KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) OF VACCINATORS IN GOVERNMENT HEALTH CLINICS IN KHAYELITSHA

William Bangoto Kwaw

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Study leader: Prof. APJ Burger

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DECLARATION

I, the undersigned, hereby declare that the work contained in this study project is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.
SUMMARY

Immunization against the major killer diseases of childhood: measles, polio, diphtheria, whooping cough, tetanus, hepatitis B and tuberculosis remains the most cost effective health intervention presently known. Immunization is the most precious gift that a health worker can give to a child. However there are times when a child who needs vaccination visits a health facility but is not immunized by the health staff - a missed opportunity. Though reasons such as non-availability of vaccines and lack of integration of services can be blamed, more important reasons are provider misconceptions about contra-indications and failure to administer vaccines simultaneously. This is particularly important in peri-urban squatter settlements where immunization coverage tends to be low. It is felt that the time has come to fill in the gap - that is to research an important forgotten link in the immunization chain - the vaccinator who is in an ideal position to manage the immunization process in previously marginalised areas.

All vaccinators in government health clinics in Khayelitsha (a total of 40) were surveyed. This was to obtain information on knowledge, attitudes and practice concerning vaccination in order to plan an appropriate health intervention programme such as focused retraining with view to improving immunization services in the area. The response rate was 82.5%. Important findings included the following: 84.8% were registered professional nurses; 54.5% had 5 or more years experience in vaccinating children; the majority (90.9%) knew the
routine immunization schedule recommended by the Department of Health; 93.9% knew the measles policy for children while only 15.2% knew the tetanus policy for mothers; important misconceptions and myths about contraindications to vaccinations were found in typical clinical situations; 97% received supervision from senior professional nurses of which 63.5% worked in the same clinic; performance feedback (45.5%) was the most popular method used by supervisors to upgrade skills of vaccinators; important job problems included staff shortages (75.8%), mothers not bringing children to clinic (63.3%), lack of supplies (27.3%) and training (18.2%), lack of integrated one stop service (27.3%); 48.5% had plans in place to learn about newborns or new immigrant children; 21.2% kept a register of all children in catchment areas; 30.3% routinely calculated drop-out rates however none could quote last figure calculated; all (100%) participated in suggesting reasons to explain why some children may not receive vaccinations at the correct age and 93.9% contributed ideas towards improving immunization coverage in the area. It was found that the vaccinator wants to be an active participant in the immunization policy process. Recommendations for improved vaccination services in the area are the following:

- Provision of immunisation at every health care contact.
- Colour coding of vaccination schedule to make it more useful to illiterate mothers.
- Provision of information - preferably in the mother tongue of the target population - for a more meaningful participation in the immunisation policy process.
- Implementation of a one-stop-shop clinic concept where all promotive and preventive immunisation, curative and rehabilitative services are provided.

- Implementation of the child-to-child concept to help in identifying new immigrant children and in tracing immunization drop outs. This will ensure that children become active partners in their own health promotion and care.

- Greater use of conventional media (radio, television) and opinion leaders (including traditional healers) to convey immunisation messages and to motivate parents.

- Organization of workshops and seminars (as short term measure) aimed at addressing misconceptions and myths concerning contra-indications to immunisation.

- Inclusion of courses (as long term measure) in curricula of nursing training institutions to equip nurses to be effective vaccinators before graduation.

- Greater advocacy role by vaccinators, to ensure that the immunisation policy agenda is firmly placed within the general framework of the human development process. This will ensure that more resources are committed for immunisation of children.
OPSOMMING

Immunisasie teen die hoof kindersiektes: masels, polio, difterie, kinkhoes, tetanus, hepatitis B en tuberkulose bly steeds die mees koste-effektiewe gesondheidsintervensie tans bekend. Immunisasie is die kosbaarste geskenk wat 'n gesondheidswerker aan 'n kind kan gee. Tog is daar dikwels geleenthede waar kinders wat immunisasie benodig gesondheidsinstellings besoek maar nie die nodige vaksienasies ontvang nie – 'n verspeelde geleentheid. Alhoewel redes soos nie-beskikbaarheid van vaksienes en 'n tekort aan integrasie van dienste dikwels die 'blaam kry, is meer belangrike redes die wanopvettings oor kontra-indikasies en vaksienes wat nie op dieselfde tyd toegedien word nie. Hierdie aspek is veral belangrik in peri-stedelike plakkerskampe waar immunisasiedekking geneig is om laag te wees. Die tyd om hierdie leemte te vul het aangebreek en dit sluit in om navorsing oor die belangrike vergete skakel in die immunisasie ketting – die toediener van die vaksienes te doen. Hierdie persoon is in die ideale posisie om die immunisasieproses in gemarginaliseerdse areas te bestuur.

Alle immuniseerders in staatsgesondheidsklinieke in Khayelitsha (totaal van 40) is by die studie ingesluit. Die doel was om inligting te bekom oor die kennis, benadering en praktiek van immunisasies, met die oog daarop om voldoende gesondheidsintervensie programme daar te stel deur heropleiding, ten einde immunisasiedienste in die area te verbeter.

82.5% response is bekom. Belangrike bevindinge sluit die volgende in: 84.4% was geregistreerde professionele
verpleegsters, 54.5% het meer as 5 jaar ondervinding in die immunisasie van kinders; die meerderheid (90.9%) was bekend met die roetine immunisasie skedule soos voorgestel deur die Departement van Gesondheid; 93.9% was bekend met die maselsbeleid vir kinders terwyl slegs 15.2% bekend was met die tetanusbeleid vir moeders; belangrike wanopvattings en mites oor kontra-indikasies ten opsigte van immunisasies is gevind in tipiese kliniese situasies; 97% was onder toesig van senior professionele verpleegsters, waarvan 63.5% in dieselfde kliniek werk; terugvoer is die mees gewilde metode gebruik deur toesighouers om die vaardigheidsvlakke van die immuniseerders op te gradeer (45.5%); belangrike werksprobleme sluit in: personeeltekort (75.8%), kinders wat nie na die kliniek gebring word nie (63.3%), voorraadtekorte (27.3%), onvoldoende opleiding (18.2%) en tekort aan geintegreerde eenstop-dienste (27.3%); 48.5% het planne in plek gehad om meer te weet te kom oor pasgebore babas en immigrasie kinders; 21.2% hou rekord van alle kinders in hul dreineringsgebied, 30.3% bepaal uitvalkoerse as roetine aktiwiteit, alhoewel niemand die laaste berekening hieroor kon weergee nie; almal (100%) het redes voorgestel waarom kinders nie die immunisasies op die regte ouderdom kry nie en 93.9% het idees bygedra oor hoe om immunisasiedekking in die area te verbeter.

Die studie het bevind dat die immuniseerder 'n aktiewe deelnemer wil wees in die proses van beleidvorming rondom immunisasie. Voorstelle ter verbetering van immunisasiedienste in die omgewing is die volgende:

- Voorsiening vir immunisasie by elke gesondheidsorg geleenthed.
- Kleurkodes vir vaksienasie skedules om dit meer
gebraikers vriendelik te maak vir moeders wat nie kan
lees nie.
- Inligting moet beskikbaar wees in die moeder taal, van
die teikengroep, ten einde sinvolle deelname aan die
immunisasie - beleidsproses te verseker.
- Die daarstelling van ’n een-stop kliniek konsep waar
alle promosie en voorkomende immuniserings-, kuratiewe
een rehabiliteringsdienste beskikbaar is.
- Implementering van ’n kind-tot-kind konsep om nuwe
immigrant kinders te help identifiseer en uitvallers op
te spoor. Dit sal verseker dat kinders aktiewe vennote
in hul eie gesondheidsbevordering en -sorg word.
- Beter gebruik van media (Radio, televisie) en leiers
(insluitende tradisionele helers om die immunisasie
boodskap oor te dra, en ouers te motiveer om hulle
kinders te immuniseer.
- Organisering van werkswinkels en seminare (as
korttermyn maatreël) wat daarop gemik is om
wanopvatting en mites oor kontra-indikasies tot
immuniserings uit die weg te ruim.
- Insluiting van kursusse (as langtermyn maatreël) in die
kurrikula van verpleegopleidingsinstellings ten einde
verpleegters toe te rus om voor graduering reeds
effektiewe immuniseerders te wees.
- ’n Groter bewusmakingsrol vir immuniseerders, ten einde
te verseker dat die immuniseringsbeleidsagenda geplaas
word binne die raamwerk van die menslike
ontwikkelingsproses. Dit sal verseker dat meer
hulpbronne toegewys word vir immunisering van kinders.
DEDICATION

This dissertation is dedicated to the many children who either continue to die or become disabled from preventable diseases.
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W B KWAW
Department of Community Health
Tygerberg Campus
University of Stellenbosch
REFLECTIONS ON IMMUNIZATION

*"Immunization is the greatest gift that mankind can offer to the child."* (UNICEF, 1989)

*I am hard-hearted enough to let the sick die if you can tell me how to prevent others from falling sick."
(Mahatma Gandi as quoted in Kibel and Wagstaff, 1995: 181)

*"... the lives and normal development of children should have first call on society's concerns and capacities and children should be able to depend upon that commitment in good times and bad, in normal times and in times of emergency, in times of peace and in times of war, in times of prosperity and in times of recession."* (Grant, 1985-94)
DEFINITION OF TERMS AND NOMENCLATURE

KNOWLEDGE - familiarity gained by experience, person's range of information.

ATTITUDE - a disposition to respond favourably or unfavourably to an object, person, institution or event.

PRACTICE - habitual custom or action rather than theory.

KAP - knowledge, attitudes and practice

EPI (SA) - expanded programme on immunization - South Africa

WHO - World Health Organization

RSA - Republic of South Africa

VACCINATORS - those involved in the administration of vaccines

KHAYELITSHA - Is a Xhosa term which means "new home". It is the largest black township in Cape Town.
BCG - Stands for Bacille Calmette Guerin — a vaccine named after a French physician who discovered it. It is used for the prevention of Tuberculosis.

OPV - Stands for Oral Polio Vaccine. It is used for the prevention of poliomyelitis.

DPT - Stands for Diphtheria, Pertussis and Tetanus. It is a vaccine for the prevention of diphtheria, whooping cough (pertussis), and tetanus.

TT - Stands for Tetanus Toxoid

HEP B VACCINE - Stands for Hepatitis B vaccine. It is used for the prevention of Hepatitis B (a virus) infection and its subsequent sequelae such as liver cancer.

RHC - Stands for Road to Health Chart. It is a health information system for children under five years kept by the mother.

SPN - Stands for Senior Professional Nurse

UNICEF - United Nations Children's Educational Fund

HW - Community Health Workers
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1. INTRODUCTION

1.1 PROBLEM STATEMENT

Infectious diseases, most of them preventable, take an unacceptable toll on the lives of children in the developing world. These diseases often kill, maim, cause sickness and untold suffering among children and their families. The problem is particularly acute in rural and peri-urban settlements - often dubbed the "septic fringe". The ultimate solution would be comprehensive social upliftment of individuals and families in these areas in terms of better environmental sanitation, improved housing, potable water, better nutrition and education - to name but a few. This would take a long time to implement taking into consideration the gross debt faced by most of these developing countries. The dying and suffering children cannot wait for this long process to happen. A cost effective and fast way to address most of these infectious diseases is through immunization. Effective vaccines currently exist. The problem has been how to effectively deliver these vaccines to the target population. It would be difficult to formulate any strategies in terms of policy, planning, leading, organising and evaluation aimed at efficient delivery of these vaccines without understanding the knowledge, attitudes and practices of the vaccinators themselves.

1.2 PURPOSE OF STUDY

Immunization is a subject considered to be of extreme importance worldwide. Particularly in predominantly black areas of South Africa, immunization programs are not likely to have the desired impact without the active support and involvement of vaccinators.

Getting the required information and the right attitudes to vaccinators would be a step in the right direction.
1.3 AIM OF STUDY

The aim of the study was to obtain a baseline information about knowledge, attitudes and certain behavioural practices (KAP) concerning vaccinators in government health clinics in Khayelitsha Township so that appropriate health interventions could not only be planned by the Department of Health but also to help the vaccinator manage the immunization process or effectively undertake the Department of Health's management task.

1.4 OBJECTIVES OF STUDY

1. To ascertain the vaccinators' knowledge about the Expanded Program of immunization (EPI-SA).
2. To assess the attitudes, and practices regarding EPI (SA).
3. To suggest ways of improving the immunization activities in government health facilities based on the appropriate data collected.

The motivation for the study arose from the vaccinators request to the Department of Health for information on EPI (SA).
2. CONCEPTUALISATION

The objective of this section is to define and explain the key constructs of the study, namely vaccination policy and the role of the vaccinator.

2.1 VACCINATION POLICY

The World Health Organization (WHO) established the Expanded Program on Immunization (EPI) in 1974 (Last, 1986: 107). The EPI goal is to reduce morbidity and mortality by making immunization services available for all children. The initial focus of the program has been on 6 diseases which as of 1983 were killing some 5 million children per year in developing countries (10 per minute) and disabling an equal number: diphtheria, pertussis, tetanus, measles, poliomyelitis, and tuberculosis (Last, 1986:107). As additional vaccines become available which are appropriate for widespread public health use in the world, consideration will be given to adding them to the program. Immunization services are an essential element of primary health care, as defined in the Declaration of Alma Ata (Alma Ata, 1978;20), and because the management skills required to provide effective immunization services are also helpful in managing more comprehensive health programs, the EPI is itself a building block for primary health care.

Different target dates for realizing EPI goals have been set by various countries taking into consideration their political and economic strengths and weaknesses. The South African EPI targets were as follows (Vaccinator's Manual, 1995):

* 90% coverage for each EPI childhood vaccine by the year 2000;
* Polio eradication by the year 1998 (target not yet achieved);
* An average of fewer than 4 000 reported measles cases
for a period of five consecutive years beginning in 1996;  
* Reduction of neonatal tetanus to fewer than one case per 1,000 live births in all health districts by 1997 (target not achieved).

The WHO (Field Guide for District-level Staff, 1994) lists three (3) primary strategies to achieve EPI objectives and targets:

* political commitment at all levels among the highest national authorities and technical and donor agencies to ensure that sufficient resources -- financial, human and material -- are made available in a timely fashion;

* delivery of safe, potent vaccines to the appropriate population target groups using vaccination strategies proven through international experience to achieve and sustain very high coverage rates and effective disease control;

* effective disease surveillance and control measures to permit the early detection and investigation of cases and/or outbreaks and the implementation of appropriate responses.

There is also the vexed question of missed opportunities which occurs when a child or woman who needs immunization visits a health facility but is not immunized by the health staff. Though reasons such as non-availability of vaccines, lack of integration of services can account for them; more important ones are provider misconceptions about contraindications and failure to administer vaccines simultaneously (Gindler et al, 1993:104; Hatton, 1990:126). Amongst the reasons identified by mothers for not bringing their children for immunizations were negative attitudes held by health workers and mistreatment (Freed et al, 1993: 65-67). Perceptions were formed by clients that there was inconsistency in "health messages" between different health
workers, especially in the case of contra-indications to immunization schedules (USAID, 1992).

Health workers regarded the "system" as the root problem, as it does not support or acknowledge their services (Okoro and Egwu, 1994: 105-110). There has been few studies in RSA on vaccinator's knowledge, attitudes and practices. Large peri-urban settlements tend to have low immunization coverage even in provinces like the Western Cape and Gauteng which have overall high immunization coverage figures (Epidemiological Comments, 1994:6; Radloff, 1994:10). Khayelitsha, the current area under study, has been well documented to have low vaccination coverage (Coetzee et al, 1990:735).

Hogwood and Gunn (1984:197) cautioned that any policy (the immunization policy for South Africa is no exception) may be put at risk in plain terms, because of one or more of the following three reasons: bad execution (implementation), bad policy or bad luck. There is very little any one can do about bad luck. The immunization policy has good objectives but the implementation may be a problem. Lack of decentralisation and participation, personnel constraints and institutional realities are among the "notorious nine" critical problems identified by Gow and Morss (1988: 1399-1418) in policy implementation in developing countries. Bowden (1986:26) discussing problems of policy implementation in developing countries lists knowledge and attitudes of implementers among the eight most frequently mentioned constraints.
2.2 THE ROLE OF THE VACCINATOR

There is a growing realization that the vaccinator's knowledge of and active involvement in the EPI should be appropriate and desirable (Field Guide 1994:30). The growing consensus among researchers and planners is that it is now crucial to fill in the gap - that is to research the forgotten link in the chain of the immunization process - the vaccinator (Radloff, 1994:15). This will provide input from health workers in the field, which incorporates the concept of participative management, as well as focused retraining, where applicable.

3. CASE DESCRIPTION - INFORMATION ON KHAYELITSHA

The objective of this section is to describe the living conditions of people in Khayelitsha in order to explain the work environment of vaccinations.

3.1 LOCATION OF TOWNSHIP

The area under study is the Khayelitsha Township which now forms part of the Tygerberg Metropolitan Substructure. Khayelitsha (translated as "our new home" in the Xhosa language) is situated 26 kilometres from the centre of Cape Town on the white dunes of the Cape Flats. It is bounded on the north by the N2 highway, on the south by the Atlantic Ocean (False Bay coast), with Mitchells Plain to the west and Kuils River and Macassar to the east. Although sand is a soft material, excavation costs are high due to the high water table. Extensive earthworks and stabilisation of cleared areas inflate the cost of serviced land.
3.2 HISTORICAL REVIEW

Until the early 1980's the Western Cape (declared coloured labour preference area) had largely escaped black urbanisation. Influx control had been rigidly enforced and for two decades development had been frozen in the old townships of Langa, Guguletu and Nyanga. In March 1983 Dr Piet Koornhoff, then Minister of Plural Relations, announced that a black township at Swartklip, east of the coloured township Mitchells Plain will be developed - the beginning of a new housing development, called Khayelitsha - to house the "legal" squatters in corehouses and "illegal" squatters on site and serviced land (Lourens et al, 1992: 3). The original plan to move "illegal squatters" living in and around Old and New Crossroads to Khayelitsha never happened and became an international symbol of black poverty and resistance to resettlement. Crossroads residents refused to budge, and the controversial move to clear the old townships was dropped. The pressure of new arrivals and the pent up demand for housing in the overcrowded townships swept Khayelitsha into almost instant existence.

Thus, since 1983, the township has grown phenomenally with an estimated total population of approximately 435 000 inhabitants who are scattered over both formal and informal settlements in the area (Lourens et al, 1992: 20). The phenomenal growth in Khayelitsha's population is mainly attributable to a natural increase, the abolition of the influx control laws and its concomitant internal migration from the poverty-stricken homelands, together with people who fled from political violence in other townships of Cape Town.

Khayelitsha had its own town council (Lingelethu West City Council), which previously fell under the magisterial district of Mitchells Plain. The town council provided basic facilities such as infrastructure, housing and cleaning, while the Cape
Metropolitan Council had been contracted to provide water and refuse removal.

### 3.3 CURRENT LOCAL GOVERNMENT STRUCTURE AND SERVICES

The Lingelethu West City Council has during 1995, been integrated into the Tygerberg Substructure, which has better resources and administrative support. It is therefore hoped that provision of basic services to the people will improve.

Sewage is conveyed in a pipe system to the Zandvliet sewage works. The works cater for sewage generated in Mfuleni, Blue Downs, and Khayelitsha. Solid waste is delivered to the Swartklip tip site via two transfer stations. Apart from these local government structures, there are other non-governmental organisations (NGOs) which provide a wide range of essential services in the township. For instance, both the Western Cape Community Partnership Project (WCCPP) and the Community Health Forum (CHF), address health-related issues in the community. The South African National Tuberculosis Association (SANTA) is also present in the community and focuses on combatting tuberculosis.

Planning for essential services has always been inadequate in the community because of the previous political and administrative problems relating to the creation of a separate local government structure for Khayelitsha (Lourens et al, 1992: 2-21). But the political and administrative problems notwithstanding, the township appears to be doing "well" on a number of fronts. For example, water in the township is purified and there are both communal and private taps, with community health workers who educate people about personal hygiene, taking of medication for chronic ailments and how to store water (Lourens et al, 1992: 2-8). The toilet system in operation is predominantly the flush system.
3.4 TRANSPORT INFRASTRUCTURE

Transport is of cardinal importance because Khayelitsha is situated approximately 26 kilometres from central Cape Town. Long distances have to be travelled to reach the industrial areas of the Peninsula.

Only a minor percentage of the estimated 435,000 people are able to afford their own cars. A railway and a bus service operates between the area and Cape Town. The most dynamic form of transport however is the taxi or mini-bus taxi system, founded and organised on the initiative of the inhabitants themselves. It is the main form of informal transport on the area.

3.5 ECONOMIC ACTIVITIES

Almost the entire economic sector is informal. The only formal businesses are about 46 retail businesses in four shopping centres and three freestanding supermarkets. In addition, there are six service stations and three post offices.

There are no formal or major manufacturing facilities in the township. Only a few informal manufacturers that are largely family businesses, manufacture food storage boxes, kitchen cupboards, clothing and knitted garments. There is a healthy service sector, consisting mainly of hairdressing salons, tyre puncture repair shops, panel beaters and motor car repairers.

Lack of factories may be due to the on-going violence and the poor economy in the area. Owing to the lack of manufacturing industries there is limited scope for employment generation.
3.6 HEALTH

The rapid development of Khayelitsha, coupled with the poor socio-economic circumstances, has led to a situation where there is a large young population which is susceptible to the health problems of rapid urbanisation.

These problems have been classified by the World Health Organisation as follows:
(a) Problems relating to poverty - e.g. tuberculosis, measles and gastroenteritis.
(b) Problems relating to social instability - e.g. sexually transmitted diseases, teenage pregnancy, violence.
(c) Problems related to industrialisation - e.g. pollution, stress, hypertension and asthma.

One measure of health status is the infant mortality in the community. In 1995, an infant mortality rate of 44 infant deaths out of every 1000 babies born that year was reported (Annual Report, 1995). This infant mortality rate may be an underestimate since it is well documented that deaths, especially of children, may go unreported in black communities in South Africa (Katzenellenbogen et al, 1996: 195). The comparable infant mortality rate for the Cape Town white population was estimated to be around 10 out of 1000 in that year (Annual Report, 1995:12).

Another measure of health status is the occurrence level of tuberculosis. In Khayelitsha the rate of tuberculosis is around 600 per 100 000 population (Lourens et al, 1992: 26). This is high because of over-crowding and lack of infrastructure (Lourens et al, 1992: 26). The above health problems and poor living conditions can directly be related to unemployment.

Unemployment is very high in the area and estimated to be around sixty percent (60%) (Lourens et al, 1992: 21).
3.7 COMPOSITION OF THE POPULATION

The greater percentage of Khayelitsha's present population consists of persons who have recently located themselves in the urban environment and are in a state of transition and acculturation. Strong elements of traditional way of life are still evident and are manifested in the social support systems which exist in the community, particularly in the site and service areas with its informal housing. The formal housing areas are inhabited mostly by people who have moved from older residential areas of Langa, Nyanga and Gugulethu and are in most instances third or fourth generation Capetonians.

4. OPERATIONALIZATION AND CASE STUDY

This section is aimed at describing the process of data collection regarding the knowledge attitudes and practices of vaccinators in Khayelitsha.

4.1 DATA COLLECTION

Data was collected by means of a questionnaire (See Appendix B) in the month of July 1996. The questionnaire was compiled based on KAP study used in United States Agency for International Development (USAID) funded countries to assess facility and immunization program assessments (USAID, 1992) which has been adapted to suit the local circumstances.

4.2 STUDY POPULATION

The study population consisted of all vaccinators (immunizers) in government health facilities in the Khayelitsha area. There were 40 of them.
The study was conducted in July 1996. Table I shows the summary of vaccinators in government clinics in Khayelitsha as at May 1996.

TABLE I
Summary of vaccinators as at May 1996: Government Health clinics in Khayelitsha

<table>
<thead>
<tr>
<th>Govt clinic</th>
<th>No. of vaccinators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zakele</td>
<td>4</td>
</tr>
<tr>
<td>Site B</td>
<td>8</td>
</tr>
<tr>
<td>Site C</td>
<td>8</td>
</tr>
<tr>
<td>Luvuyo</td>
<td>4</td>
</tr>
<tr>
<td>Mayenzeke</td>
<td>4</td>
</tr>
<tr>
<td>Nolungile</td>
<td>4</td>
</tr>
<tr>
<td>Harare (fixed)</td>
<td>4</td>
</tr>
<tr>
<td>Harare (mobile)</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAAL</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

4.3 SAMPLING

All vaccinators (immunizers) at all the government health clinics in the Khayelitsha area - seven (7) fixed clinics (Zakele, Site B, Site C, Luvuyo, Mayenzeke, Nolungile, Harare) and one (1) mobile clinic which operates from Harare were included in the survey. Out of this 40, 33 returned the questionnaires correctly filled in- giving a response rate of 82.5%.
4.4 LOGISTICS

Support for this study was obtained from the Cape Metropolitan Council Health Services and the staff of the health facilities involved in the study.

Written permission was asked from the Cape Metropolitan Council Health Services (See Appendix A). However to actively involved all major role players, the permission was negotiated with individual staff and managers of the various clinics.

4.5 ADMINISTRATION OF QUESTIONNAIRE

The questionnaire was self administered by vaccinators in a designated room under supervision. Those involved in the supervision were given training through a workshop. To ensure anonymity and confidentiality and to encourage non-biased objective responses, respondents were asked not to communicate with each other during administration of the questionnaire and to place the completed questionnaires in sealed envelopes into a box. At the beginning of each session (i) the rationale for the study was explained; (ii) instructions was given as to how the questionnaire should be filled in. This information was available on the front cover of the questionnaire booklet. The vaccinators were asked if they had questions before starting to complete the questionnaire.
4.6 LIMITATIONS/PROBLEMS

A study of this nature is complex and a lot of resources are required.

a. STUDY SITES - Originally the idea was to involve all government health clinics in all the black townships in the Cape Town area. The distances involved, non-availability of reliable transport, staff and time constraints have led to exclusion of those from the other black townships. Inclusion of all black areas would have given a better representation of the study population of all government health clinics and would have made it possible to make comparisons between the various townships.

b. CROSS-SECTIONAL APPROACH - Implicit in many cross sectional studies is the problem that changes over time cannot be predicted. Without longitudinal data, caution should therefore be exercised in interpreting results of a cross-sectional study as carried out in this study in Khayelitsha.

c. SAMPLING ISSUES - A limitation of government based health facility studies is the exclusion of important subgroups of vaccinators. These include vaccinators who work in private practitioner set-up and vaccinators who work in schools. Immunization coverage rates have been shown to be low in private practitioners facilities in South Africa (Seymore, 1994:11). A more inclusive study with the aim of documenting KAP on all vaccinators would give a more holistic picture of the issues.

d. VALIDITY OF SELF-REPORT MEASURES - The issue in this regard is whether vaccinators provide accurate and honest answers to questions. This is particularly pertinent in this study, since much of the information sought is considered to be a test of professional knowledge and competence. Threats to validity may
stem from two sources: under-reporting, arising out of fear of being exposed and the subsequent embarrassment and over-reporting. Though every effort was made in this study to stress confidentiality and anonymity, it was not possible to guarantee if there was under or over-reporting.

5. RESULTS AND ANALYSIS

This section is aimed at providing research findings in table and diagram format and to briefly explain these findings.

Analysis of data was made using a computer program - EPI INFO version 6. A qualitative analysis of the open ended questions was done using content analysis (Mostyn, 1985: 115-117).

The analysis has been organized mostly along the following topics for ease of reading:
(a) Background characteristics of participating vaccinators
(b) Knowledge component
(c) Attitude component
(d) Practice component

It must be noted however that in the questionnaire itself questions measuring the different components were randomly distributed with repetitions of measurement occurring throughout, in order to ensure non-biased responses. The results will be stated first and the reasons underlying the results will be given the next section.
5.1 BACKGROUND CHARACTERISTICS OF PARTICIPATING VACCINATORS

The results of the study of 33 participating vaccinators concerning background characteristics are presented. Table II shows the mean, median and range of ages in years; percentage who have administered at least one immunization in the last month and whether written guidelines on immunization are available.

**TABLE II**
Participating vaccinators: age, number who have given vaccination during previous month and percentage having guidelines on immunization

<table>
<thead>
<tr>
<th>Vaccinator's characteristic</th>
<th>N = 33</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Age (years)</td>
<td>37.2</td>
</tr>
<tr>
<td>Given vaccination last month</td>
<td>32 (97.0%)</td>
</tr>
<tr>
<td>Written guidelines</td>
<td>33 (100%)</td>
</tr>
</tbody>
</table>

The sample ranged from ages 29 to 54 with half of the respondents 36 years or younger. The overwhelming majority (97.0%) have personally administered at least one immunization in the last one month. All (100%) had written guidelines on immunization.
Figures 1 and 2 show respectively job titles and experience of participating vaccinators.

FIGURE 1: JOB TITLES OF PARTICIPATING VACCINATORS

Response (n = 33)
Response (n = 33)

The majority of vaccinators were registered professional nurses (84.8%). Over half of respondents (54.5%) have 5 or more years experience in vaccinating children.

5.2 KNOWLEDGE COMPONENT

The results of knowledge vaccinators have on the immunization schedule and its influence on decision making capabilities and performance in practice are presented here.
The majority (87.5%) of vaccinators knew the correct maximum upper age for DPT vaccination while few (9.4%) were unsure.

Table III shows results as whether policies on measles immunization and target population and age groups for tetanus immunization have been explained by supervisors.
TABLE III
Vaccinators knowledge of immunization policies on Measles and Tetanus

<table>
<thead>
<tr>
<th>Response</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has supervisor explained the 2 measles policies to immunize children</td>
<td>31 (93.9%)</td>
<td>2 (6.1%)</td>
<td>33</td>
</tr>
<tr>
<td>Has supervisors explained the TT policy on target population and age groups</td>
<td>5 (15.2%)</td>
<td>28 (84.8%)</td>
<td>33</td>
</tr>
</tbody>
</table>

The majority (93.9%) of respondents have had the two policies on when to immunize children for measles explained to them. As regards the target populations and age groups for tetanus toxoid immunization, only a few (15.2%) knew about it.

Tables IV and V respectively show results concerning the evaluation of decision making capabilities (based on knowledge) of vaccinators in the following situations:

a) a well 9 month old child who got BCG and Polio-0 at birth, DPT-1 at 6 weeks and no immunization since then;

b) a sick 10 month old child (hot to the touch and diarrhoea) with no previous immunizations.
### TABLE IV
Responses of vaccinators to a well 9 month old child with only BCG/Polio-0 at birth and DPT-1 at 6 weeks

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Total.no. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Give measles vaccine</td>
<td>33(100%)</td>
<td>0(%)</td>
</tr>
<tr>
<td>Explain diseases prevented by vaccines</td>
<td>27(81.8%)</td>
<td>6(18.2%)</td>
</tr>
<tr>
<td>Give DPT-2 vaccine</td>
<td>30 (90.9%)</td>
<td>3(9.1%)</td>
</tr>
<tr>
<td>Explain importance of completing the series</td>
<td>28(84.8%)</td>
<td>5(15.2%)</td>
</tr>
<tr>
<td>Give Polio-2 vaccine</td>
<td>29(87.9%)</td>
<td>4(12.1%)</td>
</tr>
<tr>
<td>Tell mother to return for next immunization</td>
<td>29(87.9%)</td>
<td>4(12.1)</td>
</tr>
</tbody>
</table>

### TABLE V
Responses of vaccinators to sick 10 month old child (hot to the touch and diarrhoea) with no previous immunizations

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Total.no. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Give BCG</td>
<td>0(%)</td>
<td>33(100%)</td>
</tr>
<tr>
<td>Asses and treat fever</td>
<td>32(97.0%)</td>
<td>1(3.0%)</td>
</tr>
<tr>
<td>Give DPT-1</td>
<td>15(45.5%)</td>
<td>18(54.4%)</td>
</tr>
<tr>
<td>Assess and treat diarrhoea</td>
<td>29(87.9%)</td>
<td>4(12.1%)</td>
</tr>
<tr>
<td>Give Polio-1</td>
<td>10(30.3%)</td>
<td>23(69.7%)</td>
</tr>
<tr>
<td>Give measles vaccine</td>
<td>4(12.1%)</td>
<td>29(87.9%)</td>
</tr>
<tr>
<td>Tell mother to return for immunizations when child is well</td>
<td>24(72.7%)</td>
<td>9(27.3%)</td>
</tr>
</tbody>
</table>
Vaccinators generally reacted more positively as regards administration of vaccines to the well as opposed to the sick child. All (100%) will give measles vaccine to the well child as compared to only 12.1% for the sick one. The corresponding figures were as follows: for DPT-90.9% compared to 45.5%; for Polio-87.9% compared to 30.3%; none will give BCG to the sick child. The majority (87.9%) consider Health Education to the mother on immunization as important and also crucial in completing the series (84.8%).

87.9% of respondents will inform the mother of the well child to return for the next immunization whilst 72.9% will tell the mother to return when the sick child is well. For the sick child, majority will assess and treat fever (97%) or diarrhoea (87.9%).

5.3 ATTITUDE COMPONENT

The results of vaccinators' perceptions of their role in the vaccination process and the influence their attitudes have towards compliance and utilization of health services are presented.

Tables VI to VIII show results of vaccinators responses to a situation in which a mother brought a child in late (after 28 days in child's schedule) for an immunization.
### TABLE VI
Response of vaccinators to mother bringing a child late for immunization

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly supportive</td>
<td>6</td>
<td>18.2%</td>
</tr>
<tr>
<td>Somewhat supportive</td>
<td>9</td>
<td>27.3%</td>
</tr>
<tr>
<td>Very supportive</td>
<td>16</td>
<td>48.5%</td>
</tr>
<tr>
<td>Extremely supportive</td>
<td>2</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### TABLE VII
Response of vaccinators to mother bringing a child late for immunization

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly understanding</td>
<td>6</td>
<td>18.2%</td>
</tr>
<tr>
<td>Somewhat understanding</td>
<td>11</td>
<td>33.3%</td>
</tr>
<tr>
<td>Very understanding</td>
<td>16</td>
<td>48.5%</td>
</tr>
<tr>
<td>Extremely understanding</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### TABLE VIII
Response of vaccinators to mother bringing a child late for immunization

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly irritated</td>
<td>20</td>
<td>60.6%</td>
</tr>
<tr>
<td>Somewhat irritated</td>
<td>13</td>
<td>39.4%</td>
</tr>
<tr>
<td>Very irritated</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Extremely irritated</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
In this scenario of a mother late for immunization of her child, respondents tended to very supportive and understanding (48.5%). Most of them (60.6%) exhibited only slight irritation.

Tables IX and X show respectively results concerning the evaluation of some attitudes of vaccinators:

a) towards mothers (clients)
b) about their self image

**TABLE IX**

Vaccinators' responses to questions concerning attitudes about mothers (clients)

<table>
<thead>
<tr>
<th>Question</th>
<th>Agree</th>
<th>Disagree</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers late for vaccinations don't care about their children</td>
<td>6(18.2%)</td>
<td>24(72.7%)</td>
<td>3(9.1%)</td>
</tr>
<tr>
<td>Mothers will return for immunization regardless of what is said to them</td>
<td>7(21.2%)</td>
<td>22(66.7%)</td>
<td>4(12.1%)</td>
</tr>
<tr>
<td>Mothers depend on nurses for reliable info about immunization</td>
<td>23(69.7%)</td>
<td>7(21.2%)</td>
<td>3(9.1%)</td>
</tr>
<tr>
<td>Scolding helps mother to bring forgotten RHC next time</td>
<td>6(18.2%)</td>
<td>24(72.7%)</td>
<td>3(9.1%)</td>
</tr>
<tr>
<td>Advisable to reprimand a mother who loses RHC</td>
<td>9(27.3%)</td>
<td>18(54.4%)</td>
<td>6(18.2%)</td>
</tr>
</tbody>
</table>
TABLE X
Vaccinators' responses to questions concerning attitudes about their self image

<table>
<thead>
<tr>
<th>Question</th>
<th>Agree</th>
<th>Disagree</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capable of deciding if a sick child should be immunized</td>
<td>31 (93.9%)</td>
<td>2 (6.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Can convince mother that safe to immunize child if he/she is well enough</td>
<td>33 (100%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Mothers' trust what I tell them about immunization</td>
<td>29 (87.9%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Give immunization if child is well enough to go home</td>
<td>27 (81.8%)</td>
<td>0 (0%)</td>
<td>4 (12.1%)</td>
</tr>
<tr>
<td>Give measles vaccine even if mother says child has had measles</td>
<td>7 (21.2%)</td>
<td>17 (51.5%)</td>
<td>9 (21.3%)</td>
</tr>
<tr>
<td>The drop-out rate for our district is too high</td>
<td>6 (18.2%)</td>
<td>9 (27.3%)</td>
<td>18 (54.3%)</td>
</tr>
<tr>
<td>Health workers are the best source of info on immunization</td>
<td>31 (93.9%)</td>
<td>2 (6.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Immunization is a difficult subject to explain to mothers</td>
<td>1 (3.0%)</td>
<td>31 (93.9%)</td>
<td>1 (1.3%)</td>
</tr>
</tbody>
</table>

The majority of vaccinators disagreed with the following statements: that mothers who are late for vaccinations don't care about their children (72.7%); that they will return for immunization regardless of what is said to them (66.7%); scolding (72.7%) or reprimanding (54.5%) a mother who has lost or forgotten her Road to Health Card (RHC). The majority (69.7%) felt mothers depended on health workers for reliable information about immunizations.
As regards evaluation of perception of self image, majority of vaccinators reacted positively: ability to decide whether a sick child should be immunized (93.9%); capability of convincing mother that it is safe to immunize child if respondent felt so (100%); mothers trusting what vaccinator tells them (87.9%); health workers being the best source of information on immunization (93.9%); the majority (81.9%) also felt that if a child is well enough to go home, all immunizations should be given. Overwhelming majority (93.9%) disagreed that immunization is a difficult subject to explain to mothers while about half of them (51.5%) disagreed that measles vaccine should be given to a child even if mother says child has already had measles disease.

Table XI shows the top 10 reasons vaccinators give to explain why some children may not receive all the immunizations that they should at the correct age.
TABLE XI
Reasons given by vaccinators to explain why mothers default

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother won't bring child who became ill after last immunization</td>
<td>75.8%</td>
</tr>
<tr>
<td>Mothers who work can't get to the clinic</td>
<td>72.7%</td>
</tr>
<tr>
<td>Mothers do not bring ill children for Immunization</td>
<td>63.6%</td>
</tr>
<tr>
<td>Mothers are apathetic or don't care</td>
<td>57.6%</td>
</tr>
<tr>
<td>Transportation problems</td>
<td>45.5%</td>
</tr>
<tr>
<td>Mothers don't know about immunization</td>
<td>36.4%</td>
</tr>
<tr>
<td>Parents don't believe that immunization works</td>
<td>33.3%</td>
</tr>
<tr>
<td>The clinic is too far away</td>
<td>30.3%</td>
</tr>
<tr>
<td>More outreach clinics are needed</td>
<td>27.3%</td>
</tr>
<tr>
<td>There is not enough staff to conduct immunization clinics</td>
<td>27.3%</td>
</tr>
</tbody>
</table>
Table XII shows list of suggestions (in ranking order) vaccinators give to improve immunization service in their area of work.

**TABLE XII**

Vaccinators' suggestion for improvement of immunization services

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Response (n = 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education to parents and the community on a continuing basis on importance of vaccination</td>
<td>81.9%</td>
</tr>
<tr>
<td>Provision of adequate personnel at clinic at all times</td>
<td>78.8%</td>
</tr>
<tr>
<td>Community outreach services eg mobile clinics especially to creches, schools and squatter areas</td>
<td>69.7%</td>
</tr>
<tr>
<td>Regular home visits by Community Health workers and nursing personnel for dropouts and defaulters</td>
<td>60.8%</td>
</tr>
<tr>
<td>Regular supply of stock at clinic at all times</td>
<td>48.6%</td>
</tr>
<tr>
<td>Continuing in-service training for health personnel</td>
<td>39.5%</td>
</tr>
<tr>
<td>Formation of Creche Teams to liaise with creche supervisors/child care organizations to pick up defaulters</td>
<td>33.4%</td>
</tr>
<tr>
<td>One stop maternal and child service</td>
<td>30.3%</td>
</tr>
<tr>
<td>Regular immunization campaigns e.g. on an annual basis</td>
<td>24.2%</td>
</tr>
<tr>
<td>Ensure inspection of RHC at each clinic visit</td>
<td>21.1%</td>
</tr>
<tr>
<td>Media involvement in promoting good benefits of immunization</td>
<td>18.4%</td>
</tr>
<tr>
<td>Extension of clinic hours to cater for working mothers</td>
<td>15.2%</td>
</tr>
</tbody>
</table>
5.4 PRACTICE COMPONENT

The results of vaccinators performance in practice and their decision making capabilities are presented here.

Table XIII shows the type of vaccine vaccinators have administered at least once during previous one month.

TABLE XIII

Type of vaccination administered at least once in last one month

<table>
<thead>
<tr>
<th>Type of vaccination</th>
<th>(N = 33) percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intradermal</td>
<td>6.1%</td>
</tr>
<tr>
<td>Intramuscular</td>
<td>87.9%</td>
</tr>
<tr>
<td>Subcutaneous</td>
<td>21.2</td>
</tr>
<tr>
<td>Oral</td>
<td>87.9%</td>
</tr>
</tbody>
</table>

The predominant types of vaccinations given at the clinics were intramuscular and oral (87.9%).

Tables XIV to XVI respectively show results of the evaluation of decision making capabilities in practice of what was done for (a) a healthy 10 month girl with no previous immunization; (b) a feverish (38°C) 10 month old boy with no previous immunization and (c) a 10 month old girl with diarrhoea with no previous vaccinations.
TABLE XIV
Reaction of vaccinators to a healthy 10 month old girl with no previous immunizations

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Tot no. of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give BCG</td>
<td>4 (12.1%)</td>
<td>29 (87.9%)</td>
<td>33</td>
</tr>
<tr>
<td>2. Give DPT-1</td>
<td>33 (100.0%)</td>
<td>0 (0%)</td>
<td>33</td>
</tr>
<tr>
<td>3. Give HEPT B-1</td>
<td>31 (93.9%)</td>
<td>2 (6.1%)</td>
<td>33</td>
</tr>
<tr>
<td>4. Give OPV-1</td>
<td>17 (51.5%)</td>
<td>16 (48.5%)</td>
<td>33</td>
</tr>
<tr>
<td>5. Give measles</td>
<td>33 (100.0%)</td>
<td>0 (0%)</td>
<td>33</td>
</tr>
</tbody>
</table>

As regards the above situation all respondents (100%) felt they will administer DPT and Measles and overwhelming majority (93.9%) will also give Hepatitis B vaccine. Almost half of them (48.5%) will not give any oral Polio and only few (12.1%) will administer BCG.

TABLE XV
Reaction of vaccinators to a feverish (38°C) 10 month old boy with no previous immunizations

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Tot no. of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give BCG</td>
<td>13 (40.6%)</td>
<td>19 (59.4%)</td>
<td>32</td>
</tr>
<tr>
<td>2. Give DPT-1</td>
<td>23 (71.9%)</td>
<td>9 (28.1%)</td>
<td>32</td>
</tr>
<tr>
<td>3. Give HEPT B-1</td>
<td>22 (68.8%)</td>
<td>10 (31.3%)</td>
<td>32</td>
</tr>
<tr>
<td>4. Give OPV-1</td>
<td>15 (46.9%)</td>
<td>17 (53.1%)</td>
<td>32</td>
</tr>
<tr>
<td>5. Give measles</td>
<td>9 (28.1%)</td>
<td>23 (71.9%)</td>
<td>32</td>
</tr>
</tbody>
</table>
In this situation of a child with fever of 38°C whilst majority will give DPT (71.9%) and Hep B (68.8%), most of them will not give measles (71.9%), BCG (59.4%) and oral Polio (53.1%) vaccines. In this scenario, among the reasons given by vaccinators for not administering some vaccines, the following are worthy of note: "measles vaccine is contraindicated in high fever"; "measles vaccine may cause fever"; "high temperature is contraindication to immunizations"; "increased temperature may be aggravated or rise"; "All vaccines - because the temperature is high, vaccines can overshadow the cause of temperature"; "BCG and measles - both are live vaccines and therefore cannot be given at same time"; "BCG and measles - both are live vaccines and contraindicated when temperature is raised"; "BCG and measles - because of drug interaction"; "BCG will be given after six weeks interval because measles and BCG are not given together".

### TABLE XVI
Reaction of vaccinators to a 10 month old girl with diarrhoea and no previous vaccinations.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give BCG</td>
<td>8 (25.0%)</td>
<td>24 (75.0%)</td>
<td>32</td>
</tr>
<tr>
<td>2. Give DPT-1</td>
<td>32 (100.0%)</td>
<td>0 (0.1%)</td>
<td>32</td>
</tr>
<tr>
<td>3. Give HEPT B-1</td>
<td>30 (93.8%)</td>
<td>2 (6.3%)</td>
<td>32</td>
</tr>
<tr>
<td>4. Give OPV-1</td>
<td>8 (25.0%)</td>
<td>24 (75.0%)</td>
<td>32</td>
</tr>
<tr>
<td>5. Give measles</td>
<td>27 (84.4%)</td>
<td>5 (15.6%)</td>
<td>32</td>
</tr>
</tbody>
</table>

In this case of a 10 month old child with diarrhoea, all (100%) respondents would give DPT and the overwhelming majority will also administer Hepatitis B (93.8%) and measles (84.4%) vaccines. However, only a few will consider giving oral Polio (25.0%) and BCG (25.0%) vaccines.
In this situation, prominent reasons given by vaccinators for not administering some vaccines are as follows: for OPV "because child will lose polio drops by diarrhoea"; "it is not going to help her since she has got diarrhoea"; "fear of non-absorption and vomiting"; "excreted with the stools"; "depending on the severity of diarrhoea - given if mild"; "Latest research states that it should be given even if severe and repeat next visit". For BCG and measles - similar reasons as was given for the sick child were echoed e.g. "drug interaction between measles and BCG"; "both are live vaccines and cannot be given at same time".

Figure 4 shows results of people who usually supervise work of vaccinators and whether stationed at clinic or not.

FIGURE 4
TYPE OF SUPERVISORS AND WHETHER STATIONED AT CLINIC OF VACCINATOR OR NOT

![Any Supervision?](image)

Response (n = 33)
Overwhelming majority of vaccinators were supervised (97%) and these supervisors were senior professional nurses of which the majority (63.5%) worked at the same clinic. Tables XVII and XVIII respectively show results of methods used by supervisors to evaluate work of vaccinators and educational methods used to keep technical skills of vaccinators up to date.

**TABLE XVII**

Evaluation methods used by supervisors for vaccinators

<table>
<thead>
<tr>
<th>Type of method</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed immunization</td>
<td>20 (60.8%)</td>
<td>13 (39.4%)</td>
<td>33</td>
</tr>
<tr>
<td>Observed management of sick children</td>
<td>15 (45.4%)</td>
<td>18 (54.6%)</td>
<td>33</td>
</tr>
<tr>
<td>Received reports written by vaccinators</td>
<td>16 (48.4%)</td>
<td>17 (51.6%)</td>
<td>33</td>
</tr>
<tr>
<td>Updated vaccinators on current info</td>
<td>25 (75.6%)</td>
<td>8 (24.4%)</td>
<td>33</td>
</tr>
<tr>
<td>Discussed problems</td>
<td>15 (45.4%)</td>
<td>18 (54.6%)</td>
<td>33</td>
</tr>
</tbody>
</table>

The two most popular evaluation methods that supervisors used during their visits were updating vaccinators on current information concerning vaccination (75.6%) and observation of immunization techniques (60.6%).
TABLE XVIII
Educational methods used by supervisors to update technical skills of vaccinators

<table>
<thead>
<tr>
<th>Response</th>
<th>Total No of response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Workshops</td>
<td>4(12.1%)</td>
</tr>
<tr>
<td>Performance feedback</td>
<td>15(45.5%)</td>
</tr>
<tr>
<td>Written materials</td>
<td>7(21.3%)</td>
</tr>
<tr>
<td>Training sessions</td>
<td>13(39.4%)</td>
</tr>
</tbody>
</table>

The two most popular educational methods used to update the skills of vaccinators by supervisors were performance feedback (45.5%) and training sessions (39.4%)

Figure 5 shows results of type of feedback, if any, that vaccinators get from their supervisors.

FIGURE 5
TYPE OF FEEDBACK VACCINATORS GET FROM THEIR SUPERVISORS

Any Feedback?

No 5%
Yes 94%

Type of Feedback

Oral

Written

Percentage

100
80
60
40
20
0
The overwhelming majority (93.9%) of vaccinators received feedback from their supervisors in an predominantly oral format (80.6%). TABLE XIX shows results of status of reports (whether any records of EPI are kept, submitted to head office and whether they are distinguished by age).

TABLE XIX
Vaccinators' responses to questions on record keeping

<table>
<thead>
<tr>
<th>Type of method</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit reports on no of patients seen</td>
<td>33(100%)</td>
<td>0(0%)</td>
<td>33</td>
</tr>
<tr>
<td>or doses of vaccine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep records of EPI</td>
<td>30(90.9%)</td>
<td>3(9.1%)</td>
<td>33</td>
</tr>
<tr>
<td>disease notifications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distinguish by age</td>
<td>30(90.9%)</td>
<td>3(9.1%)</td>
<td>33</td>
</tr>
</tbody>
</table>

All (100%) respondents submit reports such as the number of patients seen or number of doses of vaccine administered. The overwhelming majority keep EPI disease notifications (90.1%) and also distinguish by age (90.9%).

Tables XX and XXI show respectively how information collected is used by vaccinators and type of feedback received from these reports.
TABLE XX
Vaccinators use of information collected

<table>
<thead>
<tr>
<th>Type of job</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordering stock</td>
<td>20 (60.6%)</td>
<td>13 (39.4%)</td>
<td>33</td>
</tr>
<tr>
<td>Assessing targets</td>
<td>17 (51.5%)</td>
<td>16 (48.5%)</td>
<td>33</td>
</tr>
<tr>
<td>Don't know</td>
<td>4 (12.1%)</td>
<td>29 (87.9%)</td>
<td>33</td>
</tr>
<tr>
<td>Don't use info</td>
<td>1 (3.0%)</td>
<td>31 (97.0%)</td>
<td>32</td>
</tr>
</tbody>
</table>

TABLE XXI
Type of feedback vaccinators get from reports sent

<table>
<thead>
<tr>
<th>Type of feedback</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>16 (48.5%)</td>
<td>17 (51.5%)</td>
<td>33</td>
</tr>
<tr>
<td>Written</td>
<td>23 (69.7%)</td>
<td>10 (30.3%)</td>
<td>33</td>
</tr>
<tr>
<td>None</td>
<td>3 (9.1%)</td>
<td>30 (90.9%)</td>
<td>33</td>
</tr>
</tbody>
</table>

Collected information are used mainly in helping to order stock (60.6%) or assessing targets (51.5%). The predominant type of feedback obtained from reports sent by vaccinators is in a written format (69.7%), followed by oral discussions (48.5%). Few (9.1%) do not obtain any form of feedback at all.

Figure 6 shows results of whether numbers of immunizations routinely given are compared with the target population.
Almost half (48.5%) of respondents compare numbers of immunizations given routinely with the target population.
Table XXII shows the top six problems that vaccinators identify in their daily clinic management and practice.

TABLE XXII
Problems vaccinators face in job situation

<table>
<thead>
<tr>
<th>Problem</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Staff shortages</td>
<td>75.8%</td>
</tr>
<tr>
<td>2. Mothers don't bring Children to clinic</td>
<td>63.3%</td>
</tr>
<tr>
<td>3. Lack of supplies and/or stock</td>
<td>27.3%</td>
</tr>
<tr>
<td>4. No integrated one stop service</td>
<td>27.3%</td>
</tr>
<tr>
<td>5. Lack of training</td>
<td>18.2%</td>
</tr>
<tr>
<td>6. Inadequate transport for health workers</td>
<td>6.1%</td>
</tr>
</tbody>
</table>
Figure 7 shows results of percentage of vaccinators who discussed these problems with their supervisors.

FIGURE 7
PERCENTAGE OF VACCINATORS WHO DISCUSSED JOB PROBLEMS WITH SUPERVISORS

Have you discussed job problems with supervisors?

No
21%

Yes
79%

Response (n = 33)

The majority (78.8%) discussed problems with supervisors. However when asked to state type of response, half of respondents did not give any answers. It is therefore difficult to tell if vaccinators had a positive perception of their supervisors reaction and management of the situation or not. Responses such as "management looking at problems", "Phone medical stores", "insufficient budget", "inability to recruit more staff" and some supervisors being "evasive" need to be looked into.
Figure 8 shows results as to whether immunization schedules used by vaccinators is in line with that based on guidelines from the Department of National Health.

FIGURE 8
PERCENTAGE OF VACCINATORS WHO USE IMMUNIZATION SCHEDULE CORRECTLY

Response (n = 33)

The overwhelming majority (90.9%) knew the immunization schedule as recommended by the Department of National Health.
Table XXIII shows results of times when immunizations are given.

TABLE XXIII
Immunization days for vaccines

<table>
<thead>
<tr>
<th>Type of vaccine/days</th>
<th>Yes</th>
<th>No</th>
<th>Tot no of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles, BCG, DPT, Polio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hep B (Mondays-Fridays)</td>
<td>33(100%)</td>
<td>0(%)</td>
<td>33</td>
</tr>
<tr>
<td>Measles, BCG, DPT, Polio, Hep B (Saturday &amp; Sunday)</td>
<td>0(%)</td>
<td>33(100%)</td>
<td>33</td>
</tr>
<tr>
<td>TT (Mondays-Sundays)</td>
<td>0(%)</td>
<td>33(100%)</td>
<td>33</td>
</tr>
</tbody>
</table>

All (100%) of respondents gave BCG, Polio, DPT, Hep B and Measles on 5 days of the week i.e. Monday to Friday - none over weekends (clinics are closed over weekends). TT is not routinely given.

Figures 9 to 12 show respectively results concerning
a) Plans used in identifying new born or recent immigrants (children).
b) Registration of all children in catchment area.
c) Dropout rates between DPT-1 and DPT-3 and between DPT-3 and measles.
d) System of following up drop-outs.
FIGURE 9
TYPE OF PLANS USED IN IDENTIFYING NEW CHILDREN IN CATCHMENT AREA

Any plan to learn about new children?

Yes 48%
No 52%

Response (n = 33)

About half (48.5%) of respondents had plans to learn of newborn children or new immigrant children who should enter the immunization program. The two most popular methods were identification by Community Health Volunteers (56.3%) and asking mothers/creche staff (37.5%) who vaccinators come into contact with.
Any register kept?

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>21%</td>
</tr>
<tr>
<td>No</td>
<td>79%</td>
</tr>
</tbody>
</table>

Response (n=33)

A fifth (21.2%) of vaccinators kept a register of all children in the catchment area which was used in 57.1% of cases by clinic/Community Health workers to locate target children. Of those who kept the register, about (42.9%) did not know what the register was used for.
Response (n = 33)

About a third (30.3%) of vaccinators said their clinics routinely calculate the drop-out rates between DPT-1 and DPT-3 or between DPT-3 and measles. However, none of them could quote the last figure calculated. They had the figures in their records but could not recollect them off-hand.
Over a third (36.4%) of vaccinators had a system in place to follow-up immunization drop-outs. The predominant method used was nurses making home visits (58.3%).

The above tables, diagrams and descriptions were aimed at providing a summary of research findings. In the next session the implications will be discussed and converted into recommendations.
6. DISCUSSION AND RECOMMENDATIONS:

This section is aimed at discussing the implications for the research findings and at making recommendations for improvements.

6.1 DISCUSSION

The study provides information needed to design appropriate vaccination intervention programs and it highlights a number of areas which need to be addressed.

6.1.1 KNOWLEDGE

Lack of knowledge or misinformation about vaccines can lead to missed opportunities (Freed et al, 1993: 65-96). In this study, it is encouraging to note that majority (90.9%) of vaccinators knew of the routine immunization schedule as recommended by the Department of Health (Vaccinator's Manual: 1995:5); 93.9% could reproduce the two (2) policies on when to immunize children for measles and 87.5% knew the maximum upper age for DPT vaccination. Radloff (1994:7-10) in an earlier national study in South Africa found that only 35% knew the routine immunization schedule; 30% could reproduce the correct measles policy and 53% knew of the correct maximum upper age for DPT vaccination. Only a few (15.2%) knew of the target populations and age groups for tetanus immunization in this study.

Immunization of pregnant mothers helps to protect newborns by passive transfer of maternal antibodies and is one of the important components of the EPI aimed at preventing the roughly 800,000 babies who die annually in developing countries from neonatal tetanus (Benenson, 1990:434-435). Only 20% of pregnant
women in Africa are known to have tetanus toxoid (Kibel and Wagstaff, 1995:176). Kibel and Wagstaff (1995:176) stressed that "accurate figures on the incidence of tetanus in South Africa are unavailable but official notifications show that there are about two cases of tetanus every week. About 92% of these were in blacks, just half were from KwaZulu-Natal Province and 63% occur during infancy, mostly among newborns." There should be no room for complacency in the Western Cape, especially among the disadvantaged communities since, neonatal tetanus is known to be grossly under-reported in Third World Countries (Field Guide, 1994:12). In a study in a peri-urban community in Nigeria, Okoro and Egwu (1994: 105-110) cited the lack of a one-stop comprehensive Maternal and Child Health Services, as one of the reasons for a similar low figure. In the area under study, pregnant mothers are seen separately at Maternity Obstetric Units (MOUS) and could possibly account for the low figure.

Though most vaccinators had good knowledge of the immunization schedule, misconceptions as regards contraindications to vaccines exist which may influence decision making negatively with missed opportunities as a consequence. This was clear from the responses of some vaccinators in typical clinical situations of sick children with fever and/or diarrhoea such as "BCG and measles cannot be given together because they are live vaccines" or "child will loose OPV drops on account of diarrhoea". Similar misconceptions/ myths were found by Hatton (1990: 124-130) in Britain, Freed et al (1993:65-96) in United States of America, Gindler et al (1993) in Puerto Rico and Okoro and Egwu (1994: 105-110) in Nigeria. Kibel and Wagstaff (1995: 185) noted that "there is no contraindication to giving measles simultaneously with any other live or killed viral or bacterial vaccine (including BCG)". They further advised that "all vaccines may be administered simultaneously - separate sites should be used". It is worth noting that MMR vaccine is a mix of three viral live attenuated
vaccines - Measles, Mumps and Rubella and is given together subcutaneously at fifteen (15) months of age (Coovadia and Loening, 1984: 88). With regards to measles vaccination, Kibel and Wagstaff (1995: 181-196) maintained that "there are essentially two contraindications - egg hypersensitivity and immunosuppression." They further stress that "children admitted to large hospitals or attending clinics where there is an immediate danger of measles, contact should, regardless of their illness, be given measles vaccine unless this is specifically contraindicated. This policy has been adopted by several South African paediatric departments and is applied to all health service attenders between the ages of six months and five years unless they have available documented evidence (Child Health Card) of prior measles immunization. As regards polio immunization, when the child has diarrhoea, Kibel and Wagstaff (1995: 186) advised that "... a safer alternative is to give the vaccine and note the need for additional precautionary doses when another opportunity presents. Should vomiting occur soon after receiving OPV, a repeat dose should be given. No harm results from extra doses with OPV". If any vaccinator is in doubt, one should be guided by the following dictum (Vaccinator's Manual, 1995:7): "If a child is well enough to go home, that child is well enough to be vaccinated".

6.1.2 ATTITUDE COMPONENT

Knowledge is necessary to achieve appropriate behaviour but knowledge alone is insufficient (Brooks-Gunn and Furstenberg, 1989:249-257). In order for information to be turned into action, people need to integrate it into their attitudinal and belief systems (Brooks-Gunn and Furstenberg, 1989: 249-257). Most vaccinators were supportive and understanding and only showed slight irritation towards mothers who brought their children in
late for immunization. Similar findings were found in an earlier study by Radloff (1994:11-12). The majority showed positive attitudes to mothers (clients) by disagreeing with the following: that mothers who were late for vaccination didn't care about their children (72.7%); that clients would return for their immunizations regardless of what is said to them (66.7%). Most of them felt scolding (72.7%) or reprimanding (54.5%) a mother who has lost or forgotten her Road to Health Card is not the right thing to do.

Frederiksen et al (1984: 5-21) stressed that bad attitudes towards clients were important negative factors as regards compliance when marketing health behaviour. The mothers' dependence on health workers for reliable information about immunization is regarded as an important feature of the vaccinators' role in the immunization policy process (Bryce et al, 1989: 155-163). In this study, majority of vaccinators (69.7%) felt mothers could depend on them for reliable information about immunization; that health workers were the best source of information on immunization (93.9%) and most health workers (93.9%) disagreed that immunization was a difficult subject to explain to mothers. This attitude of health workers thinking they can give reliable information on immunization needs to be reviewed critically since important misconceptions/myths continue to exist among health workers (Hatton, 1990: 124-130). The majority of respondents were positive about their self image - 93.9% were capable of deciding if a sick child could be immunized or not, all (100%) felt they could convince a mother that it was safe to vaccinate a child if he/she was well enough, and 87.9% felt mothers trusted what vaccinators told them. However, the value vaccinators attach to their decision making capabilities may not be quite realistic especially when compared with the knowledge component of contraindications to vaccines in common clinical situations as a child presenting with fever and or diarrhoea.
The six (6) top reasons, according to vaccinators, for some children not receiving immunizations at the correct age were as follows: mothers refusing to bring children who became ill after the last immunization (75.8%); working mothers not able to get to the clinic (72.7%); mothers not bringing children when they are ill (63.6%); some mothers being apathetic or not caring (57.6%); transportation problems (45.5%) and mothers not knowing about immunizations (36.4%). In an earlier national study in South Africa, Radloff (1994:13-14) found the same top six reasons though not in similar ranking order. Thomas and Grindle (1980: 1163-1181) noted that it was important for perceptions of implementers to be taken into account in policy reforms especially in developing countries.

6.1.3 PRACTICE COMPONENT

The majority (84.8%) of respondents were registered professional nurses with a little over half (54.5%) with five or more years experience in vaccinating children. Immunization was carried out during normal working hours from Mondays to Fridays (5 days a week) and all (100%) had written guidelines. Radloff (1994: 18-25) found that 78% of vaccinators were registered professional nurses and had written guidelines. Most of the clinics vaccinated only on two to three days a week. Reinforcement of training are among the most important strategies that the EPI Global Advisory Group recommended to increase immunization coverage (Roemer, 1986: 58-66). It is worth noting that in this study, the overwhelming majority of vaccinators (97%) received regular supervision by senior professional registered nurses of which about two thirds worked at same clinic.
Supervisors updated technical skills of vaccinators by performance feedback and training sessions and evaluated the vaccinators mostly by observation of immunization techniques and also by asking about current concepts about immunization. The majority of respondents (93.9%) also received feedback from supervisors in a predominantly oral format (80.6%). Adequate record keeping is an important component in evaluating any immunization program (UNICEF, 1989:6). All (100%) vaccinators submitted reports on numbers of patients seen or doses of vaccine administered; 90.9% kept EPI disease notification records and also distinguished by age. Radloff (1990: 21-22) found that 90% of respondents kept records of doses of vaccines and 67% kept EPI notifications while 61% distinguished by age. Collected information was used predominantly in ordering stock or assessing targets. About half (48.5%) of vaccinators compare numbers of immunizations given routinely with the target population. Low figures were found with respect to the following: 48.5% of respondents had plans to learn of newborns or new immigrant children who should enter the immunization program - identification by Community Health Workers (CHW) were the most popular; only a fifth (21.2%) kept a register of all children in the catchment area - the register was used by CHW (57.1%) in locating target children; 42.9% of those who kept the register did not know what the register was used for; only a third (30.3%) calculated drop-out rates between DPT-1 and DPT-3 or DPT-3 and measles - none could quote the last figure calculated; just over a third (36.4%) had a system in place to follow-up immunization drop-outs - the most popular method was clinic workers making home visits. Radloff (1994: 24-25) found similar low figures in an earlier nation wide study in South Africa. The top six (6) problems encountered in the workplace by vaccinators in ranking order were: staff shortage, mothers not bringing children to clinics; lack of supplies and/or stock; no integrated one-stop-shop service; lack of training and inadequate transport. The majority (78.8%) discussed these problems with
their supervisors, but it was difficult to assess from this study whether there was (or was not) a positive perception of supervisors' reaction and management of the situation since most of respondents did not put their feelings in writing. Radloff (1994: 23-25) also found similar problems virtually in the same ranking order.

6.2 RECOMMENDATIONS

Immunization services, like any other function in South Africa, is being called upon to produce more with less money, person-power, material, that is to be cost-effective. To be able to improve its vaccination coverage, especially to disadvantaged urban areas (such as the area under study), innovative strategies for EPI outreach will need to be explored. These will include among others the following: a process called "channelling" which involves a community person or health worker carrying out home visits to identify, motivate and register eligible children and their families; use of conventional media, such as television, radio, ministers of religion and opinion leaders (including traditional healers) to convey immunization messages and to motivate parents; use of the child-to-child concept - using older children - usually school children - as motivators to ensure immunization of younger siblings and other children. It is suggested that a large number of suitable older school children and the necessary logistics are in place.

The child-to-child approach aims at making children partners in their own health promotion and care and has been cited as an example of intersectoral collaboration (Health and Education) worthy of replication on a wider scale (UNICEF, 1989:10). Its basic philosophy is training (using various teaching techniques) older easily accessible children (usually in schools) so that they in turn can pass on health messages to younger and / or less
accessible children (UNICEF, 1989:12). This philosophy builds on an old age concept in predominantly traditional societies where older siblings take care of younger siblings.

The child-to-child concept has been successfully implemented in some African and Asian countries and has been useful in identifying new immigrant children and in tracing immunization drop-outs (UNICEF, 1989:12). It is however important not to overload the children with information and to give only right and relevant health messages (UNICEF, 1989:14).

Implementation of a one-stop-shop health facility concept where all promotive, preventive, curative and rehabilitative services are offered is advised. This has been proven to increase health services utilization including immunization services (Shah, 1992:22-24).

In dealing with illiterate clients (mothers), Colour Coding of the vaccination schedule could be an effective short-term solution (Morley, 1979:124-157). The long-term solution will be to provide information (preferably in their own mother tongue) to help in community empowerment of the target population so that they can participate meaningfully in the whole immunization policy agenda (UNDP, 1981: 22-24).

Educational strategies aimed at the misconceptions/myths concerning contraindications to immunization which could lead to missed opportunities need to be put in place. This can be done in the short term through workshops and seminars designed in consultation with the health authorities. The long-term solution will be to equip such health workers long before they graduate from the traditional training institutions such as nursing colleges - that is by incorporating such courses in the curriculum of the training institutions.
6.2.1 TEN GUIDELINES FOR VACCINATORS

The following is a list of vaccinators’ “what to do's” or guidelines for effective immunization which is to be communicated to all vaccinators:

- Provide immunization at every health care contact.

- Diarrhea or vomiting are not contraindications to give oral polio, no harm results from extra doses of oral polio

- If a child is well enough to go home, that child is well enough to be vaccinated.

- There is no contraindication in giving measles simultaneously with any other live or killer vaccine. Remember to use separate sites.

- Involve children in their own health care. They can help in locating new immigrant children and to trace immunization drop outs.

- Involve mothers in the immunization process by explaining the importance of the Road to Health Card. It is a sure way to increase your immunization coverage.

- Involve community opinion leaders in spreading immunization messages and in motivating parents. They are a more credible source of information than you think.

- Practice a one-stop-shop clinic by combining promotive preventive, curative and rehabilitative services.
- Update your knowledge and skills about immunization regularly. The last immunization schedule may have changed.

- Above all, be an active participant in the immunization policy process. Let your views be heard through your nursing associations and community based organizations.

7. CONCLUSION

Immunization against the major killer diseases of children is the most cost-effective health intervention currently known. There is an urgent need to increase the immunization service coverage in disadvantaged peri-urban areas such as the one under study. The study highlights certain key areas for intervention. It shows that vaccinators are interested in the vaccination policy process and want to be active participants in it. Some mistaken notions about contraindications to vaccination exist. Obstacles to efforts to reach the target population abound. All these make health intervention programs a matter of urgency. These policies/programs should be developed in conjunction with all role players concerned - the health authority, vaccinators and the community and should aim at the following objectives:

- provision of immunization at every contact;
- reduction in drop-out rates between first and last immunizations;
- reinforcing training and supervision of vaccinators
- ensuring quality of management and administration of immunization services;
- empowerment of community and health providers to participate actively in the immunization policy process.

In the long-term, however, the most effective immunization services will be those whose goals are located within the general framework of human and economic development. That essentially
translates into how much society is willing to commit its resources to the development of its children. The whole idea could not have been better expressed by the late Dr James P Grant, former Executive Director of UNICEF - "... the lives and normal development of children should have first call on society's concerns and capacities and children should be able to depend upon that commitment in good times and bad, in normal times and in times of emergency, in times of peace and in times of war, in times of prosperity and in times of recession" (Grant, 1985-94).
8. REFERENCES


Vaccinators Manual of the Expanded Program of Immunization in South Africa that works: 1995 Immunization, EPI(SA)
APPENDIXES

APPENDIX A - LETTER TO CAPE METROPOLITAN COUNCIL - HEALTH SERVICES SEEKING PERMISSION TO CONDUCT STUDY IN GOVERNMENT HEALTH FACILITIES IN KHAYELITSHA

Dept of Community Health
Univ. of Stellenbosch
P.O. Box 19063
TYGERBERG
7505

25 February 1996

The Director
Cape Metropolitan Council - Health Services
Western Cape Province
CAPE TOWN
8000

Dear Sir/madam

PERMISSION TO CONDUCT A SURVEY TO DETERMINE VACCINATORS' KNOWLEDGE, ATTITUDES AND PRACTICE IN KHAYELITSHA

I am a post-graduate student at the Medical School of the University of Stellenbosch and wish to apply for permission to conduct a study on the above mentioned subject during May/June 1996. The information gathered will be used to help develop focused retraining programs among vaccinators with the view to improve immunization services in the area.
It would be appreciated if this request will meet your approval. Counting on your usual co-operation.

Yours sincerely

DR WILLIAM B KWAW
APPENDIX B - QUESTIONNAIRE

IMMUNIZATION Services - KHAYELITSHA TOWNSHIP KAP SURVEY OF VACCINATORS

Code

HEALTH WORKER QUESTIONNAIRE

Please fill in this questionnaire. The information will be used to help develop the immunization education program.

This questionnaire is anonymous, so

PLEASE DO NOT WRITE YOUR NAME OR CLINIC ON IT.

For each question put a tick next to or circle the answer you choose. If there are no alternatives please write your answer out as fully as possible. If you do not want to answer a question, please leave it out, rather than answering untruthfully. If you do not understand a question, please raise your hand and the supervisor will help you.

No one will know your name. We are interested in your opinions. This is not a test.

When you have completed the questionnaire please put it in the envelope, seal it and leave it in the box provided.
1. How old are you? _______ years

2. In which type of facility do you work?
   1. Clinic
   2. Dispensary
   3. Hospital
   4. Other (specify): ____________________________

3. What is your job title?
   1. Registered professional nurse
   2. Student nurse
   3. Nurse Auxiliary
   4. Medical officer
   5. Community Health Worker
   6. Enrolled Nurse
   7. Other (specify) ____________________________

4. How much experience do you have in vaccinating children?
   1. < 6 months
   2. 6-11 months
   3. 12-23 months
   4. 2-4 years
   5. 5 or MORE years

5. Do you have written guidelines for your tasks on immunization?
   1. Yes
   2. No
6. Do you have a schedule for visits by your superiors?
1 Yes
2 No

7. Have you personally administered at least one immunization in the last month?
1 Yes
2 No

Indicate which types you have administered:

1 Intradermal
2 Intramuscular
3 Subcutaneous
4 Oral

8. Have you supervised someone who has administered an immunization in the last month?
1 Yes
2 No

9. Thembi is a healthy 10-month-old girl who comes to your clinic. Her mother tells you that Thembi has received no immunizations. What immunizations would you give her today? MARK ALL that you would give with an X.

BCG   DPT-1   HEP B-1   OPV-0   MEASLES
DPT-2   HEP B-2   OPV-1
DPT-3   HEP B-3   OPV-2

OPV-3
9a) Are there any vaccines that would not be given to Thembi?

1 Yes
2 No

9b) If yes, which vaccines would not be given?

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>BCG</th>
<th>DPT-1</th>
<th>HEP B-1</th>
<th>OPV-0</th>
<th>MEASLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT-2</td>
<td></td>
<td></td>
<td>HEP B-2</td>
<td>OPV-1</td>
<td></td>
</tr>
<tr>
<td>DPT-3</td>
<td></td>
<td></td>
<td>HEP B-3</td>
<td>OPV-2</td>
<td>OPV-3</td>
</tr>
</tbody>
</table>

10. Sipho is 10 months old. His mother has brought him in because he has a fever, and you record his temperature at 38 degrees Celsius. You see from his Road to Health card that he has received no immunizations. What immunization would you give him today? MARK ALL that you would give with an X:

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>BCG</th>
<th>DPT-1</th>
<th>HEP B-1</th>
<th>OPV-0</th>
<th>MEASLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT-2</td>
<td></td>
<td></td>
<td>HEP B-2</td>
<td>OPV-1</td>
<td></td>
</tr>
<tr>
<td>DPT-3</td>
<td></td>
<td></td>
<td>HEP B-3</td>
<td>OPV-2</td>
<td>OPV-3</td>
</tr>
</tbody>
</table>

a) Are there any vaccines that would not be given to Sipho?

1 Yes
2 No

b) If yes, which vaccines would not be given?

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>BCG</th>
<th>DPT-1</th>
<th>HEP B-1</th>
<th>OPV-0</th>
<th>MEASLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT-2</td>
<td></td>
<td></td>
<td>HEP B-2</td>
<td>OPV-1</td>
<td></td>
</tr>
<tr>
<td>DPT-3</td>
<td></td>
<td></td>
<td>HEP B-3</td>
<td>OPV-2</td>
<td>OPV-3</td>
</tr>
</tbody>
</table>
c) Why? ____________________________________________________________________

11. Lena is 10 months old and currently has diarrhoea. She has received no immunizations. What immunizations would you give her today? MARK ALL that you would give with an X:

- BCG
- DPT-1
- HEP B-1
- OPV-0
- MEASLES
- DPT-2
- HEP B-2
- OPV-1
- DPT-3
- HEP B-3
- OPV-2
- OPV-3

a) Are there any vaccines that would not be given to Sipho?

1 Yes
2 No

b) If yes, which vaccines would not be given?

- BCG
- DPT-1
- HEP B-1
- OPV-0
- MEASLES
- DPT-2
- HEP B-2
- OPV-1
- DPT-3
- HEP B-3
- OPV-2
- OPV-3

c) Why? ____________________________________________________________________
12. The last time you saw a mother who brought her child in late (after 28 days in child's schedule), for an immunization, how would you describe your response?

(Please rate your responses by marking one phrase for EVERY ROW below with an X)

<table>
<thead>
<tr>
<th></th>
<th>slightly</th>
<th>somewhat</th>
<th>very</th>
<th>extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>supportive</td>
<td>supportive</td>
<td>supportive</td>
<td>supportive</td>
</tr>
<tr>
<td>b</td>
<td>Understanding</td>
<td>understanding</td>
<td>understanding</td>
<td>understanding</td>
</tr>
<tr>
<td>c</td>
<td>irritated</td>
<td>irritated</td>
<td>irritated</td>
<td>irritated</td>
</tr>
</tbody>
</table>

13. Mothers who show up late for immunizations don't care about their children.

Agree no opinion disagree

14. It makes no difference how I respond to a mother - she will return or not return for the next immunization regardless of what I say to her.

disagree no opinion agree

15. Mothers depend on health workers for reliable information about immunization.
16. Scolding a mother who forgets her child's road to health card will help her to remember it next time.

17. It is advisable for a health worker to reprimand a mother who loses her child's road to health card.

18. I am capable of deciding whether a sick child should be immunized.

19. If I believe that a child is well enough to be immunized, I can convince the mother that it is safe to immunize the child.

20. Mothers trust what I tell them about immunization.
| agree | no opinion | disagree |

21. As long as the child is well enough to go home, all immunizations should be given.

| disagree | no opinion | agree |
22. I should give measles vaccine even if the mother says the child has already had measles disease.

| disagree | no opinion | agree |

23. The drop-out rate for our district is too high

| agree | no opinion | disagree |

24. Health workers are the best source of information on immunization.

| agree | no opinion | disagree |

25. Mothers cannot understand about immunization; it is a difficult subject to explain.

| agree | no opinion | disagree |

Complete the following statements by marking ONE response from EACH ROW with an X:

26. GIVING DPT TO A CHILD WHO HAS A FEVER IS:
### 27. GIVING OPV TO A CHILD WHO HAS DIARRHOEA IS:

<table>
<thead>
<tr>
<th>a</th>
<th>safe</th>
<th>unsafe</th>
<th>not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>good for the child</td>
<td>harmful to the child</td>
<td>not sure</td>
</tr>
<tr>
<td>c</td>
<td>required by National Immunization Program</td>
<td>Not required by National Immunization Program</td>
<td>not sure</td>
</tr>
</tbody>
</table>

### 28. GIVING MEASLES VACCINE TO A CHILD WHO IS ILL IS:

<table>
<thead>
<tr>
<th>a</th>
<th>safe</th>
<th>unsafe</th>
<th>not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>good for the child</td>
<td>harmful to the child</td>
<td>not sure</td>
</tr>
<tr>
<td>c</td>
<td>required by National Immunization Program</td>
<td>Not required by National Immunization Program</td>
<td>not sure</td>
</tr>
</tbody>
</table>
PLEASE MARK THE CORRECT ANSWER/S WITH AN X:

29. Who usually supervises your work?

___ Senior registered nurse
___ Medical officer
___ Local Authority Medical Officer of Health
___ Health Inspector
___ No one
___ Other (Specify) ______________________________
30. How many times has your supervisor visited you in the past 6 months?
   ____ (number of times)
   ____ Supervisor works here and sees worker daily
   (If yes - go to question 32)

31. When was the last visit?
   ____ Within the last 2 weeks
   ____ 2-4 weeks ago
   ____ 1-3 months ago
   ____ 4-6 months ago
   ____ more than 6 months ago
   ____ don't remember

32. What did your supervisor do during that visit?
   ____ Observed immunization technique
   ____ Observed management of sick children
   ____ Reviewed reports prepared by health worker
   ____ Updated health worker on current information
   ____ Discussed problems with supplies and equipment
   ____ Other (specify) ________________________________

33. Did your receive feedback from that visit?
   1  Yes
   2  No

   If yes, in what form?
   ____ Written report
   ____ Oral report
   ____ Other (specify) ________________________________
34. What does your supervisor do to keep your technical skills up to date?
   ___ Workshops
   ___ Performance feedback
   ___ Written materials
   ___ Training sessions
   ___ Other (specify) __________________________

35. What is the maximum upper age for giving DPT vaccination?
   ___ years

36. Do you have to submit any reports such as number of patients seen, or number of doses of vaccine administered?
   1 Yes
   2 No

   a) Do you keep records of EPI disease notifications?
      1 Yes
      2 No

   b) Do you distinguish by age?
      1 Yes
      2 No

37. How often do you use the information collected in these reports to help you with your job?
   ___ Ordering stock
   ___ Doesn't use info
   ___ Assessing targets
   ___ Doesn't know
   ___ Other (Specify) __________________________
38. What type of feedback do you get from these reports?
   ___ None
   ___ Oral discussion
   ___ Written report
   ___ Other (specify) ______________________

39. (a) Has your supervisor explained to you the 2 policies on when to immunize children for MEASLES?
   1 Yes
   2 No

   Name the age groups specified in the 2 policies.
   ___
   ___
   ___ Doesn't know

   (b) Has your supervisor explained to you the target populations and age groups for tetanus toxoid immunization?
   1 Yes
   2 No

   If yes, what is it?
   ___
   ___
   ___ Doesn't know

40. Are the numbers of immunizations given routinely compared with the target population?
   1 Yes
   2 No
41. What are the most difficult problems that you face in doing your job?
   ___ Lack of training
   ___ Mothers don't bring children to clinic
   ___ Staff shortages
   ___ Lack of supplies and/or stock
   ___ Lack of supervision
   ___ Lack of feedback on performance
   ___ Inadequate transport for patients
   ___ Inadequate transport for health workers
   ___ Integrated one stop Mother and Child Health service
   ___ Other (specify) __________________________

42. Have you discussed these problems with your supervisor?
   1    Yes
   2    No

43. If YES, what was the response: _________________________

44a. In the clinic, at what ages do you give:

<table>
<thead>
<tr>
<th>First</th>
<th>Second</th>
<th>Third</th>
<th>Fourth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hep B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
44b. To whom do you give Tetanus Toxoid?

- Woman of child-bearing age (15-45) who come for care for themselves
- Woman of child-bearing age who bring their children for immunization or treatment
- Pregnant woman only
- No women unless they have an open wound

45. On what days are immunizations given? (MARK DATES FOR EACH VACCINE WITH AN X)

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>M</th>
<th>Tu</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>Sa</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEASLES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCG1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polio</td>
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<td></td>
</tr>
<tr>
<td>Hep B</td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

46. Do you have a plan to learn of new children who are born in the catchment area or who move here, who should enter the immunization program?

1. Yes
2. No

If yes, what type of plan?

- Vital events registry
- Community health volunteers to identify new children
47. Do you keep a register of all children in the catchment area?
1 Yes
2 No

If YES, how is it used?
___ Clinic health workers/volunteer locate target children
___ Doesn't know
___ Register is not used
___ Other (specify) ________________________________

48. Does the clinic routinely calculate the dropout rate between DPT-1 and DPT-3 or between DPT-3 and measles?
1 Yes
2 No

If YES, what was it last time it was calculated?
___ Knows - write in dropout rate ____________
___ Doesn't know

49. Is there a system to follow up dropouts?
1 Yes
2 No

If YES, what is it?
___ Clinic workers make home visits
___ Community volunteers visit homes
___ Other (specify) ________________________________
50. A 9 month old child who got BCG and Polio-0 at birth, DPT-1 and Polio-1 at 6 weeks, and since then, no other vaccines comes to the clinic. What would you do? (MARK ALL RESPONSES WITH AN X)

- Give measles vaccine
- Explain disease prevented by these immunizations
- Give DPT-2 vaccine
- Explain importance of completing the series
- Give Polio-2 vaccine
- Tell mother when to return for next immunizations
- Other (specify) ___________________________________________________________________

51. If a 10 month old child comes to the clinic who is hot to the touch, has diarrhoea, and has received no immunizations, what would you do? (MARK ALL RESPONSES WITH AN X)

- Give BCG
- Assess and treat fever
- Give DPT-1
- Assess and treat the diarrhoea
- Give Polio-1
- Tell mother to return for immunizations when child is well
- Give Measles
- Other:

________________________________________________________________________________
52. Why do you think that some children may not receive all the immunizations that they should at the correct age?

(MARK ALL RESPONSES WITH AN X)

___ Mothers are apathetic or don't care
___ Mothers don't know about immunization
___ Mothers don't bring their children when the children are ill
___ Parents don't believe that immunization works
___ Mother won't bring child who became ill after last immunization
___ The clinic is too far away
___ Transportation problems
___ Mothers who work can't get to the clinic
___ The clinic is frequently out of stock
___ More outreach clinics are needed
___ There is not enough staff to conduct immunization clinics
___ Health workers don't know vaccine recommendations
___ Mothers don't bring their children because of all the violence
___ Clinic hours are at the wrong time for mothers
___ Other (specify)

53. If there was one thing you could to improve the immunization service in your area, what would that be?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

THANK YOU FOR ANSWERING THIS QUESTIONNAIRE