



Master of Public Health.

Master International de Santé Publique.

**EHESP-Avenue du Professeur Léon Bernard.
CS 74312-35043 Rennes Cedex.
www.mph.ehesp.fr**

Title of the Thesis:

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Benin, Burkina Faso and Ivory Coast) an action plan for EPIVAC.

Student: Francis Joseph MBVUNDULA.
BSc.N, UCM. (Miw)
Class: **Master 2.**

Year: **2009-2010.**

Practicum Location :
Agence de Médecine Préventive
(www.aamp.org)

Dissertation submitted in partial fulfillment for the award of the Master of Public Health
Degree from the EHESP French School of Public Health, France.

Professional advisors: **Dorothy LEAB.** AMP, - Benin.
Dr. David Houéto, PhD. AMP, - Benin.

Rapporteurs : **Prof. Olivier Thomas.**
Dr. J. Thuilliez.

June 2010.

II TABLE OF CONTENTS

Item.	Page.
I. Title page	1
II. Table of contents	2
III. Acknowledgement	3
IV. List of tables	4
V. List of appendices	4
VI. List of acronyms and glossary	4
VII. Abstract	5
Chapter 1. Introduction	10
1.1. Justification	10
1.2. Problem statement	13
Chapter 2. Literature review	13
Chapter 3. Methodology	17
Chapter 4. Results	20
Chapter 5. Discussion	26
Chapter 6. Conclusion and recommendation	30
Chapter 7. References	31
Chapter 8. Appendices	36

II. ACKNOWLEDGEMENT

The author would like thank Agence de Médecine Préventive for offering place of study at their institutions in West Africa as part of my Masters Program in International Public Health. Grant funding from ADVocacy for IMMunization (ADVIM) is gratefully acknowledged. I would like also to thank its entire staff for welcoming me in different locations in Benin, Burkina Faso and Paris.

In particular, I would like to thank my supervisors David Houéto and Dorothy Leab for introducing me to the topic and also for taking me throughout the thesis development, guidance and writing. I am very much grateful for Hamadou Dicko for translating the abstract into French. For his suggestions and helpful comments on the draft protocol and also the thesis. Special thanks to the key informants who granted me interviews. Gaëlle Ollivier-Gouagana and Emmanuel Burst who took enormous effort in translating first questionnaire into French despite their own engagement. Philippe Jaillard who specifically refined the questionnaire.

It is worth mentioning my family back home which supported during the study period in France and five months internship Benin and Burkina Faso. Thangwache, Gloria and all my relatives who missed the little services I had to offer to them. Thanks also go to my classmates for your support.

III. List of figures **Page**

Figure 1: Map of the studied countries. 36

Figure 2: Problems associated with immunization services Benin,
Burkina Faso and Ivory Coast. 41

IV. List of tables **Page**

Table 1: Summary of disease burden of vaccine preventable diseases
2004 to 2008 in Benin, Burkina Faso and Ivory Coast. 42

V. List of appendices **Page**

Appendix 1: Comparison of antenatal care visits of Benin, Burkina Faso
and Ivory Coast with regional average. 36

Appendix 2: Inequities in health service utilization in rural, urban, and poorest
20% and Best off 20% in Benin, Burkina Faso and Ivory Coast. 37

Appendix 3: Measles immunization Benin, Burkina Faso and Ivory Coast
among one year old against regional average. 39

Appendix 4: Geographical distribution of wild polio virus in West Africa
for 2008 and 2009. 40

VI. List of acronyms and glossary.

AMP .	Agence de Médecine Préventive.
ADVIM.	ADVocacy for IMMunization
CSPS.	Centre de Santé de Promotion Sociale.

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

EPIVAC.	Epidemiology and vaccination.
EPI.	Expanded Program on Immunization.
GIVS	Global Immunization Vision Strategy.
MDGS	Millennium Development Goals.
MRO	Memories Operational Research.
UNICEF	United Nations Children's Fund.
WAHO	Western African Health Organization.
WHO	World Health Organization.

VII. ABSTRACT

(a)English abstract

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Benin, Burkina Faso and Ivory Coast) an action plan for EPIVAC.

Context: To prevent the transmission of six main vaccine preventable childhood diseases in sub-Saharan Africa will require ensuring that 90% of all children are fully immunized by the age of 12 months, and for every district to attain at least 80% immunization coverage rate. However, in Benin, Burkina Faso and Ivory Coast the current immunization rates are far below the required international goal. There are disparities in immunization utilisation between urban and rural communities, low vaccination coverage at sub national, especially district levels and constant resurgence of vaccine preventable diseases (Polio, Tetanus, Measles and Yellow fever) are major setbacks to the contribution of immunization to meeting millennium development goal 4. This study aimed to identify practical solutions available to improve immunization services in Benin, Burkina Faso and Ivory Coast.

Methods: To identify practical strategies available to improve immunization services, a qualitative study was conducted in Benin, Burkina Faso and Ivory Coast. Key informant interviews with vaccination agents at health centre were conducted and self-administered questionnaire for decision makers at central level in immunization services were completed.

Results: The study showed that the “Reach Every District” approach, training of health workers and regular supervision, provision of integrated services, utilization of community health and non health staff were found to be innovative and played a significant

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

role in improving immunization services. However the study also identified that, the absence government commitment to fund services and lack of maintenance plans for EPI equipments were major barriers for immunization services.

Conclusion: The analysis of these findings, in particular the interviews and literature, suggests that best practices and solutions are context related. What can work in one health system may not necessarily work in another. Therefore implementation of practices need to look at country situational context such as funding levels, political will and commitment for financing and its sustainability.

Résumé

(b) Résumé en Français ^a

Des solutions innovantes pour améliorer les services de vaccination: analyse critique des pratiques dans trois pays d'Afrique subsaharienne (Bénin, Burkina Faso et Côte-d'Ivoire) un plan d'action pour EPIVAC.

Contexte: Afin de prévenir efficacement, par la vaccination, la transmission de six maladies infantiles en Afrique sub-saharienne, 90 % des enfants doivent être vaccinés avant d'atteindre l'âge de 12 mois, et le taux de couverture vaccinale doit atteindre 80% dans l'ensemble des quartiers. Cependant, au Bénin, au Burkina Faso et en Côte d'Ivoire, les taux de vaccination actuels sont bien en deçà des objectifs internationaux requis. Les disparités dans l'utilisation des vaccins entre les communautés urbaines et rurales, la faible couverture vaccinale au niveau district et la résurgence constante des maladies évitables par la vaccination (polio, tétanos, rougeole et fièvre jaune) sont d'importants obstacles pour atteindre l'objectif 4 du Millénaire pour le développement. La présente étude visait à identifier les bonnes pratiques pour améliorer le service de vaccination au Bénin, au Burkina Faso et en Côte d'Ivoire.

Méthode : Pour identifier les bonnes pratiques permettant d'améliorer les services de vaccination, une étude qualitative a été menée au Bénin, au Burkina Faso et en Côte d'Ivoire. Des entretiens ont été réalisés avec les responsables de la vaccination et un questionnaire auto-administré a été distribué aux décideurs au niveau central.

Résultats: L'étude a montré que l'approche « Atteindre Chaque district », la formation des professionnels de santé et leur contrôle régulier, l'offre de services intégrés,

[a :- Hamadou Dicko French translation]

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

L'utilisation de la santé communautaire et l'appui du personnel non-médical sont autant d'innovations qui jouent un rôle important dans l'amélioration des services de vaccination. L'étude a également identifié que le sous-financement des services ainsi que l'absence de plans de maintenance pour les équipements du PEV sont les principaux obstacles pour les services de vaccination.

Conclusion : L'analyse de ces résultats, en particulier les entretiens ainsi que la recherche documentaire, suggère que les meilleures pratiques et les solutions restent liées au contexte de chaque pays. Ce qui fonctionne pour un système de santé peut ne pas être applicable pour un autre. Par conséquent, la mise en œuvre d'une stratégie doit tenir compte des spécificités du pays, telles que le niveau de financement, la volonté.

CHAPTER 1

INTRODUCTION

Immunization is one of the most powerful tools available to improve public and global health. In sub-Saharan Africa, immunization forms the basis of primary health care activities, and is the most important and sometimes the only activity in primary health care that brings mothers and children into repeated contacts with the health system (Shirley, 1999).

Immunisation services have also been used in sub-Saharan Africa to set up a basis for other health care activities where these are lacking, such as distribution of Insecticide Treated Nets, provision of antenatal care and family planning services (Ehreth, 2003). By combining three innovative and preventative approaches, it was hoped that this would contribute to reduction in maternal and child mortality rates, hence to the achievement of the Millennium Development Goals 4 and 5.

Despite these impressive arrangements the governments of Benin, Burkina Faso and Ivory Coast fail to keep up with targets for routine immunization and antenatal care services and many parents fail to have their children adequately immunized. Vaccination coverage rate has now reached a plateau even where good coverage had been attained and reaching children not yet vaccinated has proved difficult (EPI, 1998). Thus, there is an urgent need to find ways to increase vaccination coverage and particularly to encourage parents to have their children vaccinated (Jheeta & Newell, 2008).

1.1 THE STUDY JUSTIFICATION

According to the review on immunization coverage best estimates realized by WHO/UNICEF(2010), Benin, Burkina Faso and Ivory Coast have low performance levels, (coverage and stagnation of immunization services since 2005). The third dose of DPT vaccines (DPT 3) an indicator for immunization performance has been stagnant in Benin at 67%, Burkina Faso at 79% while in Ivory Coast a decreasing trend is being observed from 79

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

% (2005) to 74% (2008). These trends show lack of access to basic services, including health services for the children under the age of five.

Access to antenatal care (4 visits), (WHO, 2007) is low, 18% for Burkina Faso, 45% for Ivory Coast with 61% with Benin which is just above the regional average of 45% (Appendix, II). In these settings, particularly in rural areas, many pregnant women fail to access antenatal care until the second or third trimester (Chapman 2003; Miaffo et al 2004; Larsen et al, 2004) or attend early and then fail to return and these factors have direct impact on adherence to tetanus immunization services (Myer & Harrison, 2003).

Inequities in health services and measles immunization in 1-year utilization (WHO, 2007) has also been called to question in Benin, Burkina Faso and Ivory Coast (Appendix VI). Widespread inequities persist in immunization coverage to the disadvantage of children whose parents are in the lowest socioeconomic quintile, parents with no education, and parents residing in rural areas. There are huge disparities between urban and rural, poorest 20% and best –off 20% in routine immunization utilization (Appendix, III).

Cultis, (1991), observed that urban slum areas deserve priority for immunization programmes because disease transmission is perpetuated by the high birth rate, crowded living conditions, and continuous influx of new susceptible from rural areas into urban slums. Likewise correct and on time rural area inoculation will significantly assist in attaining the set international standards.

Improving health and immunization services and reaching higher coverage levels requires a better understanding of the reasons why certain parents refuse or accept to their children vaccinated (Barham, et al. 2007). High immunization rates are required to release the full benefit of immunization programs on a population. When high proportion of the population is immunized “herd immunity” is established in which epidemics are prevented even among non immunized population (Maaan and Stephenson, 2000).

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

Low immunization (coverage, performance and stagnation) have major public health concerns. A range of factors are causing significant challenges for vaccination efforts in Benin, Burkina Faso and Ivory Coast and these include lack of funding, political priorities, lack of adequate health care infrastructure, and missed immunization opportunities for mobile populations and those caught up in wars (Poverty Strategy Paper, 2009). The non-availability of vaccines in some areas plus other logistical problems, poor management, economic and cultural is complementary challenges as well and alternative explanations.

When immunization rates fall, epidemics of diseases occur. This is the case of Benin, Burkina Faso and Ivory Coast there have been outbreaks of measles, yellow fever and tetanus (Table 1). WHO, (2007) review of the disease burden, identified polio to be contained after 2004 for the period of four years with no case in the three countries, however since 2008 there had been resurgence of polio. In 2008, Ivory Coast reported resurgence with one case of wild polio virus and twenty-six cases in 2009. Burkina Faso had five cases of polio in 2008 and fifteen cases in 2009. Benin reported twenty cases of polio in 2009 (Table I) (Annual EPI review, 2010). The trends in the three countries represent an ongoing gaps in vaccination coverage which present a unique risk to the global polio eradication effort and immunization services in general (Kick Polio out of Africa, 2009).

Immunization is both cost-effective and life-saving and it “benefits all people, not only through improvements in health and life expectancy but also through its social and economic impact at the global, national and community level” (WHO, 2007). The rationale for this study comes from a practical need to improve immunization services by identification of innovative practices that are being used in Benin, Burkina Faso and Ivory Coast. The study will identify barrier factors such as health system, financing, social economic, access and cultural which have both direct and indirect impacts on immunization services. Lastly, it will highlight the common strategies used in communication for immunization services in the community. This

is part of Agence de Médecine Préventive (AMP) ADVocancy for IMmunization (ADVIM) project which aims to develop advocacy for immunization services in Benin, Burkina Faso and Ivory Coast.

1.2 Statement of the Problem

The problems of formal health services and the challenges in sub-Saharan Africa have been widely documented. Findings from other current studies show a myriad of failures in the supply and demand side of health services. Access to formal services is also impinged by distance and financial factors; service quality is extremely poor and is highly characterized by drug and staff shortages, lack of political commitment, poor infrastructure and negligence by health staff are all sources of failure (Kadzandira and Chalowa, 2001).

However in Benin, Burkina Faso and Ivory Coast these factors have led to continued low (performance, coverage and stagnating) in immunisation services since 2005. This lack of optimum services is leading to both high incidence rate of child mortality with Benin at 157 per 1000 live births, Burkina Faso at 184 per 1000 live births and Ivory Coast, 187 per 1000 live births (GAVI, 2008), and morbidity as well. The observation of the resurgence of vaccine preventable disease outbreaks such as Measles, Polio (Table 1 and appendix V), Meningitis and Yellow Fever is a clear sign for need for urgent solutions and interventions.

CHAPTER 2

LITERATURE REVIEW

2.1. Immunization services of Benin, Burkina Faso and Ivory Coast.

In Benin, Burkina Faso and Ivory Coast immunization services are provided through the expanded Program on Immunization(EPI).The main EPI targeted diseases are Diphtheria, Hepatitis, Measles, Pertussis, Haemophilus influenza type B, Tetanus, Polio, Tuberculosis, and Yellow fever.The main delivery strategies are three folds; fixed, mobile and

outreach services. The mobile strategy has been stopped due to financial difficulties in Benin and Burkina Faso (Burkina Faso EPI external review, 2008). The fixed method refers to the delivery of vaccination services inside the health facility and on specific days of the week and hours of the day (within a radius of 5km from the delivery site). In larger facilities vaccination is given whenever eligible clients come. Outreach is delivered to the people who cannot get to the health facility (within a radius of 5km to 10km from the delivery site and mobile-strategy are trips of more than a day done by facility workers for delivering services to people in remote areas (USAID, 2003).

Though international agencies such as the WHO and UNICEF promote global immunization drives and policies, the success of an immunization programme in any country depends more upon on local realities and national policies (Mangri, 2008). This presents a challenge in achieving the Global Immunization Vision Strategy coverage target of 80% in all districts and 90% nationally and reducing measles mortality by 90% by 2010 (WHO/UNICEF, 2005).

2.2. Initiatives in immunization services

In Benin, Burkina Faso and Ivory Coast government initiatives have been made to decrease vaccine preventable diseases. Firstly, the establishment of the National Expanded Program on Immunisation and the signing of the Bamako Initiative in 1987. Secondly, in 1996, and within the context of the initiative for vaccination autonomy they followed other sub-Saharan countries by adding vaccination as a line item in the budget a cooperation agreement with UNICEF for supply of vaccines and EPI materials (Burkina Faso, 2003). Thirdly, to monitor the budget allocated to the purchase of vaccines and consumables the ARIVA project (*Appui au renforcement de l'indépendance vacciner en Afrique/Support for the strengthening of vaccination autonomy in Africa*) was implemented (ARIVA, 2004). Most recently (2000) Global Alliance for vaccine and immunization (GAVI) there has been, the

inclusion of Immunization as an indicator for social progress in the poverty reduction strategy paper (International Monetary Fund, 2000); in all highlighting the need and difficulties of increasing and maintaining high levels of vaccination.

Despite the progress the stagnation in immunization coverage is persistent. Studies done to review causes of the stagnation in immunization services have implicated both on supply side and the demand side of immunization services. In France, for example, parents' reticence is expressed as reservations and doubts about the efficacy of certain vaccines. Thus, the current debate about the hepatitis B and influenza vaccines is so ingrained in this reasoning and despite reassuring results from many studies, parents reticence persists. In Canada, the phenomenon of reticence is primarily marked by some parents' lack of conviction about the expected benefits of certain vaccines (Haddad, 2009)

2.3 Challenges in Immunization Services

2.3.1 Benin

According to various literatures, while opposition to vaccination may not be new among minority populations, nevertheless in Benin the common challenge is seen mainly among children whose parents are members of imported sects or religions. Described by Fourn, (2009) in Benin, ten or more sects have been identified in Cotonou and Parakou, and in some of these, the practice of child vaccination is forbidden, while the other sects seem to tolerate routine vaccination. Its extension to all routine vaccinations on the basis of religious arguments has become worrisome for the effectiveness of the Expanded Program on Immunization (Ibid).The refusal to vaccinate children is also prevalent in many urban slums and remote areas which act as sources for out breaks (Haddad,2009).

2.3.2 Burkina Faso

The major challenge in Burkina Faso is depicted by the most recent national survey of vaccination coverage which showed a 41% point disparity (31%-72%) between health

regions with the lowest and highest rates of complete vaccine coverage and a 35% point disparity (58%-93%) for Diphtheria , Pertussis and Tetanus vaccine (DPT3) (Haddad , 2009). The same study highlighted the presence of immunization coverage gaps of more than 50% points between the extremes of the districts in Burkina Faso and an average gap of 28% points between districts within a region. Previous studies by Bicaba (2009), have also accounted for disparities of immunization coverage in Burkina Faso in 2003 for example, the Nouna health district had an immunization coverage rate of 31.5%, compared to the national rate of 52 %.

2.3.3 Ivory Coast

In Ivory Coast, the disparities in immunization services are due to period of crisis which started with a coup d'état in 1999 followed by a period of civil conflict in 2002 (International Monetary Fund, 2009). This conflict lead the country to be split into two zones with the North and North West controlled by the New Rebel Forces where health services were completely closed down and health facilities were used as military bases and the South for the Government where there were still some health services. The internally displaced people who included mothers and children moved from the North, New Rebel Forces held zones to the Government zones in the South and also into neighbouring countries (Benin and Burkina Faso). Since the signing of the Ouagadougou treaty in 2007, tranquillity has returned but presidential election are yet to take place. However, there has been movement of children and women which initiates intra-country as well as between country transmissions of vaccine preventable diseases.

However, Koukpo (2005) reported that, accessibility to health facilities is the main problem in Ivory Coast, due to lack of facilities or their removal, and the proportion is higher in rural than in urban areas. The Poverty Reduction Strategy (2009) observed that the non-implementation of the health plan due to the political crisis of 1999 has led to poor

infrastructural coverage. The rate of attendance at public health facilities by the population is low, with a 21% user rate in 2000. Formal health services are out of reach with only 44% of the population living less than 5 Km from a health facility, 27% between 5 Km and 15 Km, and 29% who must travel over 15 Km to have access to a health facility. In 2008, 12% of the poor did not have access to a health centre and 54% did so on foot (ibid).

In the three countries the poor suffer the most; these groups are less likely to receive full basic immunization coverage, and to have their deliveries attended to by a trained provider, and to have at least one prenatal care visit to a medically trained provider (Poverty Reduction Strategy, 2009).

CHAPTER 3

METHODOLOGY

3.1 Study Objectives

The overall goal was to identify practical solutions available to improve immunization services in Benin, Burkina Faso and Ivory Coast .This is part of the ongoing program by the Agence de Médecine Préventive (AMP); ADVocacy for IMMunization (ADVIM) initiatives. ADVIM aims to strengthen the national capacities for advocating and financing immunization programs in three GAVI eligible Francophone African countries.

The primary objectives of the present study were;

- a) To explore the problems associated with the expanded program on immunization in the three selected countries including health system, socio- economic, cultural and access factors.
- b) To explore financing (internal and external) factors impacting on immunization.
- c) To identify the common communication strategies used within the community for immunization services.

3.2 Study design

The qualitative design was employed in the study. Main sources of information were key informant interviews and self-administered questionnaires and literature search.

3.3 Study Place

The study was conducted in Benin, Burkina Faso and Ivory Coast (appendix I, figure 1); these countries have similar health sector arrangements (pyramid made of three levels) with emphasis on decentralization. The central level consists of the Ministry of Health and its directorates, then at the intermediate level the Regional Departmental Directors and at the peripheral level the Health Zones where vaccination occurs.

3.4 Study population, sample size and data

The study population comprised three EPI Managers, three UNICEF officers, three WHO officers one from each of the three selected countries. One child professional officer from the West Africa Health Organization, the in-charge and vaccinators for health centres of Do and Dafra health district of Bobo-Dioulasso between February to March 2010. The qualitative primary data was obtained by self-administered questionnaires for the officers. In the Health Centre, semi-structured interviews were carried out with the agents in charge of the health facility and the vaccinators.

International, regional and national reviews of literatures were carried out. Memories Operational Research (MRO) from the EPIVAC program were consulted and relevant EPI policy program documents are part of the data. The study involved 30 personnel (26 after weighting) with 86.6% response rate. Sampling was based on convenience sampling including respondents who had knowledge on the topic and excluded those who did not have knowledge on the topic.

3.5 Data Analysis

The outcome variables were health system, cultural, socioeconomic, access and financing factors and the independent variable was improvement in immunization performance and coverage.

A qualitative induction analysis was used for isolation of the best practices and for detailed description of people's experiences when trying to identify issues, problems and solutions related to health (Ensign, 2003; Ensign and Bell, 2004). Qualitative methods were also chosen for this study due to their ability to contextualize experiences, and for their ability to bring out personal experiences (Milligan et al, 2002).

Extensive condensation of varied raw text data into a brief summary format was done and clear links among the research aims and the summary findings derived from the raw data were set up, to ensure that links are both transparent (able to be demonstrated to others) and defensible (justifiable given the objectives of the research). Subthemes about the underlying structure of experiences or processes which are clear in the text (raw data) were developed (Creswell, 2002).

Thereafter common themes and subthemes were established and the relationships were interpreted and synthesized (ibid). A summary of the information gathered was done using tables according to the variables and objectives of the research. A premier qualitative report was written using Microsoft word.

3.6 Limitation of the Study

No effort was made to verify and to confirm the strength of the methods for each paper reviewed in the Memories Operational Research (MRO). The major concern was to find and analyze practices in the Expanded Programs on Immunization in Benin, Burkina Faso and Ivory Coast and what interventions could have been isolated as best practices to improve immunization services.

CHAPTER 4

RESULTS

The results are presented into two sections; the first part is based on the summarized analysis health care system, socio-economic, access and culture problems associated with immunization services (Appendix VI, figure, 2).The second part focuses on the available innovative practices to improve immunization in Benin, Burkina and Ivory Coast.

4.1 Health care system factors.

The majority of decision makers mentioned vaccine stock out or occasional stock out as main factor which makes mothers not to adhere to vaccination calendar. In the Expanded Programme on Immunization, the decision makers and participants at health centre identified lack of equipments, management of equipments and maintenance is always the bottleneck and this is so at every single level (central-regional-district and service delivery point).This is impeding the provision of outreach services. For example the lack of fuel for outreach services and lack of equipment (motorcycles and cold chain equipments) were cited. A surprising notion that was also mentioned at health centre level was long waiting times. When mothers travel long distance and wait for a long time, at the health centre due to commitment of health personnel or lack of staff, they are unlikely to return for future services.

4.2 Social economic factors

Social factors were identified as mainly related to the demand side of immunization. Even though immunization services in the three countries are free at the point of contact. However, one health centre staff noted *that "there is a hidden cost that families pay to go for immunization services. The cost of buying the road- to- health immunization card and transportation fare to travel to the immunization centre were associated with poor patronage of the immunization sessions"*. Ignorance was also another reason mentioned by the decision makers, *"mothers are not aware of the need for vaccination and they may not know*

the actual dates of the next appointment". Another theme, identified was family problems. It was noted that at different times of the year the mother is busy with agricultural activities in the rural areas and in urban areas most mothers sell merchandise as vendors which make it difficult to take time off to send their children for immunization services.

The decision makers also mentioned that "commencing and finishing time for immunization sessions were not specific" and the mothers do not know the actual time of commencing and ending the immunization sessions.

4.3 Cultural factors

Culture and peer influence also affect immunization services in different ways. Religious belief was identified as a main factor impacting on immunization services. One vaccinator mentioned that "Some sects prevent their members from being vaccinated". It was mentioned that in some rural and urban community areas "the church forbids the immunization of children". It was also discovered that some parents do not have confidence in the protective value of the vaccine due to anti -vaccination rumours. It was mentioned that "there are rumours spreading in the villages that vaccination is another means to control fertility and another way for future family planning" and this has led to low immunization coverage and turn up.

It was also observed that mothers are not decision makers for immunization services and are not empowered to make a decision to send a child or go for immunization services. Usually the husband has to decide whether the woman has to attend the health services or not.

4.4 Accessibility

Distance was mentioned as one of the factors that lead to children not being immunized in remote rural areas. One EPI manager mentioned that "in remote areas where the immunization centre is far away, mothers are reluctant to go for the services". Occupation

of the mother was also another reason. One respondent mentioned that *“If the mother is a bread-winner, there is a trade-off between sourcing for food for the day and going for immunization services,”* Therefore there are conflicting priorities.

4.5 Financial Factors

The health financing for immunization in Benin, Burkina Faso and Ivory Coast is provided by the state, partners and communities. The government expenditure on health is minimal 4.8% for Benin, 5.6% for Burkina Faso (Tableau de bord santé 2008) and 4.2% for Cote d’Ivoire in 2008 (PNDS, 2009-2013). This means that the countries are donor dependent when it comes to health. Most of the EPI managers noted that the lack of funds is a major hindrance to improve immunization services. The study, also noted that in Ivory Coast; the political and civil crisis of 1999 and 2002 led to the departure of some partners which has seriously affected immunization services.

The study identified insufficient budgetary allocation to health by the Ministry of Finance and poor management of funds at central, regional and district levels as internal factors affecting financing. A cumbersome procedure in disbursement of GAVI funds as means of financial control was isolated as an impending factor in Ivory Coast.

Some respondents mentioned the delay in disbursements of funds to the peripheral from the central level as an issue. One respondent mentioned that much *“funding to the peripheral is usually available during the rainy season not during the dry season”*. On external factors the present study identified untimely disbursement of funds by partners to the countries as a factor. Delayed fund release from the partners to the Ministry of Health means that there will also be a chain of delays from the Ministry of Health to the peripheral levels.

4.6 Communication strategies with the community.

In Benin, Burkina Faso and Ivory Coast communication with the community is the core component of the Expanded Program on Immunization as well as for planning of outreach activities. Despite this the availability of equipments, education information and communication materials remains low.

Some respondents mentioned that “financing for communications is weak, and there is no specific funding for communication”. It was also noted in the health centre’s that most funds allocated for communication are available during the campaigns. The respondents mentioned that radios, television, traditional and religious leaders, political leaders are used to communicate information with the communities for immunization services. However they were quick to note that their capabilities remain to be strengthened.

4.2.0 ANALYSIS INNOVATIVE BEST PRACTICES AVAILABLE IN BENIN, BURKINA FASO IVORY COAST.

4.2.1. Reaching Every District (RED) approach.

An innovative practice used in the three countries is the “Reaching Every District approach” (RED) approach as the main strategy to improve immunization services. The main aim is to build the capacity of the districts and health facility workers to address major obstacles to improving immunization services and coverage. The components of RED include planning at the district level to identify ways to improve routine program performance. It also includes re-establishing outreach services which involves regular outreach services to the communities that are underserved.

RED also enables agents to better plan and manage human and financial resources and therefore increases efficiency. Furthermore, Reach Every District helps to increase supportive supervision (onsite training); it links the communities and services by organizing

regular meetings with the community and to monitor for actions by charting the vaccination dose and mapping for the population of each health facility.

4.2.2. Training of the health workers and regular supervision

Training of health care workers was noted as one of the innovative solutions to improve immunization services in the three countries. The aim is to train health personnel to improve quality of immunization services delivered to the communities. The immunization personnel are trained in areas of vaccination and follow-up with reorientation and refresher courses where it is necessary depending on the situation analysis done by the Immunization supervisors from the district level. Supportive supervision (on site training) was also observed as innovative. Burkina Faso utilizes independent supervisors to improve quality of the immunization services. Training of the health workers and regular supervision is evaluated by the number of health workers trained and supervision visits done.

4.2.3 Providing more immunization sessions

Provision of more immunization sessions was also noted as an innovative solution to improve immunization rates. It aims at providing more vaccination sessions with an objective of improving coverage. Apart from fixed facility, the three countries have special campaigns, child health weeks or days, mop up campaigns which are used to supplement routine immunization services and to improve immunization coverage and performance targeting specific urban and rural areas and identified population. For example, it was mentioned that “a clinic at the beginning which was only providing two immunization sessions per weeks but in order to improve immunization services it now provides immunization on all five days” .Fixed services are also combined with outreach services. This meant that the clinic provides two immunization sessions at the same time, outreach services and fixed services thus improving the immunization services by targeting under immunized children.

4.2.4 Provision of integrated services.

Provision of integrated services was noted as innovative. A situation analysis is done before conducting the integrated services to find out who the population are, where they are located and why they are not being immunized or have been missed. The next step is the integration of immunization services with other programmes such as, Malaria control (Insecticide Treated Nets) , Vitamin A and plump nuts provision to increasing coverage , access and demand for immunization services with more focus on remote rural areas , urban slums and hard to reach areas.

4.2.5 Utilization of community health worker and non health personnel.

Utilization of community health worker and non health personnel (influential person in the community) was noted as innovative. In Burkina Faso, community health worker and community representatives, maintain lists of women and children who need immunizations, conduct house-to-house visits to identify eligible children and refer them to the nearest health centre or outreach session. Likewise, non health personnel are used to mobilize communities for immunization. The non health personnel are also incorporated at the health centre level with the establishment of village health committee and Health Centre Management Committee (Comité de Gestion du Centre de Santé).

The non health workers are the champions of immunization services and other health services in their own communities. They are used to identify children who are not immunised and this enhances community participation in health services with a goal of complete coverage of immunization services.

4.2.6. Involvement of political and religious' leaders.

Involvement of political and religious leaders was one of the innovative solutions identified. Local political and religious leaders are involved in order to gain support from the community, they are involved with an aim to instil local ownership and empowerment of

health services including immunization services to ensure that every child is vaccinated. Communication on the availability and date for immunization services are also announced in churches.

CHAPTER 5

DISCUSSION

This study has explored both the supply side and demand side factors which have a bearing on the improvement of vaccination services. It is a hard fact that Wild Polio Virus cases continue to re-emerge in countries (Appendix IV and Table 1) where it was eradicated or near to be eradicated (Magrio,2008).This is mainly due to the weak routine immunization services (WHO,2002). Cases in Benin, Burkina Faso and Ivory Coast have not been very different. The present study has revealed various health systems, social, economic, geographical, financing and cultural factors which influence people's access to health services which in turn influences immunization service (performance and coverage).

5.1 Health Care systems

The health care system (supply side) is a key to meeting the desired deliverables of the immunization services. In the health care system several factors appear to come into play. As shown by in-depth interviews in the external review (2009) for Burkina Faso performance components such as poor reception and inadequate staff, lack of plan for acquisition, maintenance and renewal of materials for EPI, poor vaccinator skills that end up with children developing swellings of their arms after immunization, long waiting time at the vaccination site have all been noted as barriers to services.

In addition, the health staff themselves may feel unsupported by the health system (not given enough resources, not being paid well or not on time, not given incentives for routine immunization work), which may increase their tendency to treat mothers the same way (Immunization Basic Project, 2009). One report on Benin claims that the health staff's

hostility towards clients increases along with the scarcity of resources for health services (UNICEF, 1991).

Studies done, in Zimbabwe by Djibuti et al, (2009) all showed that supervision can have a positive effect on improving performance in areas other than those unsupervised. In Benin, Burkina Faso and Ivory Coast staff working in peripheral facilities where delivery of most primary health care services is done, supervision and allocation of resources are problematic. Slobodkin,(1998) found out in a study that allocation of resources to supervision is likely to result in improved performance of health workers with regard to the rational use of services, and thus resulting in improved efficiency and effectiveness. Reorganisation of services are urgently needed to improve access to immunization

5.2 Culture

A substantial amount of studies have highlighted cultural factors (anti-vaccination rumours) as primary reason for non vaccination. Founa (2009) in a study in Muslim states of Nigeria found out that parents were convinced that the polio vaccines provided by UNICEF were contaminated with sterilizing chemicals. As Benin, Burkina Faso and Ivory Coast are close to Nigeria such rumors could also be diffusing across the frontiers and into these countries and could negatively affect the uptake of immunization services.

Similarly, certain Hindu and Muslim groups in India have long-held the belief that vaccination is a covert method of family planning in future, primarily targeting Muslims (Streefland, 2001). One thing is clear, however when parents resist vaccination, it is because they want to protect their children from harm (Richter,1995). On the contrary, the greater acceptance of vaccination found among Javanese transmigrates as opposed to Acehnese villagers in the same area has been attributed to the former's more positive cultural attitudes towards health (Ibid).

Research has also shown that when addressing the needs of deprived communities, involving the affected community in decision-making (empowerment) will maximize the outcome, therefore practices of involving community, political and religious leaders to sensitize their community members on the importance of immunizations constitute innovative means to improve immunization coverage. The results of the present study have identified community involvement through the use of political and religious leaders as innovative in helping to increase utilization of services and thus to improve immunization coverage in the three target countries.

5.3 Socio-economic factors

Several studies have reported both social and economic factors that deter parents from getting their children immunized. A previous survey done in Conakry, Guinea by Cults(1991),on knowledge, attitudes and practices (KAP) found that among lower socioeconomic groups the children of mothers who worked outside the home had lower immunization uptake than those whose mothers were not employed. Mothers, who had been turned away from vaccination sessions or asked to return on another day, were also less likely to ensure the completion of the immunization series of their children.

However, Naimoli, (2005) reported an interesting phenomenon that lowering the financial barriers to immunization in theory, might improve equity. For example, in Burkina Faso, and prior to 2001, parents were made to buy injection material which led to low utilization of the services, however after abandoning the practice there was an increase in acceptability of the services (Eichler, 2001).

To break the inter-generational transmission of poverty by improving the human capital of the poorest households in Latin America; Barham et al (2007) have shown that conditional cash transfers is another promising strategy for improving immunization. However conditional cash transfers have not yet found fertile ground outside of Latin

America. Conditional cash transfers are an innovative social assistance mechanism that provides cash transfers to poor families on their conditional use of preventive health care services and their children's regular school attendance.

5.4 Accessibility

In rural areas the distance from the child's home to the health facility where immunization services are provided is a considerable major determinant of the status of immunization of the child. However, several factors come together that may prevent mothers and child caretakers from sending their child for vaccination. For example, the further the clinic the more expensive it is to get there and the earlier a mother has to wake up and walk to the clinic.

Long distances from the child's home to the health facilities increase the chances of mothers finding themselves at the back of a long queue, or arriving too late for vaccination, which discourages future attendance(Montgomery,2006).Arriving late, mothers are often at the receiving end of negative comments from health care workers (ibid). Therefore this study has identified targeted campaigns and outreach services to be pro-poor because of the large numbers of children that they reach and provision of other services including immunization.

5.5 Financing

Benin, Burkina Faso and Ivory Coast are predominantly donor funded. The issue of future financing of the immunization programme was, and still is, an increasing concern for all the stakeholders involved in the EPI (Eie, 2008). The donor dependency has an impact on the introduction of new vaccines such as Hepatitis B which is relatively expensive compared to the basic antigens, suggesting that their introduction needs to be carefully planned, and options such as phasing in by regions or targeted populations should be considered.

Millennium Development Goal 4 will be missed unless the local sources of funding are tapped and mobilized to improve coverage and provide other preventive services in

support of child survival. It is also important to consider whether introducing a new vaccine will not adversely affect the coverage rates of the six traditional EPI antigens. (Ministere de la santé, Côte d'Ivoire, 2007). In Benin, Burkina Faso and Ivory Coast political will is needed to reduce child mortality (Richard, 2006).

CHAPTER 6

CONCLUSION AND RECOMENDATIONS

6.1 Conclusion

From public health perspective, there are underlying challenges with the immunization program and health services in general in the three country studies of Benin, Burkina Faso and Ivory Coast. The immunization services need to be strengthened and more funds from the health sector budget are allocated to primary health care and Expanded Program on Immunization to ensure better geographical coverage especially in rural areas and urban slums. Vaccine shortages have to be avoided. Children brought in for vaccination should receive vaccines.

In order to improve health services Curtis (1998) summarise it all by mentioning that, no single strategy is likely to be appropriate for all different circumstances, all diseases and all countries. One size does not fit all. The choice of strategy should depend upon the epidemiology of the disease, the characteristics of the vaccine, the facilities available, financing mechanisms available, the accessibility of the population, their cultural attitudes and practices and the socio-economic level and health systems context of the country. Therefore there is a need for continued capacity building for national and district-level managers to select strategies that are appropriate for their own context.

The results and conclusions can be generalized to other African countries, and thus fulfilling the external validity mentioned by Yin (2003) that West African countries have similar political and economical conditions; furthermore, their health system is structured the same

way. Our recommendation therefore applies to all the countries that represent the same conditions as the three countries studied.

6.2 Recommendation

The following recommendation can be made for improving immunization services delivery and ultimately coverage rates, in order to reduce child mortality in the three countries

- a) The countries should adequately budget for and make available financial sources for immunization services.
- b) The countries need to set up a mechanism for generating local resources to fund immunization services.
- c) The countries need to set up a plan for acquisition, maintenance and renew of material for Expanded program of immunization
- d) Community mobilisation and working with community leader is key to improve immunization services

CHAPTER 7

REFERENCES

- Annual EPI review**, (2010). Meeting for Expanded Program on Immunization Ouagadougou 17 to 20 March.
- ARIVA**, (2004). ARIVA-GAVI-UNICEF, le partenariat se renforce autour de la vaccination. *ARIVA Info* 2004, **12**:1-19.
- Barham**, T., Brenzel, L. and Maluccio, J.A, (2007). Beyond 80%: are there new ways of increasing vaccination coverage. Evaluation of Conditional cash transfers programs in Mexico and Nicaragua. Available at: <http://ssrn.com/abstract=993760>
- Bicaba**, A, Haddad, S., Kabore, M., Taminy, E., Feletto, M., and Fournier. (2009) Monitoring the Performance of the Expanded Program on Immunization: the case of Burkina Faso. *BMC International Health and Human Rights* 2009, **9** (Suppl1):S12doi:171186/1472-698X-9-S1-S12.
- Burkina Faso**, (2003). Programme Élargi de Vaccination (PEV): Recherche sur la participation communautaire et le financement des activités - rapport provisoire. Burkina Faso.
- Chapman, R.R.**, (2003) Endangering safe motherhood in Mozambique: prenatal care as pregnancy risk, *Social Science and Medicine* Vol. **57**, pp.355-374.
- Creswell**, J. W., (2002). Educational research: Planning, conducting, and evaluating Quantitative and qualitative research. Upper Saddle River, NJ: Pearson Education
- Djibuti, M.**, Gotsadze. G., Zoidze A, Mataradze. G., Laura. C., Esmail L.C., and Kohler C.J (2009) The role of supportive supervision on immunization program outcome - a randomized field trial from Georgia *BMC International Health and Human Rights* 2009, **9**(Suppl 1):S11doi:10.1186/1472-698X-9-S1-S11
<http://www.biomedcentral.com/1472-698X/9/S1/S11>

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

Ehreth, J (2003). "The value of vaccination: a global perspective", *Vaccine*, Vol. **21**, Issue 27-30, p. 4105-4117.

Expanded Programme on Immunization. The Social Science and Immunization Research Project. *Wkly Epidemiology Rec* 1998; 73: 285-8 pmid: [9786041](https://pubmed.ncbi.nlm.nih.gov/9786041/).

Haddad, S., Bicaba. A., Feletto.M. Taminy. E., Kabore. M., Ouédraogo. B., Contreras. G., Larocque. R and Fournier .P. (2009) .System-level determinants of immunization coverage disparities among health districts in Burkina Faso: a multiple case study *BMC International Health and Human Right*2009, **9**(Suppl1):S15doi:10.1186/1472-698X-9-S1-S15 (accessed at <http://www.biomedcentral.com/1472698X/9/S1/S15> on 23:03:2010

Kadzandira J.M and Chilowa. W.R (2001).The Role of Health Surveillance Assistants (HSAs) in the Delivery of Health Services and Immunization in Malawi. UNICEF.

Kick polio out of Africa, (2009) polio eradication in Africa status report accessed on 13thApril2010 from <http://newwritings.wordpress.com/2009/05/19/kick-polio-out-of-africa-andthe-world>

Koukpo. R .S, (2005) Le droit de la santé au Bénin : état des lieux Animation régionale de Dakar Réseau des chercheurs "Droit de la Santé" Agence Universitaire de la Francophone (unpublished)

Larsen, G.L., Lupiwa, S., Patio Kave, H., Gilleatt, S. and Alpers, M.P. (2004).Antenatal care in Goroka: issues and perceptions, *Papua New Guinea Medical Journal* Vol.**47**. No.3-4. pp.202-214

Miaffo, C., Some, F., Kouyate, B., Jahn, A. and Mueller.O. (2004). Malaria and anaemia Prevention in pregnant women of rural Burkina Faso, *BMC Pregnancy and Childbirth* Vol. 4. No.18. pp1-7.

Maaan, K.E., and Stephenson. P., (2000). Evaluation of immunization strategies in New

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

Zealand-A systems thinking approach. 1st international conference on system approach.

Mangri, N.K., Alam. M.M, and Shaikh, B.T (2008).Is Expanded Programme on Immunization doing enough?.Viewpoint of Health workers and Managers in Sindh, Pakistan Journal of Pakistan medical association Vol **58**, 2 February 2008.

Ministère de Sante (2007) .Plan annuel complète du Programme Elargi de Vaccination Côte d'Ivoire 2007 à 2011. République du Benin Service de prévention par les vaccinations du Ministère de la Sante

Montgomery, C.M., Mwengee, W., Kong'ong'o, M., Pool, R. 'To help them is to educate them': power and pedagogy in the prevention and treatment of malaria in Tanzania. Tropical Medicine & International Health 2006; 11(11(November)):1661–9

Naimoli, J.F., Tanuku, D., and Challa, S. (2005). Poverty reduction strategy paper, Health, Nutrition, and Population, Human Development Network, The World Bank.

Richard, H., (2006). A new global commitment to child survival *The Lancet*, Published online September 18, 2006DOI:10.1016/S0140-6736(06)69331-8 London, NW1 7BY, UK

Shearley, A.E., (1999).The societal value of vaccination in developing countries. *Vaccine*; 17 (Suppl. 3 (October)):S109–12.

Slobodkin, D., Kitlas J, Zielske, P. Opportunities not missed - systematic influenza and pneumococcal immunization in a public inner-city emergency department. *Vaccine* 1998, **16**(19):1795-1802.

Streefland, P.H., (2001). Public doubts about vaccination safety and resistance against vaccination. *Health Policy Santé*: 2001; 55:159-72 doi: 10.1016/S01688510(00)00132-9 pmid: 11164965.

USAID, (2003). Immunization essential a practical field guides. Academy for Education

Innovative solutions to improve immunization services: Critical analysis of practices in three Sub-Saharan Africa countries (Burkina Faso, Benin and Ivory Coast) action plan for EPIVAC.

Development. John Snow Inc.

WHO/UNICEF, (2005). Question and answers Global Immunization Vision and Strategy

http://www.who.int/immunization/givs/Q_and_A_EN.pdf

World Health Organization. State of the World's Vaccines and Immunization. Geneva:

2002.

World Health Organization. (2007). GVIS17 "Global Immunization Vision and

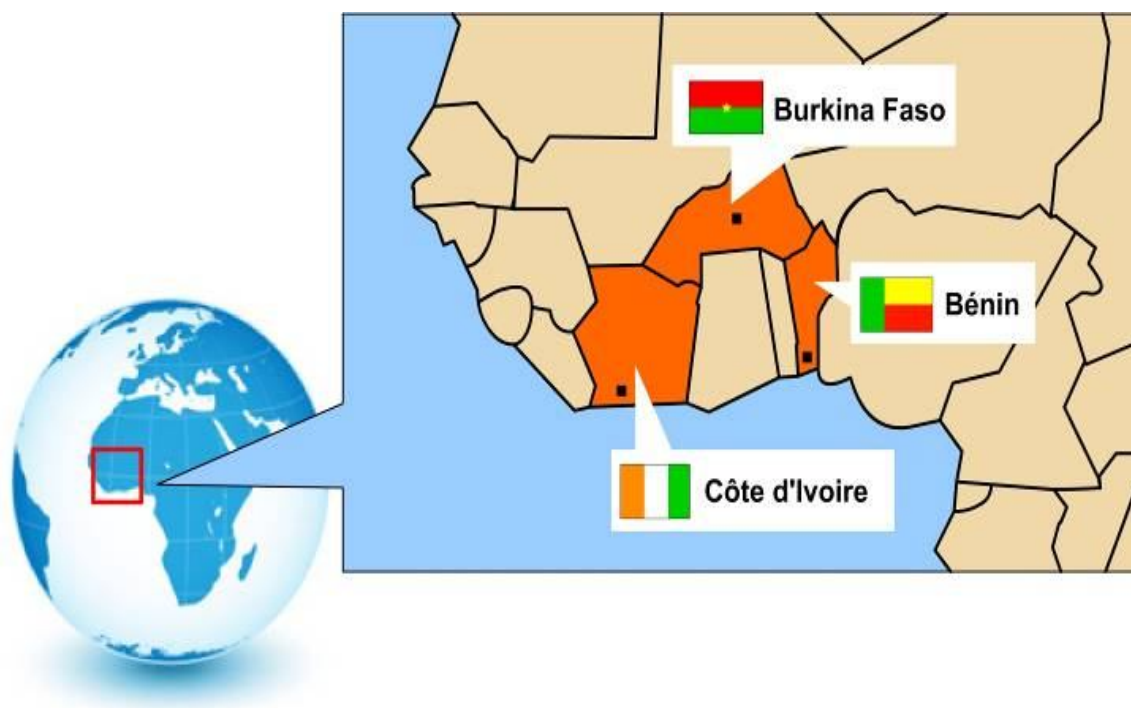
Strategy ." <http://www.who.int/immunization/givs/en/index.html>

CHAPTER 8

APPENDIXES

APPENDIX I.

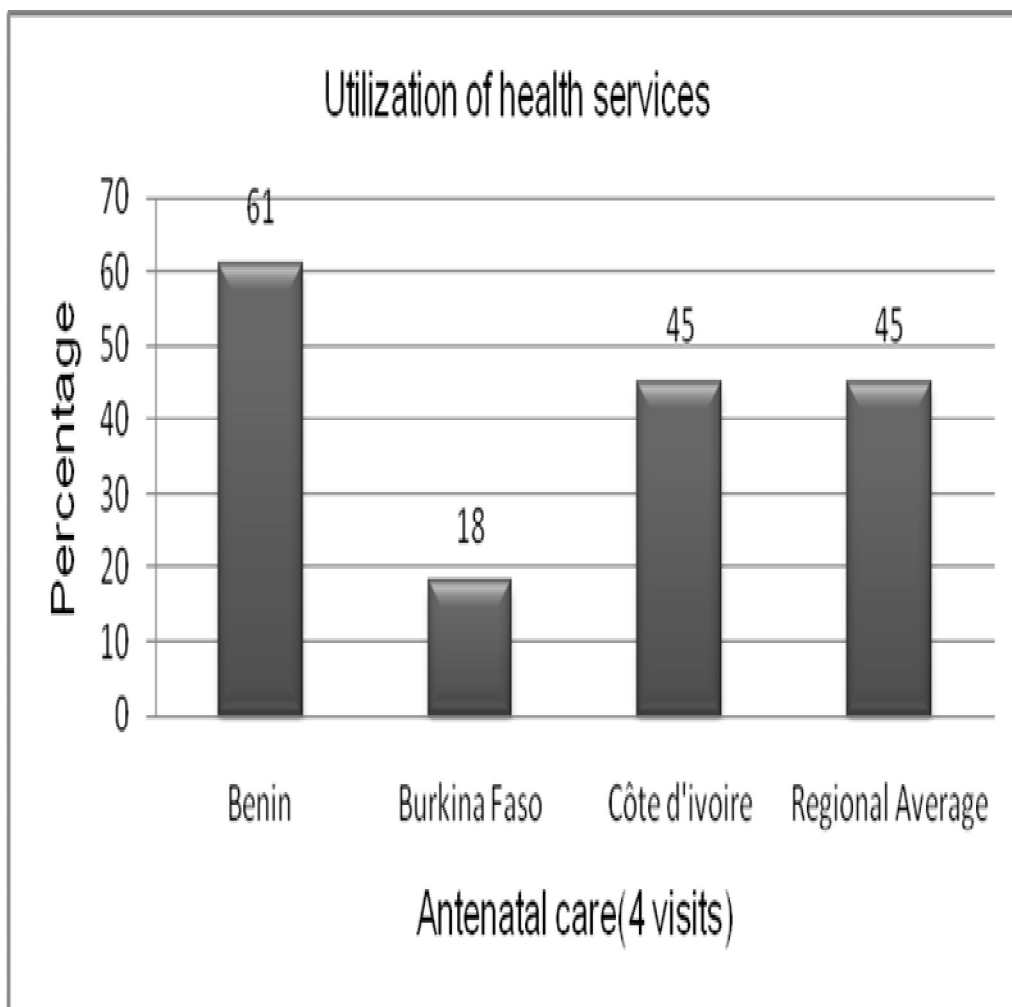
Figure 1.Map showing the setting of the study.



Source: ADVIM Project, (2010). Etude de la situation du plaidoyer pour le financement de la vaccination au Benin au Burkina Faso et en Côte d'Ivoire. Protocol etudes. Unpublished.

APPENDIX II.

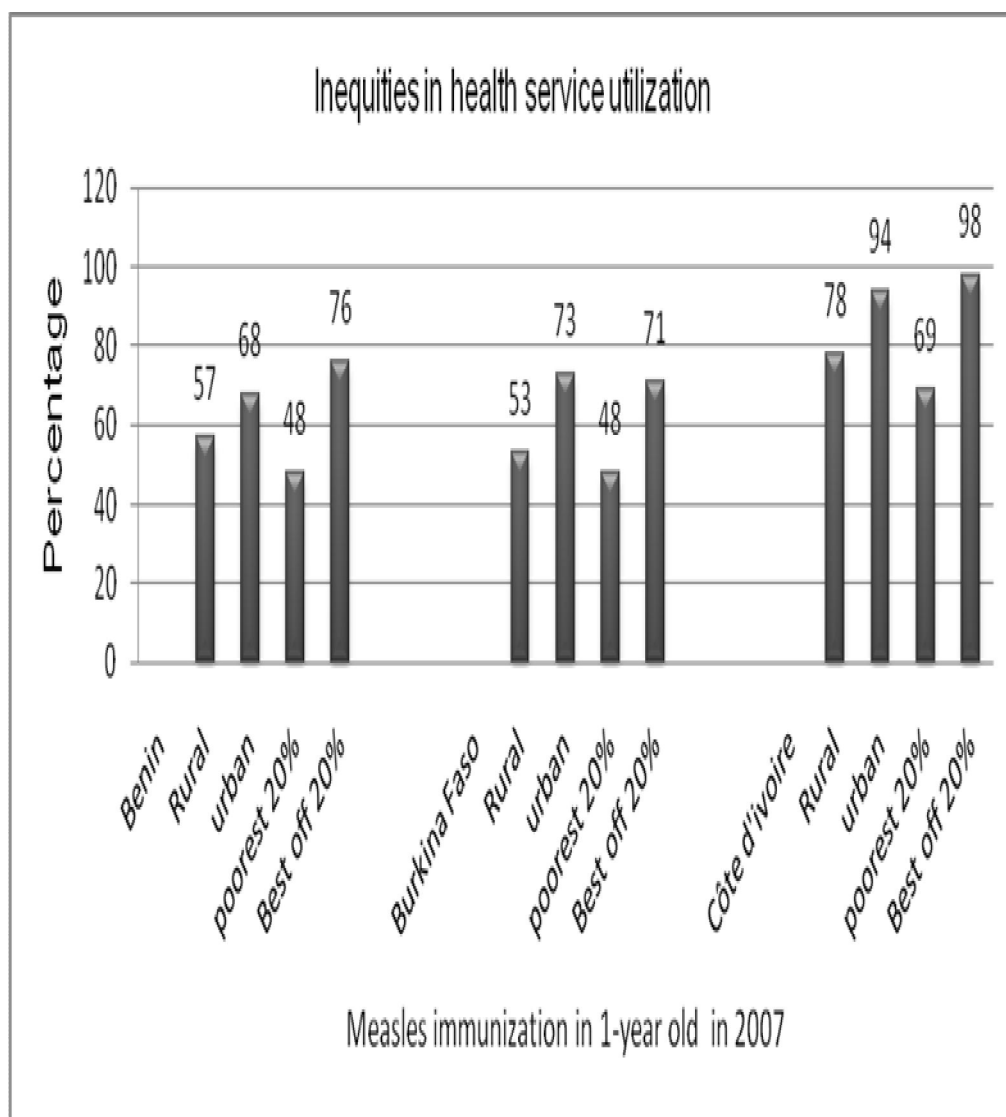
Graphical illustration Antenatal care (4 visits) comparison in 2007 in Benin, Burkina Faso and Ivory Coast with regional average.



Source: WHO, (2007). Health profile for Benin, Burkina Faso and Côte d'Ivoire. WHO

APPENDIX III

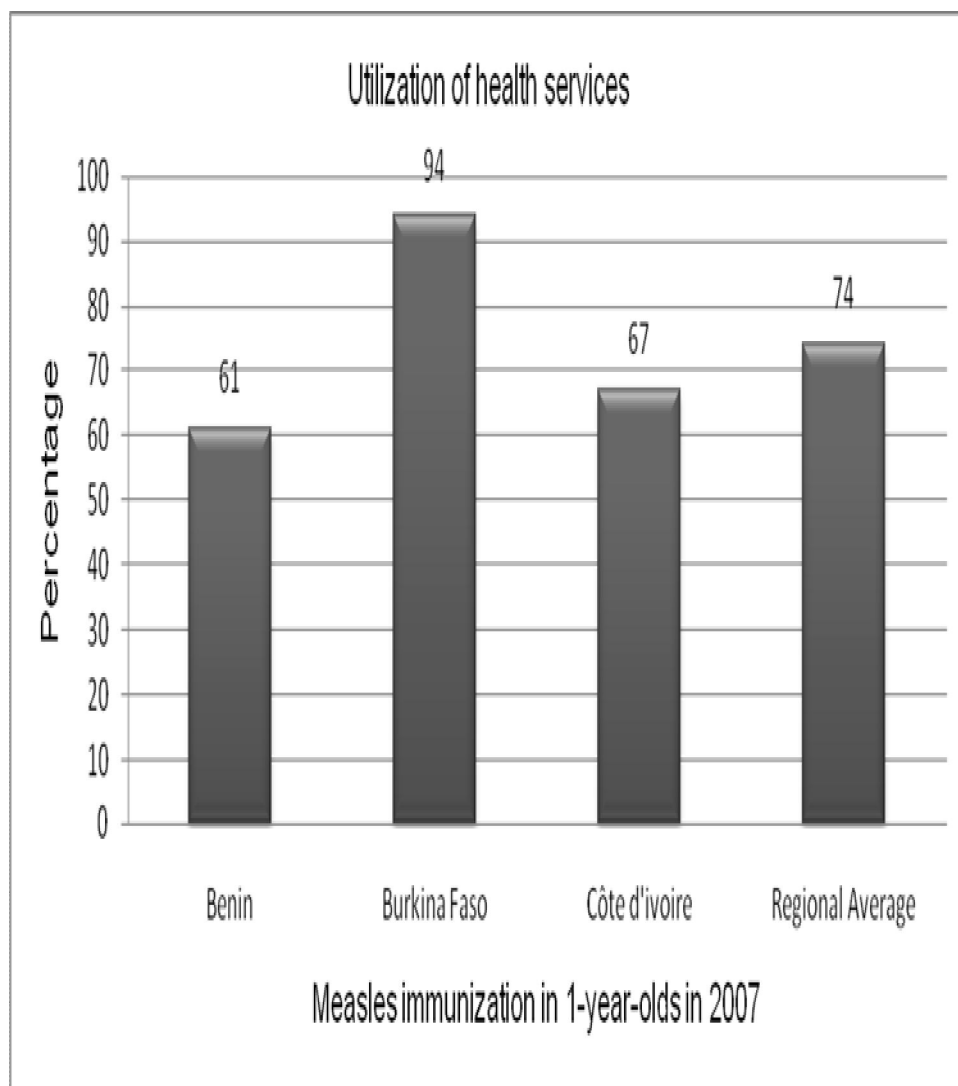
Graphical representation of inequities in health service utilization on Measles immunization among one year old in 2007, in rural, urban, poorest 20% and best off 20% against in Benin, Burkina Faso and Côte d'Ivoire.



Source: WHO, (2007). Health profile for Benin, Burkina Faso and Côte d'Ivoire. WHO

APPENDIX IV

Graph showing Burkina Faso being above average on Measles immunization in 1-year – olds in 2007 compared to Benin and Côte d'Ivoire which are below the regional average.

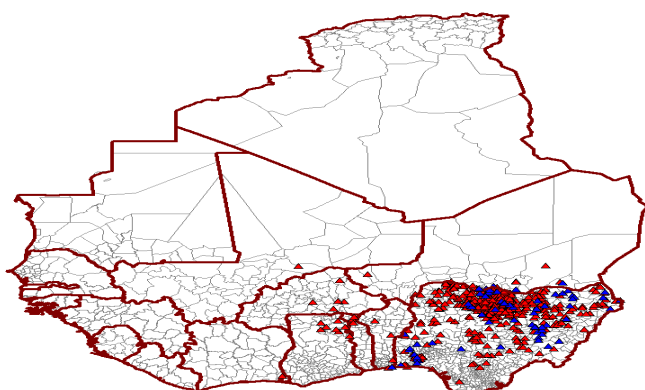


Source: WHO, (2007). Health profile for Benin, Burkina Faso and Côtéd'ivoire. WHO

APPENDIX V

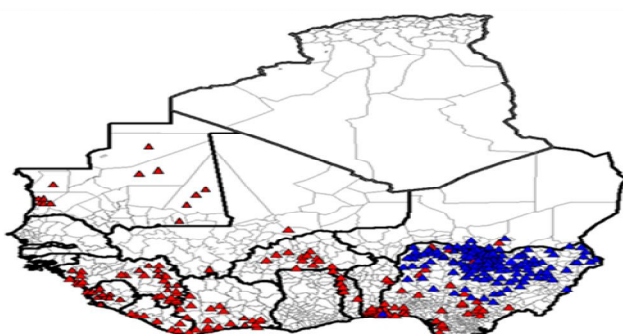
Geographical distribution Type 1 and Type 2 Wild Polio Virus in West Africa 2008 and 2009

Country distribution of Wild Polio Virus in 2008.



Benin	5
Burkina Faso	5
Ivory Coast	1
Ghana	8
Mali	1
Niger	11
Nigeria	797
Togo	3
Total	831

Country distribution of Wild Polio Virus in 2009.



▲ PVS type 1
▲ PVS type 2

Benin :	21
Burkina Faso :	15
Côte d'Ivoire :	26
Guinée :	42
Liberia :	11
Mali :	2
Mauritanie :	13
Nigeria :	388
Niger :	15
Togo :	6
S. Leone :	12
TOTAL :	551

Source: Annual EPI review, (2010). Meeting for Expanded Program on Immunization
Ouagadougou 17 to 20 March.

APPENDIX VI.

Figure 2. Analysis of problems associated with immunization services in Benin, Burkina Faso and Ivory Coast.

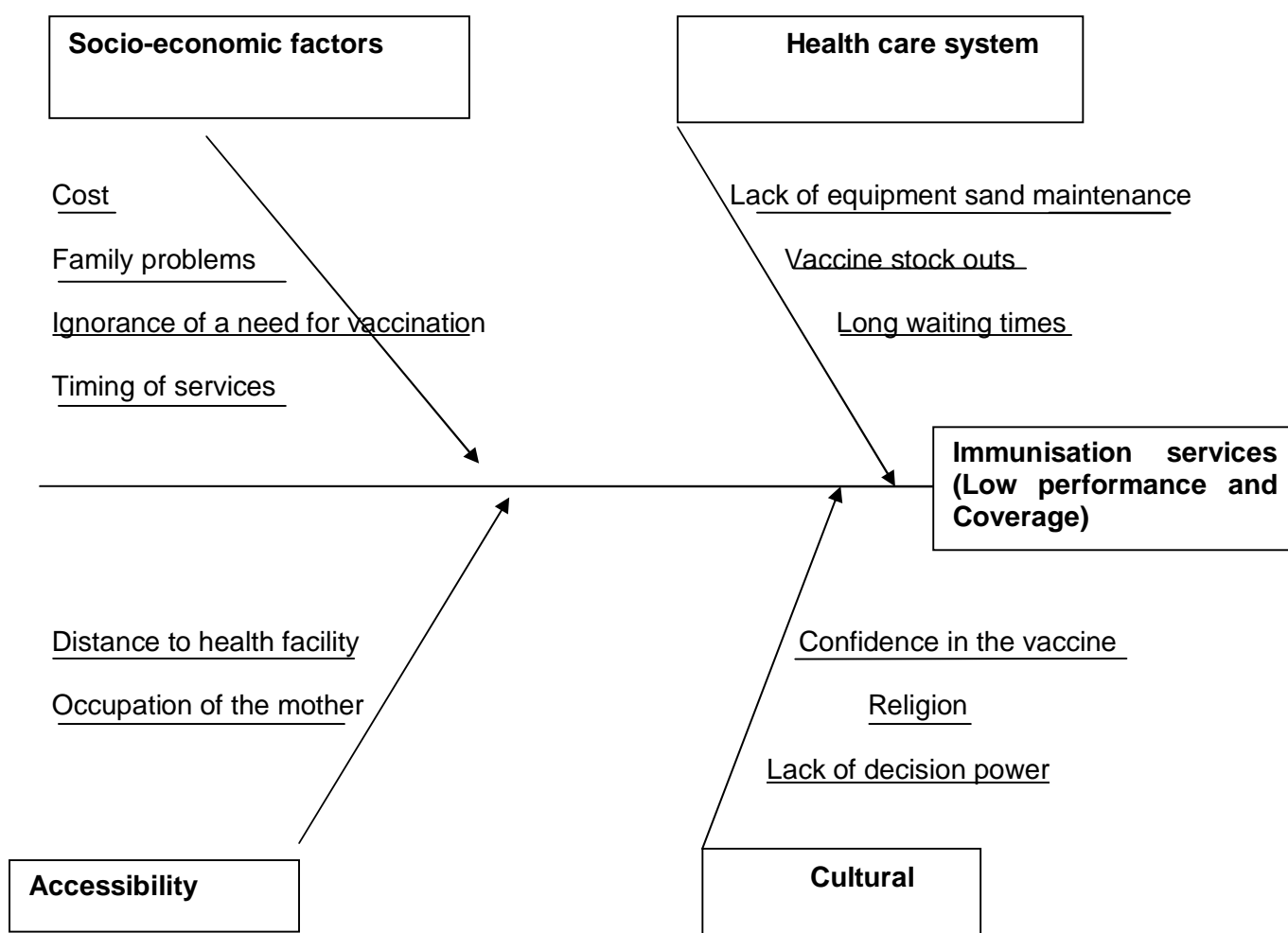


Table 1.

Table 1: Summary of disease burden of vaccine preventable disease Benin, Burkina Faso and Ivory Coast. Row number three showing the break and resurgence of Polio in Benin, Burkina Faso and Ivory Coast between 2004 to 2008.

Benin.

Year	Measles	Polio	Yellow Fever	Tetanus
2008	928	6	0	7
2007	341	0	0	9
2006	176	0	0	7
2005	210	0	0	12
2004	262	6	31	17

Burkina Faso.

Year	Measles	Polio	Yellow Fever	Tetanus
2008	1777	6	4	11
2007	166	0	2	13
2006	525	0	3	9
2005	1077	0	19	35
2004	2037	9	14	4

Ivory Coast.

Year	Measles	Polio	Yellow Fever	Tetanus
2008	12	1	14	15
2007	5	0	0	31
2006	11	0	2	0
2005	117	0	19	2
2004	4010	17	14	0

Source: Table board for Burkina Faso 2008.

WHO 2009 vaccine diseases monitoring.

Côte d'Ivoire Poverty Reduction Strategy 2009.

Benin EPI external review 2008.

Burkina Faso EPI external review 2008.