

Measles elimination in South Africa - policy and implementation

by Dr Rudolf Richard Eggers
(8212414)

Submitted in partial fulfilment of the requirements for the degree of
MMed (Civ)
in the Faculty of Medicine, University of Pretoria

28 May 1998

SUMMARY

With the advent of an effective and safe vaccine against measles, the control of measles has been astounding. In several countries the success of immunisation have led to the attempt to eliminate measles transmission entirely, through the use of vaccination strategies originally developed in the polio eradication programme. These strategies are to increase and maintain high routine coverage, to conduct periodic supplemental mass immunisation campaigns and case based, laboratory confirmed surveillance.

In South Africa, measles mass vaccination was added to the existing polio mass vaccination campaigns in 1996 and 1997, and the combined strategies were formulated for the South African context in this document.

This document is targeted at decision makers in the national and provincial Departments of Health, to enable a coordinated and effective South African measles elimination programme.

OPSOMMING

Sedert 'n effektiewe en veilige entstof gevind is teen masels, het die gebruik daarvan 'n dramatiese dalingseffek gehad op die voorkoms van die siekte. In verskeie lande het die sukses van immuniseringsprogramme daartoe aanleiding gegee dat die volledige uitwissing van masels nou verwesenlik kan word deur gebruik te maak van inentings strategieë wat oorspronklik gebruik is vir die polio uitwissingsprogram. Hierdie strategieë sluit in die handhawing en verbetering van 'n hoë roetine inentingsvlak, die gebruik van herhalende addisionele immuniseringsveldtogte en verder ook laboratorium bevestiging van elke masels geval.

Die masels veldtogte in Suid Afrika is gekoppel aan reeds beplande polio veldtogte in beide 1996 en 1997. Die gesamentlike strategieë word saamgevat in hierdie dokument.

Hierdie dokument is gemik op besluitnemers in beide die nasionale en provinsiale Departemente van Gesondheid om sodoende 'n gekoördineerde en ook effektiewe maselsuitwissingsprogram te kan loods.

KEYWORDS

measles elimination, South Africa, policy, implementation, strategies, mass immunisation campaigns, surveillance, routine immunization



TABLE OF CONTENTS

ACKNOWLEDGEMENTS	1
CHAPTER 1 - BACKGROUND	2
1.1 Disease	2
1.1.1 Virus and transmission	2
1.1.2 Clinical aspects	2
1.1.3 Complications and permanent sequelae	4
1.1.4 Immunological response to natural infection	6
1.1.5 Treatment of measles and referral criteria	8
1.2 Vaccine	10
1.2.1 Vaccine types	10
1.2.2 Vaccine stability, storage and supply	11
1.2.3 Vaccine efficacy	12
1.2.4 Adverse reactions and side effects	13
1.2.5 Contraindications and Precautions	17
CHAPTER 2 - GLOBAL CONTEXT AND EXPERIENCES OF MEASLES ELIMINATION	21
2.1 Terminology	21
2.2 Global context and progress to elimination	21
2.3 Experiences in measles elimination	23
2.3.1 United States of America	23
2.3.3 Chile	27
2.3.4 Elsewhere in the Americas	28
2.3.5 United Kingdom	29
CHAPTER 3 - ELIMINATION STRATEGIES	30
3.1 Mass immunisation campaigns	30
3.1.1 "Catch-up" campaigns	30
3.1.2 "Mopping-up" campaigns	31
3.1.3 "Follow-up" campaigns	31
3.2 Routine vaccination programme	33
3.3 Surveillance	34
3.5 Laboratory support	34
3.5.1 Serological testing	34
3.5.2 Measles virus isolation	36
3.6 Outbreak investigations and response	37
CHAPTER 4 - IMPLEMENTATION IN SOUTH AFRICA	39
4.1 South African Measles Elimination Goal	39
4.1.1 Justification for measles elimination in South Africa	39
4.1.2 Setting the goal	40
4.2 Historical perspective & current status of measles control in South Africa	40

4.2.1	Changes in measles vaccination schedules from 1980 to now	41
4.2.2	Disease epidemiology in South Africa	41
4.2.3	Vaccination coverage	43
4.2.4	The “Measles Strategy”	44
4.2.5	Mass immunisation campaigns in 1996/97	44
4.3	Strengthening routine immunisation	46
4.3.1	Physical and functional accessibility	46
4.3.2	Missed opportunities in the clinic setting	47
4.3.3	Missed opportunities in hospitals	48
4.3.4	Missed opportunities in the private sector	49
4.3.5	House-to-house vaccination	49
4.4	Mass immunisation campaigns	50
4.4.1	“Catch-up” campaigns	50
4.4.2	“Mopping-up” activities	50
4.4.3	“Follow-up” campaigns	52
4.5	Surveillance	52
4.5.1	Case definitions	52
4.5.2	Case finding and routine reporting	55
4.6	Case investigation and reporting	60
4.6.1	Steps in the investigation of a suspected case	60
4.6.2	Laboratory investigations	64
4.6.3	Completing the case investigation	68
4.7	Outbreak investigation and response	69
4.7.1	Confirm the Diagnosis	69
4.7.2	Evaluate Vaccination Coverage	70
4.7.3	Control actions and outbreak response	70
4.7.4	Outbreaks in special circumstances	73
4.7.5	Additional surveillance strategies	76
4.7.6	Outbreak monitoring	76
4.7.7	Outbreak Summary	76
4.8	Minimising nosocomial measles transmission	77
4.8.1	Ensure adequate measles immunization status among hospitalized patients	77
4.8.2	Isolate fever and rash cases upon arrival	78
4.8.3	Inform the hospital infection control authorities	78
4.8.5	Administer gamma globulin to immuno-compromised contacts of measles cases	79
	CHAPTER 5 - REFERENCES	80
	ANNEXURE A: MEASLES CASE INVESTIGATION FORM	85
	ANNEXURE B: DISTRICT SUSPECTED MEASLES CASE LINE LISTING	85

ACKNOWLEDGEMENTS

The following documents were used as source material for this document and are in certain cases quoted *verbatim*. The authors, producers and publishers of these documents are hereby acknowledged.

1. World Health Organisation. Elimination of measles in the Republic of South Africa: Proposed plan of action 1996 - 2000; Pretoria; January 1996
2. Pan American Health Organization. Measles eradication field guide (draft); 1997
3. Centres for Disease Control and Prevention. Manual for the surveillance of vaccine-preventable diseases. 1996
4. WHO/EPI. Using surveillance and outbreak investigations to strengthen measles immunisation programmes. WHO/EPI/GEN/96.02
5. Essential Drug Programme, South Africa. Standard treatment guidelines and essential drugs list. 1996 Edition
6. Anonymous. Meeting on advances in measles elimination: conclusions and recommendations. Weekly Epidemiological Record 1996(71):305-312
7. World Health Organisation / Expanded Programme on Immunisation. The immunological basis for immunisation: Measles. WHO/EPI/GEN/93.17. 1993

In addition, we thank Dr Robin Biellik and Dr Jean-Marc Olivé from the World Health Organisation for their inputs, constructive criticism and support on the way to measles elimination in South Africa.