unnecessary for curative facilities to provide immunisation owing to lack of time and the proximity of local authority clinics.

Discussion

The study has shown that a high proportion of potential opportunities to immunise children against measles are currently being missed in children attending curative facilities in the western Cape. Instead of contact with curative services being used as an opportunity to extend preventive care,¹⁵ it sometimes acts as a source of measles infection.^{16,17}

Current policy in the western Cape is to immunise children at risk (i.e. malnourished children and those living in overcrowded conditions) at 6 months and again at 9 months in order to prevent cases of measles in the 6 - 9-month period. It is also local policy to immunise all children aged 6 months or more who attend a hospital and have not been immunised against measles previously,¹⁸ owing to risk of contracting measles during the hospital visit.^{16,17} (Three children in this study were reported to have attended hospital on account of measles!) However, this study revealed a considerable gap between policy and practice, for implementation of policy requires political will and the commitment of curative services to disease prevention.

There was a considerable difference in missed opportunities calculated according to the two definitions, since many carers gave a history of measles immunisation in children who did not have documentation of measles immunisation available. Since a history of measles immunisation may not be reliable in all cases, these 2 estimates should be seen as maximum and minimum estimates of the proportion of attenders in whom the opportunity for measles immunisation was missed during the hospital visit.

The high proportion of children attending hospitals without RTH cards, and the high proportion of children whose cards were not requested, is a cause for concern. As far back as 1973, a study conducted by the Divisional Council of the Cape showed that only 15% of children brought cards to hospital.¹⁹ The recommendations made at the time still apply today; namely: (i) that mothers should be educated to bring RTH cards; and (ii) that health service personnel should request RTH cards for all children under 5 years. A Zimbabwe study showed that awareness campaigns can work; 92% of children attending urban hospitals and 90% of children attending rural hospitals had cards available!¹⁵

The study documented the impact of a fragmented approach to health care and indicated an urgent need to give higher priority to preventive strategies in hospitals. Actively practising prevention could result in considerable cost savings in the curative sector. One of the authors (G.H.) has estimated that approximately 15% of measles admissions to an infectious disease hospital in Cape Town could be prevented if children were immunised against measles during visits to a tertiary hospital. This could save up to R225 000 annually (i.e. 15% of approximately R1,5 million spent annually on measles admissions).

Several of the facilities in this study were in the immediate vicinity of a local authority clinic. For example, one of the urban day hospitals shared a site with a local authority clinic, and the peri-urban day hospital was in the same building as a local authority clinic. However, this does not justify neglect of preventive care on the part of curative services. It is recommended that a clear unambiguous policy of vaccinating all children between 6 months and 5 years of age without RTH card proof of measles immunisation be fully implemented.

The recent increase in commitment by the State to providing primary health care could be rapidly realised at low cost by integrating curative and preventive service management and functions under a single metropolitan authority. While this study focused entirely on the preventive potential for measles immunisation in the curative sector, the same principles and concerns apply to many other aspects of health promotion and disease prevention.

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