

MORTALITY TRENDS AND CAUSES OF DEATH IN
NAIROBI, NYERI AND BUNGOMA DISTRICTS

BY:

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DECLARATION

This project is my original work and has not been submitted for a degree in any other University.

Signed 

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This project has been submitted for examination with my approval as University Supervisor.

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Date 1 April 2005

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DEDICATION

This project is dedicated to my beloved husband, Milton Wanjaria
and our children, Emmah and Eric

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I would want to acknowledge the following people for the part they have played toward the completion of this project.

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ABSTRACT

A study on mortality is very important, since mortality it is one of the major components of population dynamics. Mortality is responsible for the depletion of human population through death. It is important to study different causes of death in an attempt to shed new light while at the same time putting proper policies in place to bring down the number of deaths to reasonable figures. This is because many causes of death are preventable especially when proper actions are taken in good time. Therefore, this study set out to establish the major causes of death in Nyeri, Bungoma and Nairobi districts.

The objectives of the study were to generate mortality trends based on both census and KDHS data and establish major causes of death in Nyeri, Bungoma and Nairobi districts, using vital registration data. Mortality trends have been reversed in the recent past with all indicators pointing to upward trends. Infant and child mortality started rising in the mid-1980s while life expectancy dropped drastically. There was, therefore, a need to establish the major causes of death, which were responsible for the observed trends. Covering the period between 1999 and 2002, the study examined the causes of death in the three districts based on the number of registered deaths in each district for each year. During this period, the average coverage rate for Nyeri was 83%, 63% in Bungoma and 75% in Nairobi. The methods of data analysis were simple descriptive statistics like frequency tables and cross tabulation to establish differentials in death by some selected study variables.

From the findings, five major causes of death were established in each district during the four years. The causes of death in all the districts were similar in nature and it is only the magnitude that differed considerably. The

major causes of death were pneumonia, malaria and HIV/AIDS. Malaria, pneumonia, tuberculosis and HIV/AIDS were common in all the districts while anaemia was peculiar to Bungoma, sudden death to Nyeri and gastroenteritis to Nairobi. Malaria was the greatest single killer in all the districts with the greatest impact being felt in Bungoma district.

Pneumonia was the main killer in Nyeri and Nairobi while HIV/AIDS contributed significantly to the total deaths in the two districts. HIV/AIDS was prevalent in the age group 25-49 years and afflicted more females than males in all the districts. Major childhood diseases were similar to those afflicting the general population although the highest casualties from the leading causes (i.e. pneumonia and malaria) were those below zero and under five. Other diseases peculiar to children were dehydration, malnutrition, septicaemia and respiratory failure. One Major causes of death among certain selected occupations were HIV/AIDS, which had the greatest impact on housewives, drivers, armed forces and business professionals. The occupations, which were hardest, hit by deaths in Nyeri and Bungoma districts were farm workers and agricultural subsistence probably because majority of the people are engaged in agricultural activities. In Nairobi, majority of deaths occurred among housewives, unemployed and business professionals.

From the findings, HIV/AIDS is the major killer of housewives and this study recommends that further research be carried out to find the underlying factors.

This study also recommends further research as to whether there is any association between region of residence and pre-maturity as a cause of death in Nyeri and Nairobi districts. This study recommends that proper intervention programmes be put in place to address the morbidity situation

in Kenya while at the same time engaging in aggressive programmes to tackle childhood diseases.

Vital registration data is still wanting in terms of quality and coverage. From the findings, it was clear that quite a number of variables had missing cases. This study, therefore recommends that proper training on data collection and capture be paramount to ensure data is of high quality. The forms, which are used for data collection, should be revised so as to allow inclusion of more information like background characteristics of the deceased.

CHAPTER 1

INTRODUCTION

1.1: Background

One of the greatest achievements of developing countries in the 20th century was the dramatic fall in the level of mortality. Before this period, human population was characterized by high death rates because of the low level of technology and man's limitation to control the environment. This made the population vulnerable to diseases and starvation and life expectancy during this period ranged between 22 and 30 years. Studies reveal that a significant mortality decline only began at the beginning of the 20th century, although the pace and magnitude varied from region to region (UN, 1986).

Life expectancy at birth during this period averaged 30 years for Africa and Asia and about 40 years for Latin America. However, it is only after World War II that the greatest decline in mortality ever recorded in human history occurred. In Africa, life expectancy at birth for both sexes after World War II was 43 years (UN, 1986).

Several factors have been suggested as the main contributors to mortality decline in developing countries after the Second World War. The introduction of medical and public health technology from developed to developing countries contributed so much to the decline of mortality. Control of infectious diseases was enhanced and about 80% of the total increase in life expectancy that occurred from 1950 to 1970 in developing countries was due to improved medical services and public health campaigns. These trends, however, were not sustained and have slowed down due to slowed socio-economic development, poor living conditions, nutritional deficiency in children and emerging and re-emerging diseases. In Kenya, for instance, economic crises of the 1980s have reversed the gains made and have even

reversed this trend and all indicators of mortality show that there is a rising trend in mortality (CBS, 2002).

1.2: Problem Statement

Mortality studies in Kenya mainly rely on census and survey data. From various data sources gathered in Kenya recently, there are indications that mortality trends have changed. Decline in child mortality was consistent between 1962 and 1989 but this was reversed between 1989 and 1999 when it increased by 5% over the 1989 levels (CBS, 2002). Between 1962 and 1989, child mortality declined from 219 to 125 per thousand live births. Between 1989 and 1999, the rate of decline drastically slowed down. According to KDHS results, child mortality stood at 93 per thousand live births in 1993 and at 105 in 1998 (NCPD et al, 1998). The 1999 census results also indicate a rise in child mortality to 116 per thousand live births from 113 in 1989 (CBS, 1996, 2002).

Infant mortality rate in Kenya followed the same trend as child mortality for the period 1962 to 1969. In 1969, there were 119 infant deaths per thousand live births, which declined further to 88 and 62 in 1979 and 1989 respectively. However, this assumed an upward trend in 1999 to 77 deaths per thousand live births (CBS, 2002).

In 1962, life expectancy was 40 and 45 years for males and females respectively. In 1969, it was 47 years for males and 51 for females while between 1979 and 1989, it improved from 52 to 58 for males and 55 to 61 for females. However, these scenarios have not been sustained and life expectancy has gone down to 56 years national wide according to the 1999 census results (CBS, 2002).

Focusing on the rising mortality, some factors have been suggested as the likely causes of this rise. The rising levels of poverty and the economic recession of the 1980s have reversed the gains of the 1960s and 1970s in mortality decline. Emergence and re-emergence of new diseases have also been put forward as the probable cause of the rising trends (CBS, 2002). However, due to the limitation of census and survey data when it comes to documenting the causes of death, the data have not been able to explain exhaustively the major causes of death but have only given deaths in numbers which do not link the deaths to specific causes.

To shed new light on the various causes of death, which may be responsible for the upward trend in mortality, it is necessary to examine data sources which document causes of death hence the reason for selecting the use of vital registration data.

Omollo (2002), while studying mortality estimation and causes of death in Nairobi, Bungoma and Nyeri, could not bring out trends because data was limited to the year 1999 alone. This study will therefore bridge that gap by establishing causes of deaths in the same districts using vital registration data for the period 1999-2002.

1.3: Objectives of the Study

General Objective

To establish mortality trends and causes of death in the three districts.

Specific Objectives

To generate mortality trends in the three districts.

To establish major causes of death in the three districts during the reference period.

1.4: Scope and Limitations of the Study

The study only covered the three districts of Nairobi, Bungoma and Nyeri and due to the limited coverage it was not possible to generalize the findings as representative of the whole country. The trends were also limited to the period 1999-2002 as data from previous years were not available at the Department of Civil Registration.

The study was also limited because the data on some variables that may explain mortality trends like socio-cultural and economic factors are not included in the analysis of this study.

1.5: Justification of the Study

Most studies in Kenya have used census and survey data in the study of mortality and little has been done using vital registration data. This is mainly attributed to the incompleteness and inaccuracy of registration data. However, it is necessary to use vital registration data because of the advantage it enjoys over census and survey data. A complete and accurate vital registration system is a very rich source of data since vital events are recorded on a continuous basis. Coupled with the fact that an efficient vital registration system collects data up to the grassroots level, socio-economic planning for development of small areas is also possible from the use of such data.

It is important to note that a complete vital registration system is the only source of data on causes of death. Censuses and demographic surveys mainly document deaths in numbers without indicating the cause of death. These results are of little use for public health programmes. Mortality trends by cause of death are very important in measuring the relative magnitude of different health problems and putting in place programmes to address

specific factors that expose populations to risks of mortality. Mortality trends are also important for disease surveillance in case of an outbreak or re-emergence of a disease.

Data from a vital registration system are least affected by errors as compared to estimates obtained from census and survey data. While census and survey data are important since they serve as short-term solutions in providing demographic indicators, they cannot be long-term substitutes to vital registration data.

Mortality trends have serious implications on the age and sex structure of a population. This is because population dynamics of any country depend on the composition of the age and sex structure.

It is against this background that this study sets out to generate mortality trends and establish causes of death using vital registration data in the three districts.

CHAPTER 2

LITERATURE REVIEW

2.1: Introduction

The literature review discusses mortality in general, highlighting the trends which have been observed over time in Africa and Kenya. Causes of deaths are also reviewed worldwide, in Africa and Kenya.

2.2: Mortality Trends

During the demographic transition, decline in mortality was associated with a shift from high prevalence of deaths owing to infectious and acute diseases at young ages to morbidity and mortality dominated by chronic and degenerative diseases of older adults.

In Africa, especially in sub-Saharan Africa, health improvements have lagged behind those of other major regions of the world. There is an indication of increasing prevalence of cardiovascular diseases, respiratory diseases, tuberculosis, accidents and violence in many African countries. Chronic and degenerative diseases have emerged as a serious problem among urban upper and middle class adults. While the prevalence of infectious and parasitic diseases has remained high among the rural and urban poor in Africa, epidemiological transition resulted in an overall decline in mortality of all ages and cause specific mortality rates (Kelvin et al, 1990).

Child mortality after the first year of life is high as compared to infant mortality in most African countries. This is because weaning in most African societies starts after the first year and, due to poor living conditions, the child is exposed more to disease-causing pathogens. Continental results of a comparative analysis indicate there has been a decline in general patterns of child mortality since World War II in most African countries where data are

available (Van De Walle et al, 1992). According to the same source, in the 1950s, it was common to have 35% to 40% of the children dying before reaching their fifth birthday while it was rare to find levels of below 22% of child mortality. By the 1970s, child mortality in African countries was less than 22%, which was a major post-war achievement. However, there was a marked overall difference in mortality decline, which varied in size, timing and pace. In some countries, falls in mortality were dramatic with some having almost 50% decline. In Ghana, child mortality declined from 37% to 20% between 1930 and 1960 and in Kenya from 26% to 15% between 1940 and 1970. In other countries, child mortality declined more gradually; e.g. in Swaziland from 24% to 22% between 1950 and 1970. There was a marked difference in mortality levels between Western and the rest of Africa. The highest levels of child mortality were recorded in Western Africa while the lowest were recorded in Southern Africa. In the 1950s, between 30% and 40% of children died before their fifth birthday in Western Africa, while it was 15% to 25 % in Southern Africa. By the 1970s, West Africa had loses of child mortality of between 22% and 30% compared to 12% to 20% in Southern Africa. However, during the same period, there were some countries with persistent stagnation or rise in child mortality notably Angola, Niger, Nigeria, Mozambique, Ethiopia and Sudan (Van De Walle et al, 1992).

The pace of mortality decline slowed down in the 1980s in most African countries and even reversed in some countries like Kenya in the 1990s. Some factors have been put forward as probable causes for the stagnation notably among them, slowed socio-economic development, economic crisis of the 1980s, emergence of new diseases like HIV/AIDS.

²-4: Mortality Trends in Kenya

Infant mortality rate decreased from 119 per 1000 live births to 88 between 1969 and 1979 and to 60 during the 1979-1989 inter-censal period. Rises in

infant mortality rates have been observed from various Kenya Demographic Health Surveys (KDHS) results. The rates rose from 60 to 62 between 1989 and 1993 and then again to 74 in 1998 and further to 78 in 2003 (NCPD et al, 2003).

On average, child mortality rate dropped from 219 per 1000 live births in 1962, to 190 in 1969, to 157 in 1979, and to 113 in 1989 according to census data (CBS, 1996). There was evidence of an increase in child mortality between 1989 and 1999. There was a 3% rise of child mortality between 1989 and 1999 intercensal period at the national level. Bungoma district had child death of 145 per 1000 live births as compared to 128 in Nairobi and 64 in Nyeri districts between 1989 and 1999 (CBS, 2002). KDHS results show that child mortality rate rose from 89 to 114 per 1000 live births between 1989 and 2003. It stood at 89 in 1989, 96 in 1993, 112 in 1998, and 114 in 2003 (NCPD et al, 2003).

Life expectancy at birth for males increased from 47 years in 1969 to 52 years between 1969 and 1979 and to 58 years between 1979 and 1989 intercensal periods. Female life expectancy also increased from 51 years in 1969 to 55 years in 1979 (CBS, 1996). Between 1989 and 1999 intercensal period, life expectancy declined to 56 years on average for both sexes. Low expectation of life was prominent in Bungoma district which had 59 years as compared 65 and 69 in Nairobi and Nyeri districts respectively between 1979 and 1989. Between 1989 and 1999, life expectancy in Bungoma had declined to 54 years while it declined to 54 and 60 years in Nairobi and Nyeri respectively (CBS, 2003).

Crude death rate declined from 17 per thousand population to 14 between 1969 and 1979 and to 10 between 1979 and 1989. In 1989 crude death rate was 10.6 per thousand population while it was 12 in 1999.

2.4: Major Causes of Death

Infectious and parasitic diseases are the most important causes of death in Africa. They have very serious impacts on children but they also cause deaths of adolescents and adults more often than in other parts of the world (Oru Buloye, 1991). In each year worldwide, more than 11 million people die from infectious and parasitic diseases and yet most of them are preventable or curable (WHO, 2002). As the population starts ageing with declining fertility, the number of older persons shifts natural morbidity and mortality profiles towards a greater incidence of chronic and degenerative ailment thus changing the trends of mortality

According to WHO/CDC (2002), in Africa and South East Asia, 2/3 of deaths among all age groups in the year 2000 resulted from AIDS which accounted for 13%, maternal and peri-natal conditions (11%), diarrhoeal diseases (9%), acute respiratory infections (9%), malaria (6%), measles (5%), tuberculosis (4%), while other diseases accounted for 43%.

Globally, an estimated 1.8 billion episodes of childhood diarrhoea occur every year and more than 3 million children aged below 5 years die from diarrhoea related causes annually (WHO, 1995). According to the same source, worldwide, diarrhoea accounts for 20% of all deaths among children under five years. Recent estimates by WHO suggest that more than 11 million children die from effects of the disease and malnutrition. A review by Kirkwood (1991) of more than a hundred surveys of longitudinal studies in diarrhoeal diseases in 33 sub-Saharan African countries found out that overall median incidences of diarrhoea was 4.9% episodes per year for a child aged less than 5 years. In sub-Saharan Africa, diarrhoea is the second most common cause of death during the post-neonatal period and also among children aged 1 to 4 years.

It is estimated that a third of the global adult population of 1.1 billion people are smokers and users of tobacco in various other forms in many regions of the world. In developing countries, an estimated 48% of men and 7% of women are smokers. Each year, smoking tobacco causes 4 million deaths, which translates to 1100 deaths per day. By 2030, it is projected that tobacco epidemic will be the leading cause of death killing more than 10 million people annually (WHO, 2002).

According to WHO (2003), there are 46 million abortions performed worldwide each year and 20 million are unsafe according to WHO definition of unsafe abortion. Out of 20 million abortions, 70,000 women die each year, which makes abortion a public health issue, and unsafe abortion is a major cause of maternal mortality. Maternal mortality is worse in rural areas as a result of induced abortions, which are a major health hazard and may be responsible for 1/3 to 1/2 of all maternal deaths in some developing countries (Freska et al, 1991). A study in Kenyatta National Hospital indicated a maternal mortality rate of 224-480 per 100,000 live births between 1972 and 1979 (Makokha, 1980). A study on maternal mortality at national level indicated that the level could range from 300 to 400 per 100,000 live births in 1994. There exist significant regional differences with Coast and Western provinces having a rate of 1000 per 100,000 live births while central parts of Kenya have fairly low levels of about 100 per 100,000 live births (PSRI/UNICEF, 1994).

Scattered small-scale studies indicate the crucial importance of infant and child feeding practices, severe food shortages and the burden of various diseases in determining the levels and patterns of childhood mortality. Malnutrition has been pointed out as a major factor in determining mortality levels. Recent research from developing countries suggests that a woman

with very close births, e.g. less than 2 years, will face higher risks of death with her children due to inadequate recovery from the previous pregnancy and also due to competition for nutrients by the children (WHO, 1990). In Kenya, estimates show that about 23,000 child deaths in the year 2000 were associated with moderate to severe malnutrition (CBS, 2003). Malnutrition accounted for 1.7% of all hospital admissions in public hospitals and was ranked tenth among leading causes of death among infants in 1999. It was the sixth leading cause of death and accounted for 3.2% of all hospital admissions among children aged 1 to 4 years in the same year. Among males, it was the tenth leading cause of death and accounted for 1.8% of all deaths in public hospitals (MoH, 2001). Table 2.1 below is a summary of the five major causes of death in Kenya in 1990, 1996, 1998 and 1999.

Table 2.1: Leading causes of death in Kenya

Rank	1990	1996	1998	1999
1	Malaria (1962)	Malaria (2471)	Malaria (3780)	Malaria (5319)
2	Pneumonia (1545)	Pneumonia (2099)	Pneumonia (3745)	Pneumonia (4818)
3	Anaemia (1178)	Anaemia (1211)	Anaemia (2221)	HIV/AIDS (2787)
4	Tuberculosis (577)	Diarrhoea (1179)	Diarrhoea (1819)	Diarrhoea (2509)
5	III defined Intestinal infectic (557)	Tuberculosi (1075)	Tuberculosis (1627)	Anaemia (2371)

Source: MoH/UNICEF 1990 and 2001

Note:() = Number of deaths reported from that cause

Malaria was the leading cause of death throughout the period and accounted for 14.2%, 11.7%, 13.2%, and 14% of all deaths in government hospitals

respectively (MoH/UNICEF, 1990; MoH, 2001). It is estimated that 26,000 children below the age of 5 years die of malaria in Kenya each year. Malaria ranks as the most diagnosed condition among in-patients, outpatients and deaths in hospitals in most districts in Kenya. Case fatality rate for malaria in 1999 was 6.6% (MoH, 2001; MoH/UNICEF, 1990).

Most of the deaths from pneumonia were concentrated among infants and children aged 1 to 4 years although the disease is also common among adults. In 1999, pneumonia accounted for 20% of all deaths among infants and was ranked second as the leading cause of hospitalisation among the age group 1 to 4 years. It was the second leading cause of death among adults accounting for 12% of all deaths in public hospitals in 1999 (MoH/UNICEF, 1990; MoH, 2001).

In 1999, anaemia accounted for 7.4% of all infant deaths and it was the fifth leading cause of death. It was the third leading cause of hospital admissions among children aged 1 to 4 years in the same year accounting for 10% of all hospital admissions. Out of all the hospital admissions in all ages resulting from anaemia, 16% died (MoH, 2001; MoH/UNICEF, 1990).

Tuberculosis was the fourth leading cause of death in 1990 accounting for 4.2% of all deaths. Case fatality rate for tuberculosis was 25% in 1999 (MoH/UNICEF, 1990; MoH, 2001). Heart failure and measles were among the ten leading causes of death in 1990. Heart failure was ranked tenth in 1999 and seventh in 1990 (MoH/UNICEF, 1990; MoH, 2001).

Rehydration, essentially a childhood disease, accounted for 3.3% in 1999 and 2.2% in 1990 of the total deaths in public hospitals. It was responsible for 5% of all deaths among infants in 1999. The case fatality rate for

dehydration is very high and about 25% of all hospital admissions from dehydration in 1999 died (MoH/UNICEF, 1990; MoH, 2001).

The leading causes of death among infants in 1999 were pneumonia, malaria, disorders due to short gestation and low birth weight, and diarrhoea and gastroenteritis. Other causes of death were anaemia, and bacterial sepsis of newborn. Among males, the five leading causes of death in 1996, 1998 and 1999 were malaria, pneumonia, diarrhoea, gastroenteritis and HIV/AIDS. Injuries are also among the ten leading causes of deaths among males accounting for 4%. Among women in the same period, the leading causes of deaths were malaria, pneumonia, HIV/AIDS, anaemia, and heart failure (MoH, 2001).

According to Omolo (2002), pneumonia, HIV/AIDS, malaria and tuberculosis were the leading causes of death in Nairobi, Nyeri and Bungoma. Pneumonia was the leading cause of death in Nairobi and Nyeri while malaria was the leading killer in Bungoma in the year 1999. Infectious and parasitic diseases were the leading causes of death in the broader category. According to the same source, infectious diseases accounted for 28.3% in Nairobi, 24.9% in Nyeri and 53.4% in Bungoma. Diseases of the respiratory system were the second major cause of death in the three districts as they accounted for 16.8% in Nairobi, 22% in Nyeri and 13.3% in Bungoma.

By the end of June 1996, WHO estimated 28 million people worldwide to be infected with HIV/AIDS and 5 million deaths. The HIV/AIDS situation in Kenya progressed from 1 case in 1984 to 200,000 in 1996. Current estimates indicate that 2.2 million Kenyans are HIV positive, while 1.5 millions have died since 1984. The majority of AIDS cases fall within the age groups 15-49 Years (MoH, 2002). AIDS was ranked as the fifth leading cause of death among males and accounted for 5.9% of all hospital deaths while it was

ranked third among women accounting for 8.4% of all hospital deaths in public hospitals in 1999 (Ministry of Health, 2001). It was the third overall leading cause of death in 1999.

CHAPTER 3

METHODOLOGY

This chapter deals with the sources of data, data quality and methods of data analysis.

3.1: Sources of Data

The study used secondary data from the vital registration system, population census reports and various KDHS data sets.

3.2: Data Quality

Data from the vital registration system in Kenya have not been widely used to analyse demographic changes. This has been due to the low coverage of vital events and inaccuracy of the data. While this situation is still true at national level, there are some pockets where registration coverage is relatively high. For this study, a purposive selection of 3 districts (Nairobi, Nyeri and Bungoma) was done based on the rate of coverage of vital events as can be seen in Table 3.1 below.

Table 3.1: Registration Coverage of Deaths, 1999-2002

District	Expected Deaths				Registered Deaths				Rate of Coverage (%)				
	1999	2000	2001	2002	1999	2000	2001	2002	1999	2000	2001	2002	Average
Nairobi	19932	21297	22132	22979	15398	17498	15509	15975	77	82	70	70	75
Nyeri__	6413	6630	6626	6617	4990	5300	5718	5690	78	80	86	86	83
Buncjoma_	10781	11474	11868	12267	6501	7019	6858	8855	60	61	58	72	63

Source: Vital Registration Records

Because there are very many causes of death, WHO has classified them into broad Groups. Causes of death from the vital registration system are tabulated in such broad groups and also by specific causes. This study

considered both. However, it only considered the 5 major causes of death in both the broad and specific classification.

Deaths by occupation were also analyzed since this aspect is captured by the vital registration system and this study picked on the first ten occupations where most of the deaths were concentrated. The period under review was 1999-2002 and the study dealt with all the caees registered in the three districts during this period.

3.3: Methods of Data Analysis

Trends by various indicators of mortality were generated. These were compared using different characteristics e.g. region, sex and age. Frequencies of causes of deaths were generated and characteristics such as age, sex and region were used for comparisons. Bivariate analysis was be used to compare and contrast levels of different mortality indicators.

3.4: Definition of Variables and their Measurements

The following study variables were be used to bring out the mortality trends:

- Infant mortality rate
- Child mortality rate
- Life expectancy

The study variables by major causes of deaths were: -

- Age
- Sex
- Occupation
- hiv/aids

CHAPTER 4

TRENDS IN MORTALITY RATES

4.1: Introduction

In the past century, expectation of life at birth in the world as a whole increased by about 20 years and the risk of dying has been reduced by nearly 2/3. However, these achievements fall short of the much greater improvements anticipated in the World Population Plan of Action and the Alma-Ata declaration adopted by the international conference on primary health care in 1978. There remain entire national populations and sizeable population groups within many countries that are still subject to very high rates of morbidity and mortality. Important progress has been made in reducing infant mortality rates everywhere. The number of infant deaths per thousand live births at the world level declined from 92 between 1970 and 1975 to about 62 between 1990 and 1995. The rates in developing countries dropped from 105 to 69 infant deaths per 1000 live births within the same period. Improvements have been slower in sub-Saharan Africa where during 1990 to 1995 more than one in every 10 children born alive died before their first birthday. The International Conference on Population and Development drew up a Plan of Action for reducing infant and child mortality. Countries strived to reduce infant and under five mortality rates by one third or to 50% and to 70% per 1000 live births respectively whichever was less in the year 2000. By the year 2005, countries with intermediate levels should aim to achieve an infant mortality rate below 50 deaths per thousand live births and an under five-mortality rate of 60 deaths per thousand live births. Countries that achieve these levels should strive to lower them further.

4-2: Infant and Child Mortality in Kenya

Mortality trends in Kenya declined between 1962 and the 1980s but started ^{nsin}9 during the late 1980s. Table 4.1 shows infant and child mortality rates

over the years from two data sources. It is clear from Table 4.1 that indicators of mortality show a steady decline in infant and child mortality from 1962-1969. The percentage decline between these periods was almost 100%. The pace of decline slowed gradually between 1979 and 1989 and then it rose again as indicated by 1999 census figures. For instance, child mortality declined from 219 to 125 per thousand live births between 1962 and 1969 and even further to 105 in 1979. However, this rose to 113 in 1989 and stood at 116 per thousand live births in 1999. A similar trend, though with different mortality levels, is depicted by data from the Kenya Demographic and Health Survey (KDHS).

Table 4.1: Childhood Mortality Rates from various Sources

Indicator	Census					KDHS				
	1962	1969	1979	1989	1999	1984	1989	1993	1998	2003
IMR	225	119	88	62	77	58	60	62	74	2003
U-5fAR	219	125	105	113	116		93	93	105	115

Source: Census and KDHS Reports

Childhood mortality differentials by region are evident from Table 4.2 below. Infant and child mortality was highest in Bungoma and lowest in Nyeri district, the rates in Bungoma were higher than the national level while it was the reverse for Nyeri and Nairobi districts. This could be attributed to multiple factors ranging from socio-economic, demographic and geographic factors peculiar to each region.

**Table 4.2: Childhood Mortality in Nairobi,
Bungoma and Nyeri Districts**

IMR	Year	1962	1969	1979	1989	1999
	Kenya	225	119	105	62	77
	Nairobi	-	-	-	49	50
	Bungoma	-	-	-	92	97
	Nyeri	-	-	-	21	27
U-5MR	Kenya	219	125	105	113	116
	Nairobi	-	128	104	75	93
	Bungoma	-	209	169	140	145
	Nyeri	-	116	62	37	53

Source: Census Reports

4.3: Life Expectancy

Life expectancy improved initially both nationally and regionally. For instance, life expectancy at national level improved from about 47 to 58 years for males between 1962 and 1989 respectively but declined to 53 years in 1999. Expectation of life for females in the same period improved from 51 to 66 years but declined to 60 years in 1999. The trends were similar even at the regional level as depicted in Table 4.3. The decline in life expectancy could be linked to emerging and re-emergence of new diseases due to adoption of Western lifestyles. Other reasons which could be responsible for this decline are the ever-increasing level of poverty and hiv/aids.

Table 4.3: Life Expectancy, 1969-1999

Year	1969		1979		1989		1999	
	M	F	M	F	M	F	M	F
Kenya	46.9	51.2	52.0	55.1	57.9	65.9	52.8	60.4
Nairobi	-	-	-	-	65.3	66.8	54.1	59.8
Bungoma	-	-	-	-	58.9	60.7	54.3	61.5
Nyeri	-	-	-	-	69.3	69.6	60.2	67.7

Source: Census Reports

CHAPTER 5

BACKGROUND CHARACTERISTICS OF THE DECEASED

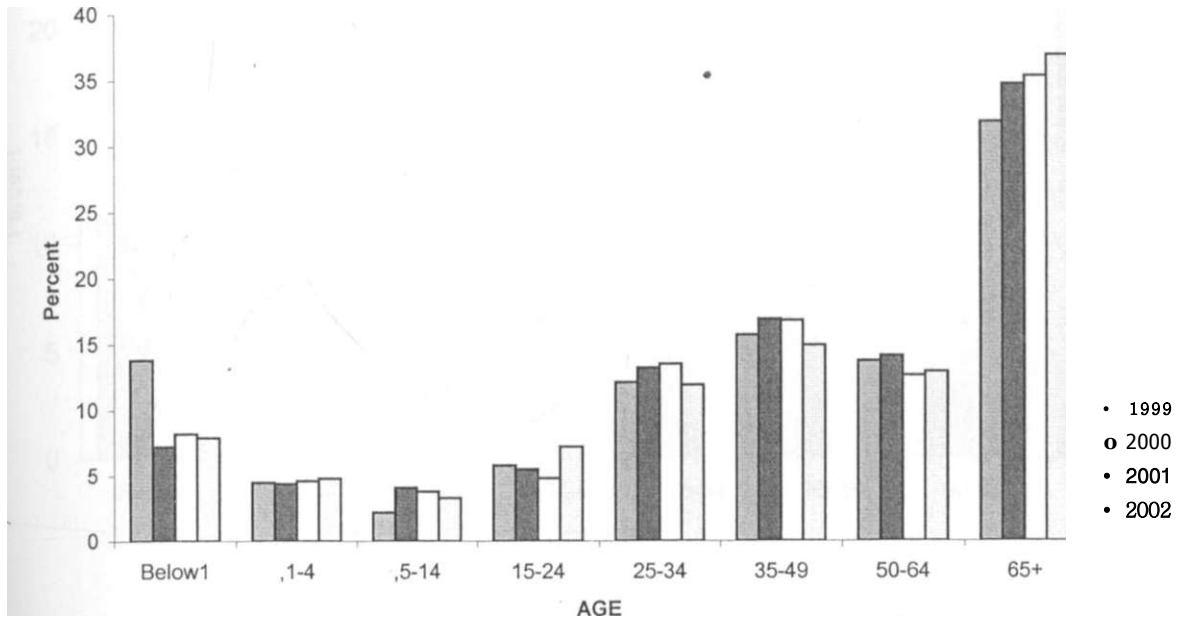
5.1: Introduction

This chapter discusses the characteristics of the study population in reference to the variables that were discussed in the earlier chapters. They include age, sex, occupation and cause of death.

5.2: Distribution of the Deceased by Age and Sex

During the period under review, more males than females died in all the three districts. Male deaths accounted for about 54% of the total deaths in Nyeri district, 55% in Bungoma and about 57% in Nairobi. Most of the deaths in five-year age groups were concentrated in the 0-4 age group in all the districts throughout the period. Infant deaths in Nyeri accounted for between 8% in 2002 and 13.8% in 1999 while child deaths accounted for between 4.4% in 2000 and 4.6% in 2001. The number of deaths increased gradually from the 15-49 age group but dropped for those aged 50-64 years. It rose again steeply in the older ages of 65 years and above. Figure 5.1 shows the distribution of the deceased population by age.

Figure 5.1: Percent Distribution of the Deceased by Age , Nyeri District



The distribution of the deceased population by age in Bungoma district is illustrated in Figure 5.2 Infant deaths accounted for between 11.4% in 1999 and 17.5% in 2002. The percentage of child deaths in Bungoma ranged between 20% in 2002 and 23% in 2001. Ages 15-24 and 50-64 had the lowest number of deaths in Bungoma for the four-year period. The number of deaths rose gently from age 15 to 49 years and then dropped for the age group 50-64.

Figure 5.2: Percent Distribution of the Deceased by Age, Bungoma District

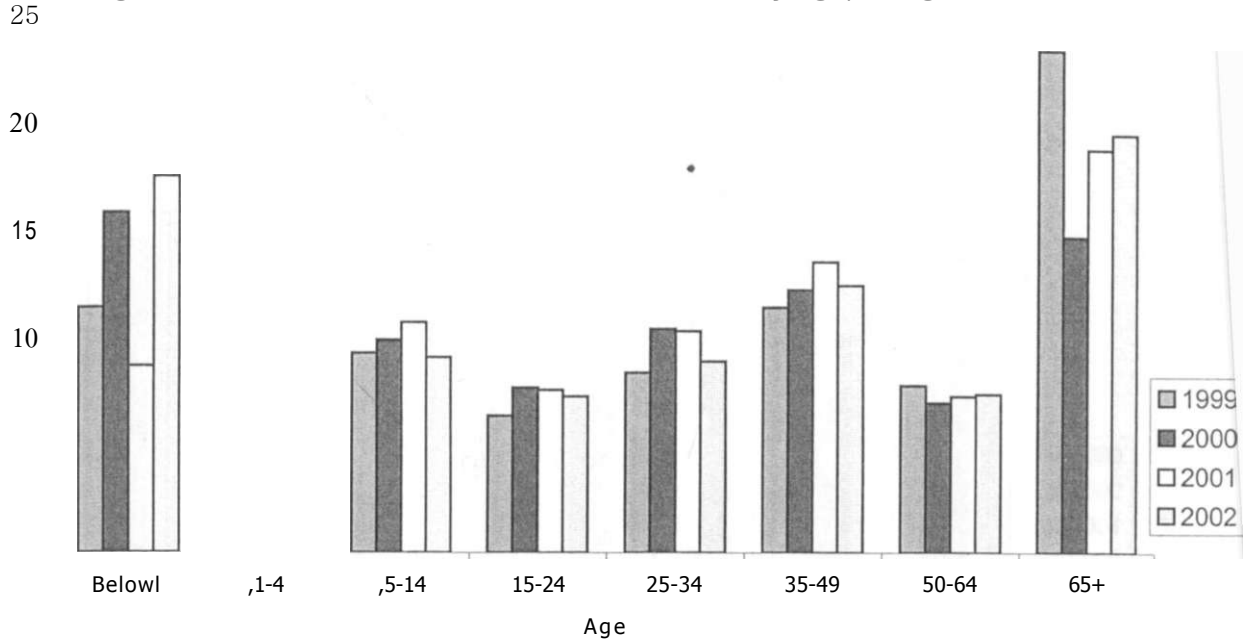
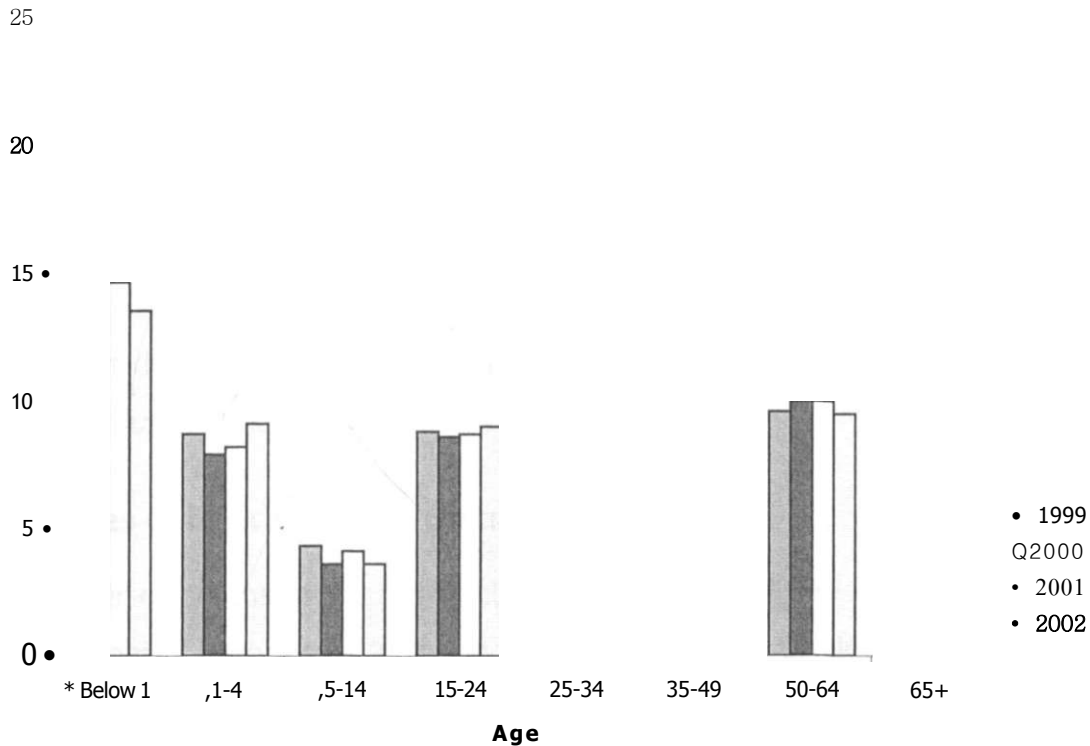


Figure 5.3 illustrates the percentage distribution of the deceased by age in Nairobi district. Infant deaths accounted for between 14% in 2002 and 15% in 2001 in Nairobi district. In the same district, child deaths ranged between 8% and 9% of the total deaths during the period under review. The lowest number of deaths were observed in age group 15-24 years accounting for about 4% of the total deaths. This trend changed drastically with the number of deaths rising steeply with age. The number of deaths in the next two age groups ranged between 18% and 20% of the total deaths.

Figure 5.3: Percent distribution of the deceased by age, Nairobi district



5.3: Distribution of the Deceased by Occupation

The study focused on ten occupations that had the highest frequencies in all the districts in the four years. In Nyeri district, farming (either farm workers or those in subsistence agriculture) accounted for the largest number of deaths- between 39% and 49%. Occupations such as teaching, sales and services were associated with the lowest number of deaths.

As was the case in Nyeri, farming was associated with the highest number of deaths in Bungoma district between 1999 and 2002. While it accounted for between 10% and 16% of the deaths, drivers and sales and services were associated with the lowest risk of death.

In Nairobi district, occupations with the highest frequencies were housewife and the unemployed. They both accounted for between 10% and 11%. Occupations, which had the lowest number of deaths were drivers, labourers in construction and teaching- contributing for between 1% and 2% of the total deaths.

5.4: Distribution of deaths by Cause

The study picked five causes of death that had the highest frequencies in each district during the four years. Tables 5.1, 5.2 and 5.3 are a summary of the major causes of death in each district.

5.5: Causes of Death in Nyeri District

The number of deaths in Nyeri district ranged between 4,845 and 5,643 in the four years. Between 1999 and 2002, the causes of death with the highest frequency were pneumonia, HIV/AIDS, malaria, tuberculosis, sudden death and anaemia. The five causes together accounted for about 43% of the total deaths. HIV/AIDS and malaria accounted for about 10% and 7% respectively during the review period. The distribution of the major causes of death is illustrated in Table 5.1 below.

Table 5.1: Distribution of major causes of death in Nyeri district, 1999-2002

Cause of death	1999		2000		2001		2002	
	Number	%	Number	%	Number	%	Number	%
Pneumonia	764	15.8	793	15.1	982	17.4	888	15.7
HIV/AIDS	526	10.9	661	12.6	648	11.5	504	8.9
Malaria	356	7.3	337	6.4	369	4.8	497	8.8
Sudden death	242	5.0	201	3.8	264	6.5	335	5.9
Tuberculosis	179	3.7	217	4.1	272	4.7	-	-
Anaemia	-	-	-	-	-	-	206	3.7
Others	2778	57.3	3034	57.9	3008	53.3	3210	56.9
Total	4845	100	5243	100	5643	100	5640	100

•Not among the five major causes

5.6: Causes of Death in Bungoma District

Sample sizes for Bungoma district ranged from a minimum of 6,357 deaths in 1999 to 8,570 deaths in 2002. As shown in Table 5.2, the causes of death with the highest frequencies between 1999 and 2002 were: malaria contributing about 40% of all deaths; pneumonia (about 10%); and anaemia (about 6%). HIV/AIDS and tuberculosis accounted for about 5% and 4% of all deaths during the same period.

Table 5.2: Distribution of major causes of death in Bungoma district, 1999–2002

Cause of death	1999		2000		2001		2002	
	Number	%	Number	%	Number	%	Number	%
Malaria	2501	39.3	2667	39.6	2616	40.4	3209	37.4
Pneumonia	811	12.8	751	11.1	639	9.9	874	10.2
Anaemia	406	6.4	452	6.7	492	5.8	655	7.6
Tuberculosis	234	3.9	301	4.9	262	4.0	332	3.9
HIV/AIDS	218	3.7	329	4.5	375	7.6	253	3.0
Others	2160	33.9	2336	33.2	2593	32.3	5323	37.9
Total	6357	100	6736	100	6477	100	8570	100

5.7 Causes of death in Nairobi

As Table 5.3 shows, the analysis of causes of death in Nairobi between 1999 and 2002 involved a minimum of 15,421 deaths in 2001 and a maximum of 17,418 deaths in 2000. During the period under review, pneumonia was the leading cause of death being responsible for about 13% of all deaths. HIV/AIDS and tuberculosis were next at about 9% each. Fourth and fifth causes of death were malaria and gastroenteritis, which accounted for about 6% and 5% of all deaths respectively.

Table 5.3: Distribution of causes of major death in Nairobi, 1999-2002

Cause of death	1999		2000		2001		2002	
	Number	%	Number	%	Number	%	Number	%
Pneumonia	2010	12.8	2302	13.2	2183	14.2	1937	12.2
HIV/AIDS	1391	8.8	1780	10.2	1598	10.4	1192	8.1
Tuberculosis	1382	8.8	1608	9.2	1585	10.3	1284	7.5
Malaria	977	6.2	982	5.6	836	5.4	1121	7.1
Gastroenteritis	929	5.9	922	5.3	741	4.8	1000	6.3
Others	9044	57.5	9824	56.4	8469	55.0	9331	58.8
Total	15733	100	17418	100	15412	100	15865	100

5.8: Causes of Death by Sex of the Deceased, Nyeri District

Differentials in causes of death by sex of the deceased did not yield any major variations in the four-year period in Nyeri. For example, pneumonia was the leading cause of death in three of the four years under review (the other cause of death being HIV/AIDS) in males while each of these two causes of death were responsible for the majority of female deaths in equal durations of two years each.

5.9: Causes of Death by Sex of the Deceased, Bungoma District

The leading cause of death in Bungoma district for the four years was malaria for both sexes. It accounted for about 40% of the total deaths in the same period. Pneumonia and anaemia were the second and third leading causes of death, accounting for about 10% and 8% respectively for both sexes.

5.10: Causes of Death by Sex of the Deceased, Nairobi District

Pneumonia was the leading cause of death by sex in Nairobi accounting for about 13% of the total deaths between 1999 and 2002. Tuberculosis was the second leading cause of death among males in all the years but only in 2000 among females. HIV/AIDS occupied the second position among females throughout the period apart from 2000 when it ranked third. It

accounted for about 10% of the total deaths among females and 8.5% among males.

5.11: Causes of Death by Age of the Deceased, Nyeri District

A summary of causes of death by age is presented in Table 5.4. Pneumonia claimed the highest number of deaths among infants and children aged 1-4 years in Nyeri district. For the period under review, it claimed between 28% and 39% of infant deaths and between 25% and 43% of child deaths. Prematurity, which ranked second, accounted for between 10% and 22% of deaths among infants in the same period. Other causes of death common among children were gastroenteritis and dehydration. Within age 15 to 49 years, HIV/AIDS was the leading cause of death, accounting for between 13% and 34% of the total deaths from 1999 to 2002. The greatest impact was in the age group 25-49 years where it accounted for between 21% and 34% of the total deaths. Hypertension and diabetes were common causes of death among the ageing population (50 years and above). Pneumonia and malaria were the two leading causes of death across all ages but their greatest impacts were on the population under five.

5.12: Causes of Death by Age of the Deceased, Bungoma District

Malaria was the leading cause of death in Bungoma district for the four-year period at almost all ages as depicted in Table 5.5. It accounted for 46% to 59% of the total deaths among infants between 1999 and 2002. Among the under five, malaria accounted for between 53% and 60% of deaths. Infant and children below 5 years were the most affected, with more than 50% of deaths resulting from malaria. Measles, which is preventable, accounted for about 3% of the total deaths among under five. Other prevalent killers in Bungoma district were malnutrition and anaemia. In 1999 and 2001, HIV/AIDS was the leading cause of death in the age group 34-39 accounting

for an average of about 19% of the total deaths. Cancer was common in older ages (65 and above) in all the years and contributed an average of about 4% of the total deaths.

5.13: Causes of Death by Age of the Deceased, Nairobi District

During the four-year period, pneumonia was the leading cause of death among infants and under five in Nairobi. As presented in Table 5.6, it accounted for about 24% to 34% of the total deaths in each of these age groups. Pre-maturity was ranked second among infants and it contributed between 7% and 15% of the total deaths. The causes of death that afflicted children aged 1-4 years were similar to those for infants, although HIV/AIDS and malnutrition were common among those aged 1-4. Tuberculosis was the leading cause of death in several age groups for various years. For instance, in 1999 and 2002, tuberculosis accounted for about 10% to 15% of the total deaths in the age groups 15-34 and 50-64. HIV/AIDS accounted for about 20% of the total deaths in age groups where it was recorded as the leading cause of death. However, there is no clear pattern of causes of death by age in Nairobi for the four years especially when only the leading cause is analysed. A detailed analysis of the cause of death can be seen in Appendices 8 to 12.

Table 5.4: Leading causes of death by age, Nyeri District

Age group	Cause of death	1999			2000			2001			2002					
		Sample size	Number	%	Cause of Death	Sample size	Number	%	Cause of death	Sample size	Number	%	Cause of death	Sample size	Number	%
<1	Pneumonia	685	194	28.3	Pneumonia	382	106	27.7	Pneumonia	468	183	39.1	Pneumonia	445	171	38.4
1-4	Pneumonia	223	82	36.8	Pneumonia	226	98	43.4	Pneumonia	260	66	25.4	Pneumonia	222	65	29.3
5-14	Pneumonia	110	28	25.5	Pneumonia	215	35	16.3	Pneumonia	215	70	32.6	Pneumonia	187	39	20.9
15-24	AIDS	282	37	13.1	AIDS	293	52	17.7	Pneumonia	293	27	9.9	AIDS	407	53	13.0
25-34	AIDS	594	58	11.7	AIDS	692	235	34.0	AIDS	692	203	26.8	AIDS	678	202	29.8
35-49	AIDS	765	209	27.3	AIDS	745	252	33.8	AIDS	745	276	29.1	AIDS	847	180	21.3
50-64	Pneumonia	667	65	9.7	AIDS	736	61	8.3	Pneumonia	743	74	10.3	Pneumonia	737	89	12.1
65+	Pneumonia	1519	147	9.7	Pneumonia	1812	326	17.9	Pneumonia	2007	408	20.3	Sudden death		391	18.5
														2117		

Table 5.5: Leading causes of death by age, Bungoma District

Age group	Cause of death	1999			2000			2001			2002					
		Sample size	Number	%	Cause of death	Sample size	Number	%	Cause of death	Sample size	Number	%	Cause of death	Sample size	Number	%
<1	Malaria	723	397	54.9	Malaria	1079	612	56.7	Malaria	587	344	58.6	Malaria	1504	688	45.7
1-4	Malaria	1401	823	58.7	Malaria	1514	872	57.6	Malaria	1497	893	59.7	Malaria	1720	911	53.0
5-14	Malaria	704	367	52.1	Malaria	658	353	53.6	Malaria	784	367	52.1	Malaria	777	338	43.5
15-24	Malaria	495	166	33.9	Malaria	515	133	28.8	Malaria	490	166	33.9	Malaria	613	156	25.4
25-34	Malaria	663	144	21.8	Malaria	698	137	19.6	Malaria	661	144	21.8	Malaria	776	131	16.9
35-49	AIDS	670	162	17.9	Malaria	826	135	16.3	AIDS	591	159	9.1	Malaria	1073	219	20.4
50-64	Malaria	453	91	10.2	Malaria	472	88	18.6	Malaria	453	91	10.2	Malaria	625	142	22.7
65+	Malaria	1199	452	37.7	Malaria	974	337	34.6	Malaria	1991	452	37.7	Malaria	1681	624	37.1

Table 5.6: Leading causes of death by age, Nairobi district

Age group	Cause of death	1999			2000			2001			2002					
		Sample size	Number	%	Cause of Death	Sample size	Number	%	Cause of Death	Sample Size	Number	%	Cause of Death	Sample size	Number	%
<1	Pneumonia	29.2	730	25.1	Pneumonia	2493	628	25.2	Pneumonia	2254	767	34.0	Pneumonia	2158	521	24.1
1-4	Pneumonia	1371	352	25.7	Pneumonia	1378	408	29.6	Pneumonia	1268	408	32.2	Pneumonia	1450	343	23.7
5-14	Pneumonia	679	126	18.6	Pneumonia	624	80	12.8	Pneumonia	641	109	17.0	Malaria	575	79	13.7
15-24	Tuberculosis	1388	126	9.1	Tuberculosis	1493	146	9.8	Tuberculosis	1343	152	11.3	Malaria	1425	121	8.5
25-34	Tuberculosis	2907	452	15.5	AIDS	3026	622	20.6	Tuberculosis	3035	576	19.0	Tuberculosis	2870	422	14.7
35-49	AIDS	3207	562	17.5	AIDS	3311	666	20.1	AIDS	3363	644	19.1	Tuberculosis	3266	460	14.1
50-64	Tuberculosis	1514	147	4.6	Tuberculosis	1739	161	9.3	Tuberculosis	1543	140	9.1	Tuberculosis	1521	123	8.1
65+	Pneumonia	1748	190	10.9	Pneumonia	2841	518	18.2	Pneumonia	1965	255	13.0	Hypertension	2600	121	4.7

5.14: Causes of Death by Occupation of the Deceased, Nyeri District

The three leading causes of death among farm workers were similar throughout the period under review. The other causes of death in different occupations are shown in Table 5.7 below. Pneumonia was the leading cause of death while malaria was ranked second between 1999 and 2001. In the same period, HIV/AIDS was the third leading cause of death in that occupation. Among the workers in subsistence agriculture, sudden death was listed among the three leading causes but the others were similar to those listed among the farm workers. HIV/AIDS was the leading cause of death among business professionals, drivers and sales and services for the same period. Students also were affected by HIV/AIDS, as it was the leading cause of death in three out of the four years. Road traffic accidents were also worth noting because they dominated third position between 2000 and 2002 among drivers. In the four years under review, tuberculosis ranked second as a leading cause of death among drivers probably because it was an opportunistic disease as a result of HIV infection.

Table 5.7: Major causes of death by occupation of the deceased, Nyeri district, 1999-2002

Occupation	Three leading causes of death			
	1999	2000	2001	2002
Farm workers	Pneumonia	Pneumonia	Pneumonia	Pneumonia
	Malaria	Malaria	Malaria	HIV/AIDS
	HIV/AIDS	HIV/AIDS	HIV/AIDS	Malaria
Subsistence agriculture	Pneumonia	Pneumonia	Pneumonia	Pneumonia
	Sudden death	HIV/AIDS	• Sudden death	HIV/AIDS
House wife	Malaria	Sudden death	Tuberculosis	Sudden death
	HIV/AIDS	Pneumonia	Pneumonia	Pneumonia
	Pneumonia	HIV/AIDS	HIV/AIDS	HIV/AIDS
Business professional	Hypertension	Malaria	Malaria	Malaria
	HIV/AIDS	HIV/AIDS	HIV/AIDS	HIV/AIDS
	Tuberculosis	Pneumonia	Tuberculosis	Pneumonia
Student	Pneumonia	Tuberculosis	Hypertension	Tuberculosis
	Malaria	HIV/AIDS	HIV/AIDS	HIV/AIDS
	Renal failure	Pneumonia	Pneumonia	Pneumonia
Unemployed	Malaria	Malaria	Malaria	Malaria
	Pneumonia	Pneumonia	Pneumonia	Pneumonia
	HIV/AIDS	HIV/AIDS	HIV/AIDS	HIV/AIDS
Drivers	Malaria	Tuberculosis	Tuberculosis	Tuberculosis
	HIV/AIDS	HIV/AIDS	HIV/AIDS	HIV/AIDS
	Tuberculosis	Tuberculosis	Tuberculosis	Tuberculosis
Labourer construction	Haemorrhage	RTA	RTA	RTA
	HIV/AIDS	Tuberculosis	Tuberculosis	Tuberculosis
	Pneumonia	Pneumonia	Pneumonia	Pneumonia
	Anaemia	Malaria	Malaria	Malaria

5.15: Causes of Death by Occupation of the Deceased, Bungoma District

Table 5.8 shows the leading causes of death among different occupations. In Bungoma district, differentials in causes of death by occupation of the deceased did not portray any peculiar pattern. Malaria was the leading cause of death in almost all the occupations for the period under review. However, HIV/AIDS was leading among teachers in 2000 and 2001. From 2000-2002, HIV/AIDS was also the leading cause of death among business professionals.

Table 5.8: Major causes of death by occupation of the deceased, Bungoma district

Occupation	Three leading causes of death			
	1999	2000	2001	2002
Housewife	Malaria	Malaria	Malaria	Malaria
	Pneumonia	HIV/AIDS	HIV/AIDS	Anaemia
	HIV/AIDS	Tuberculosis	Anaemia	HIV/AIDS
Unemployed	Malaria	Malaria	Malaria	Malaria
	HIV/AIDS	Tuberculosis	Pneumonia	Pneumonia
	Pneumonia	Pneumonia	HIV/ACS	Anaemia
Farm workers	Malaria	Malaria	Malaria	-
	Pneumonia	HIV/AIDS	HIV/AIDS	-
	Anaemia	Pneumonia	Tuberculosis	-
Subsistence Agriculture	Malaria	Malaria	Malaria	Malaria
	Pneumonia	Tuberculosis	HIV/AIDS	Anaemia
	Tuberculosis	Pneumonia	Pneumonia	Pneumonia
Student	Malaria	Malaria	Malaria	Malaria
	Anaemia	Anaemia	Pneumonia	Anaemia
	Pneumonia	Meningitis	Anaemia	Sudden death
Labourer agriculture	Malaria	-	Malaria	-
	Tuberculosis	-	HIV/AIDS	-
	Pneumonia	-	Pneumonia	-
Sales and services	Pneumonia	HIV/AIDS	-	-
	Malaria	Tuberculosis	-	-
	Anaemia	Malaria	-	-
Driver	RTA	-	-	HIV/AIDS
	HIV/AIDS	-	-	Malaria
	Tuberculosis	-	-	Anaemia
Teaching	Malaria	HIV/AIDS	HIV/AIDS	Tuberculosis
	HIV/AIDS	Anaemia	Tuberculosis	Hypertension
	Malaria	Malaria	Malaria	Malaria
Business professional	-	HIV/AIDS	HIV/AIDS	HIV/AIDS
	-	Tuberculosis	Malaria	Gastroenteritis
	-	Malaria	RTA	Malaria
Other professions	-	Malaria	Malaria	HIV/AIDS
	-	HIV/AIDS	HIV/AIDS	Malaria
	-	Anaemia	Anaemia	Anaemia
Armed forces	-	-	-	HIV/AIDS
	-	-	-	Malaria
	-	-	-	Tuberculosis

- Occupation not among the leading ten

5.16: Causes of death by Occupation of the Deceased, Nairobi District

Table 5.9 shows the causes of death by occupation of the deceased. Between 1999 and 2002, HIV/AIDS dominated as the leading cause of death among several occupations in Nairobi district. It was the leading cause among housewives, sales and services and armed forces throughout the period. Causes such as tuberculosis and pneumonia were also common and they ranked second among several occupations such as housewives and armed forces for the period 1999 - 2002.



Table 5.9: Major causes of death by occupation of the deceased, Nairobi district

Occupation	Three leading causes of death			
	1999	2000	2001	2002
Housewife	HIV/AIDS	HIV/AIDS	HIV/AIDS	HIV/AIDS
	Tuberculosis	Tuberculosis	Tuberculosis	Tuberculosis
	Malaria	Malaria	Pneumonia	Pneumonia
Unemployed	HIV/AIDS	Tuberculosis	HIV/AIDS	Tuberculosis
	Tuberculosis	HIV/AIDS	Tuberculosis	HIV/AIDS
	Pneumonia	Pneumonia	Pneumonia	Pneumonia
Business professional	Tuberculosis	HIV/AIDS	HIV/AIDS	Tuberculosis
	HIV/AIDS	Tuberculosis	Tuberculosis	HIV/AIDS
	RTA	Pneumonia	Pneumonia	Pneumonia
Farm workers	Heart failure	HIV/AIDS	HIV/AIDS	-
	HIV/AIDS	Tuberculosis	Tuberculosis	-
	Malaria	Renal Failure	Diabetes	-
Sales & services	HIV/AIDS	HIV/AIDS	HIV/AIDS	HIV/AIDS
	Tuberculosis	Tuberculosis	RTA	Tuberculosis
	Pneumonia	RTA	Tuberculosis	Pneumonia
Armed forces-	HIV/AIDS	HIV/AIDS	HIV/AIDS	HIV/AIDS
	Tuberculosis	Tuberculosis	Tuberculosis	Tuberculosis
	Pneumonia	RTA	Pneumonia	RTA
Retired	Pneumonia	Hypertension	Hypertension	Pneumonia
	Hypertension	Pneumonia	Heart failure	Hypertension
	Pneumonia	Diabetes	Diabetes	Tuberculosis
Other staff	HIV/AIDS	-	-	-
	Pneumonia	-	-	-
	Tuberculosis	-	-	-
Drivers	HIV/AIDS	Tuberculosis	Tuberculosis	HIV/AIDS
	RTA	RTA	HIV/AIDS	Tuberculosis
	Pneumonia	HIV/AIDS	RTA	RTA
Labourers construction	-	Tuberculosis	-	-
	-	Malaria	-	-
	-	HIV/AIDS	-	-
Students	-	-	HIV/AIDS	RTA
	-	-	Pneumonia	Malaria
	-	-	RTA	Tuberculosis
Other professions	-	-	HIV/AIDS	Tuberculosis
	-	-	Tuberculosis	HIV/AIDS
	-	-	RTA	Meningitis

Occupation not among the ten leading

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5-17: Causes of Death by Broad Category

to Nyeri district, respiratory and infectious diseases were the major causes of death, accounting for about 20% and 15% of the total deaths respectively, in the period 1999-2002. Other categories like disease of the circulatory system and diseases of blood and blood forming organs also contributed

significantly to the total deaths, accounting for between 14% and 12% respectively. In Bungoma district, diseases of blood and blood-forming organs were the major causes of death accounting for 47% of the total deaths throughout the period. The other causes of death in order of their magnitude were respiratory and infectious diseases as they contributed an average of about 12% and 10% of the total deaths respectively. Other causes of death in the broad category contributed to less than 10%. Infectious diseases were the major cause of death and accounted for an average of 22% of the total deaths in Nairobi district. Respiratory diseases were ranked the second leading cause of death accounting for about 17% of the total deaths in the same period. Other causes were diseases of blood and blood forming organs, diseases of the digestive system and cancer, which contributed, an average of 9%, 8% and 5% respectively.

In Nyeri district, infectious diseases had the greatest impact on ages 15 to 64 while respiratory diseases contributed highly to ages below 1, 1-4 and 5-14 years. They contributed to an average of about 40%, 29% and 37% of the total deaths in those age groups between 1999 and 2002. Diseases of blood and blood forming organs, contributed to an average of about 48% of the total deaths between 1999 and 2002 in Bungoma district. Respiratory diseases were the second leading cause of death and contributed to about 14% of the total deaths during the period under review. Diseases of the respiratory system had the greatest impact among infants, contributing to about 39% of the total deaths. Infectious diseases had the greatest impact in ages 1 to 65 and above in Nairobi district and accounted for about 24% of the total deaths throughout the period. This was followed by respiratory diseases, diseases of the circulatory system and diseases of blood and blood forming organs. These causes contributed about, 18%, 9% and 8% respectively.

5.18: Deaths due to AIDS by Sex of the Deceased

Table 5.10 shows the distribution of deaths from HIV/AIDS by sex of the deceased in Nyeri, Bungoma and Nairobi districts between 1999 and 2002. Deaths from AIDS affected more females than males in all the three districts for the entire period of the study, except in the year 2001 for Nyeri district. AIDS was not among the five major causes of death among males in Bungoma district in 2002 while it was the fourth leading cause of death among females, accounting for 3% of the total deaths in the same year. The higher number of deaths among females has been explained by various factors including the fact that females are more vulnerable to AIDS infection because of their low status in society. This makes it very difficult for them to negotiate for safe sex. Due to their poor economic status, when affected, they may not be able to purchase antiretroviral to prolong their lives hence succumbing faster than their male counterparts.

Table 5.10: Distribution of deaths from AIDS in Nyeri, Bungoma and Nairobi districts, 1999-2002

Year	Nyeri				Bungoma				Nairobi			
	Male	%	Female	%	Male	%	Female	%	Male	%	Female	%
1999	231	9.1	295	13.0	108	3.0	125	4.4	681	7.7	708	10.3
2000	300	10.4	360	15.5	155	4.2	173	5.8	858	9.6	919	12.0
2001	333	14.0	313	12.7	152	4.3	220	7.6	756	8.8	842	12.3
2002	220	7.4	275	10.4	137	-	116	3.0	563	6.2	623	9.2

Source: vital Registration Data

-Not among the five leading causes of death

5-19: Deaths due to AIDS by Age of the Deceased

Table 5.11 shows the percentage distribution of deaths due to HIV/AIDS by age of the deceased. The most affected age group by deaths due to AIDS was 25-49 years in all the districts for the four years. Nyeri district was the most affected as AIDS deaths accounted for between 21% and 34% of the

total deaths in ages between 25 to 49 years. The older ages (65 years and above) were the least affected in Nyeri district. Bungoma was the least affected by AIDS deaths - with less than 20% of the total deaths. While Bungoma was also the least affected in the younger ages, as deaths from AIDS were insignificant, deaths from AIDS in Nairobi were spread in all ages although the greatest impact was for those aged 25-49. The range was between 13% and 21% of the total deaths except in 2000 when it was about 9% in the age group 35-49. This is an indication that many young people in Nairobi and Nyeri are initiating sex at very early ages and the effect on vertical transmission of HIV as depicted by the proportions of children below 5 years who died from AIDS. The probable link between the proportion of deaths due to AIDS and vertical transmission of the virus from mothers to their children can be seen by the high proportion of deaths in the 1-4 age group for Nyeri and Nairobi.

Table 5.11: Distribution of deaths due to AIDS

Age	Nyeri				Bungoma				Nairobi			
	1999	2000	2001	2002	1999	2000	2001	2002	1999	2000	2001	2002
<1	1.5	3.9	3.8	0.0	0.6	0.6	1.0	0.1	2.0	2.0	5.1	0.9
1-4	1.2	3.5	13.8	3.2	0.6	0.4	0.5	1.3	5.6	6.1	7.2	3.9
5-14	2.7	9.3	7.0	4.8	1.7	1.1	1.3	0.4	1.7	4.5	7.7	4.2
15-24	13.1	17.7	8.1	13.0	5.5	5.4	5.5	1.6	7.4	8.6	16.9	6.9
25-34	30.1	34.0	26.8	29.8	6.4	18.5	6.4	11.2	15.3	20.6	19.1	14.0
35-49	27.3	33.8	29.1	21.3	17.9	14.9	17.9	9.3	17.5	20.1	8.7	13.3
50-64	9.3	8.3	8.0	6.0	6.0	4.2	6.0	3.2	6.0	8.2	3.8	6.7
65+	1.3	1.5	2.0	0.8	0.8	0.9	0.4	0.5	1.8	2.1	2.3	2.1
Total	86.5	112	98.6	78.9	39.5	46	39	27.6	57.3	72.2	70.8	52

5.20: Distribution of deaths due to AIDS by Occupation

The occupation most affected by AIDS in all the districts was business Professionals. AIDS was ranked among the five leading causes of death for housewives in all the districts. AIDS contributed to an average of 15% of the total deaths in all the occupations in Nyeri district. Bungoma was the least affected with only 11% of housewives dying from this cause of death. Other professions most affected by AIDS were business professionals, the

unemployed and drivers as shown in Table 5.12. In Nairobi district, deaths from AIDS impacted heavily among the armed forces having contributed to about 40% of the total deaths. The occupations associated with the lowest risk of death from this disease were students and farmers in all the districts.

**Table 5.12: Percent distribution of deaths due to AIDS
by occupation of the deceased**

Occupation	• Nyeri				Bungoma				Nairobi			
	1999	2000	2001	2002	1999	2000	2001	2002	1999	2000	2001	2002
Farm workers	9.2	9.7	10.2	5.8	6.4	8.8	8.7	3.9	6.7	7.8	9.4	6.7
Agricultural subsistence	8.5	9.7	8.3	4.8	4.3	4.5	8.4	3.2	-	-	-	-
Housewife	18.1	15.6	11.5	15.2	9.3	10.6	15.2	6.5	11.8	15.7	17.6	11.4
Business	22.4	33.7	23.3	29.2	20.2	19.7	23.8	13.5	12.0	16.1	15.8	12.0
Professional												
Student	8.5	2.0	8.5	0	3.2	2.0	3.5	-	2.4	1.9	7.6	2.4
Unemployed	14.5	13.1	9.1	11.2	9.8	6.6	7.0	13.5	13.4	11.2	16.6	13.4
Drivers	22.8	40.7	36.7	16.4	5.4	5.6	-	13.2	15.5	13.7	14.1	17.4
Labourer construction	32.2	7.7	0	-	-	-	0	-	-	9.0	-	-
Teaching	10	22.4	8.5	-	13.6	18.5	18.2	5.3	-	-	-	-
Sale & services	21.0	36.2	20	20.7	8.8	7.8	-	14.3	12.3	17.2	14.5	13.4
Armed forces	9	-	14.3	11	-	-	33.3	21.1	35.5	38.0	40.6	39.4
Retired	-	-	0	-	-	-	0	-	2.2	4.7	5.5	2.2
Labourer agriculture	-	-	-	-	8.0	7.9	17.2	-	-	-	-	-
Other professions	-	-	-	-	-	-	1.8	23.4	-	-	16.5	16.1

Not among the ten leading occupations with the highest number of deaths

CHAPTER SIX

SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter gives a summary of the findings, conclusion and recommendations for policy and further research.

6.1: Introduction

The study set out with the objectives of generating mortality trends and causes of death in Nyeri, Bungoma and Nairobi districts, for the period 1999 and 2002, using Vital registration data, census and KDHS data. The method of data analysis was simple descriptive statistics like proportions, percentages and graphs.

6.2: Summary

Mortality is on an upward trend from various data sources like KDHS and census. Mortality indicators, especially for infants and children, show that the initial declines have been reversed and the rates have actually gone up. These upward trends started in the 1980s as it is clear from the census figures that infant mortality rose from 62-77 deaths per thousand live births while under five mortality rates rose from 113 to 116 deaths per thousand live births according to 1989 and 1999 census figures. Other data sources support the rising trends in both infant and child mortality. Life expectancy has also declined to an average of 56.6 from 61.9 years between 1989 and 1999 nationally. Several factors have been cited as probable causes for these rising trends including emergence and re-emergence of new diseases, rising Poverty levels and social vices in the society.

upward trends in mortality may be associated with the upsurge of re-emergence and new diseases, which are threatening the human populations.

because from the findings, it is clear that it affects population subsets, which used to enjoy low risks of death. Re-emergence of diseases such as tuberculosis and measles in the arena have also contributed so much to the weakening of the body immune system hence the populations succumb even to otherwise non fatal diseases.

The causes of death in the three districts are more or less similar in nature but the magnitude differs considerably. Pneumonia, which was the leading cause of death in Nyeri and Nairobi, contributed less than 20% of the total deaths in those districts while malaria which was leading in Bungoma, contributed to an average of about 40% of the total deaths. The second leading cause of death (pneumonia) in Bungoma is almost at par with pneumonia in Nyeri and Nairobi. This is a clear indication that malaria in Bungoma district needs more attention from the relevant authorities to avert most of these deaths. In Nairobi and Nyeri, the disease of the highest concern is HIV/AIDS, which was the second leading cause of death. Its greatest impact was on females aged 15 to 49 years. HIV/AIDS is also very common in certain occupations like the business professionals, drivers and armed forces. In some professions like teaching and armed forces, it is the main single killer.

Infants and children below five year suffer from pneumonia, pre-maturity, malaria, meningitis and respiratory failure. In Bungoma district, measles, which is preventable, was among the five major causes of death among infants. Meningitis and dehydration were also common causes of death among children below five years in the three districts.

⁶⁻³: Recommendations for Further Research

^ study recommends further research on why housewives are dying more from HIV/AIDS.

Another recommendation is for research on the association between usage of mosquito nets and levels of mortality resulting from malaria in Bungoma district. Such research will be an eye opener as to why so many deaths result from malaria in Bungoma district yet it is preventable.

Further research should be on a study to find out why pre-maturity, as a cause of death among infants, is common in Nyeri and Nairobi district. Such research would try to establish the underlying factors responsible for pre-mature births.

6.4: Policy Recommendations

The study also recommends that the government takes upon itself to protect small children against malaria especially in high malaria zones like Bungoma by providing insect treated nets (ITN) to children below five years upon birth and replacement after the subsequent birthdays. Other measures to ensure public health programmes are maintained to bring down the levels of infection should also be advocated for.

The study also recommends that collection, compilation, analyses and dissemination of vital registration data be timely, by employing more modern methods of data management. The information contained in the vital registration data should be improved to allow researchers to carry out cause and effect research. For instance, background characteristics of vital events should be included in the form.

6-5: Conclusion

In conclusion, the study found out that the major causes of death in the three districts were pneumonia, malaria and HIV/AIDS, and there is a likelihood that they are responsible for the upward trends in mortality levels. HIV/AIDS, which

is responsible for the re-emergence of diseases like tuberculosis, have contributed so much to the deaths of the younger ages (15-40 years, which initially enjoyed lowest risks of dying). However, malaria still remains the greatest killer in all the three districts combined hence proper policies should be put in place to control malaria.

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Appendix 1 Causes of death by age of the deceased, Nyeri district 1999

Age Group	Common disease	Cases	% of the total for that age group
Below 1 Total=685	Pneumonia	194	28.3
	<u>Pre-maturity</u>	85	12.4
	Malaria	40	5.8
	<u>Respiratory failure</u>	35	5.1
	Sudden death	19	2.8
1-4 Total=223 NR=2	Pneumonia	82	36.8
	Malaria	21	9.4
	Anaemia	17	7.6
	Gastroenteritis	10	0.4
	AIDS	<u>5</u>	0.2
5-14 Total=110 NR=1	Pneumonia	28	25.5
	Malaria	16	14.5
	Anaemia	10	9.1
	AIDS		2.7
	measles		4.5
15-24 Total=282	AIDS	37	13.1
	Pneumonia	30	10.6
	Malaria	21	7.4
	Tuberculosis	13	4.6
	Sudden death	12	4.2
25-34 Total=594 NR=12	AIDS	179	30.1
	Pneumonia	58	11.7
	Tuberculosis	43	8.7
	Malaria	29	5.9
	RTA	22	4.5
35-49 Total=765 Nr=20 Totat=1552	AIDS	209	27.3
	Tuberculosis	63	8.2
	Pneumonia	55	7.2
	malaria	51	6.7
	Sudden death	19	2.5
<u>50-64</u> Total=667	Pneumonia	65	9.7
	HIV	62	9.3
	Malaria	52	7.8
	Diabetes	34	5.1
	Sudden death	31	4.6
65+ Jotal=1519_ I~NR=77	Pneumonia	252	16.6
	Sudden death	147	9.7
	<u>Malaria</u>	126	8.3
	<u>Diabetes</u>	<u>70</u>	<u>4.6</u>
	Hypertension	51	3.4

Appendix 4 Causes of death by age of the deceased, Nyeri district, 2002

Age Group	Common Causes	Cases	% for the total for that age group
Below 1	Pneumonia	106	27.7
Total=382	Pre-maturity	87	22.8
NR=2	AIDS	15	3.9
	Respiratory failure	15	3.9
	Malaria	13	3.4
1 - 4	Pneumonia	98	43.4
Total=226	Malaria	20	8.8
NR=5	Dehydration	10	4.4
	AIDS	9	3.5
	Anaemia	8	3.5
5-14	Pneumonia	35	16.3
Total=215	Malaria	32	14.9
NR=2	AIDS	20	9.3
	RTA	11	5.1
	Anaemia	11	5.1
	Malaria	29	9.7
15- 24	AIDS	52	17.7
Total=293	Pneumonia	28	9.6
NR=0	Malaria	21	7.2
	Anaemia	21	7.2
	Tuberculosis	12	4.1
25 -34	AIDS	235	34.0
Total=692	Pneumonia	61	8.8
NR=5	Tuberculosis	52	7.5
	Malaria	42	6.1
	Anaemia	16	2.3
35 -49	AIDS	252	33.8
Total=745	Pneumonia	87	11.7
NR=2	Tuberculosis	81	10.9
	Malaria	42	5.6
	Anaemia	15	2.0
50-64	AIDS	61	8.3
Total=736	Malaria	60	8.2
NR=11	Diabetes	36	4.9
	Pneumonia	52	7.2
	Tuberculosis	34	4.7
65+	Pneumonia	326	17.9
	Sudden death	144	7.9
	Malaria	107	5.9
	Anaemia	91	5.0
Total=1812	Diabetes	81	4.4

APPendixj Causes of death byjge ofthe deceased, Nyeri 2001

Age Group	Common disease	Cases	% of the total for that age group
Below 1	Pneumonia	183	39.1
Total=468	Pre-maturity	58	12.4
NR=6	Septicaemia	20	4.3
	AIDS	18	3.8
	Malaria	18	3.8
1 - 4	Pneumonia	66	25.4
Total=260	AIDS	36	13.8
NR=4	Malaria	28	10.8
	Anaemia	16	6.2
	Tuberculosis	14	5.4
5-14	Pneumonia	70	32.6
Total=215	Malaria	16	7.4
NR=2	AIDS	15	7.0
	Anaemia	10	4.7
	Tuberculosis	7	3.3
15- 24	Tuberculosis	26	9.5
Total=293	Pneumonia	27	9.9
NR=0	Malaria	24	8.8
	AIDS	22	8.1
	Sudden death	12	4.4
25-34	AIDS	203	26.8
Total=692	Tuberculosis	96	12.7
NR=5	Pneumonia	60	7.9
	Malaria	44	5.8
	Anaemia	11	1.5
35-49	HIV	276	29.1
Total=745	Pneumonia	94	9.9
NR=2	Tuberculosis	113	11.9
	Malaria	40	4.2
	Anaemia	20	2.8
50- 64	Pneumonia	74	10.3
Total=743	AIDS	57	8.0
NR=11	Tuberculosis	55	7.7
	Malaria	39	5.5
	Diabetes	38	5.3
65+	Pneumonia	408	20.3
Total=2007	Septicaemia	189	9.4
NR=25	malaria	160	8.0
	Hypertension	79	3.9
	Anaemia	71	3.5

Appendix 4 Causes of death by age of the deceased, Nyeri district, 2002

Age group	Common causes	Cases	% of the total for that age group
Below 1	Pneumonia	171	38.4
Total=445	Pre-maturity	47	10.6
NR=13	Malaria	28	6.3
	Sudden death	16	3.6
	Gastroenteritis	12	0.4
1-4	Pneumonia	65	29.3
Total=222	Malaria	30	13.5
NR=0	Meningitis	12	5.4
	Anaemia	11	5.0
	Tuberculosis	8	4.1
5-14	Pneumonia	39	20.9
Total=187	Malaria	31	16.6
NR=2	Gastroenteritis	9	4.8
	Anaemia	9	4.8
	Meningitis	5	2.7
15-24	AIDS	53	13.0
Total=407	Pneumonia	40	9.8
NR=5	Malaria	31	7.6
	Anaemia	19	4.7
	Tuberculosis	13	3.2
25-34	AIDS	202	29.8
Total=678	Tuberculosis	63	9.3
NR=5	Malaria	60	8.8
3.8	Pneumonia	42	6.2
	Sudden death	26	3.8
35-49	AIDS	180	21.3
Total=847	Malaria	69	8.1
NR=9	Tuberculosis	34	4.0
	Anaemia	30	3.5
	Sudden death	23	2.7
50-64	Pneumonia	89	12.1
L__Total=737	Diabetes	44	12.1
L__NR=2	AIDS	36	6.0
	Sudden death	33	4.9
L	Hypertension	29	4.5
L__65+	Pneumonia	29	3.9
^Jotal=2117	Sudden death	391	18.5
{^JR = 14	Malaria	225	10.6
	Anaemia	194	9.2
	Diabetes	103	4.9
		87	4.1

NR -Age not recorded

Appendix 5 Causes of death by age of the deceased, Bungoma district, 1999

Age Group	Common Causes	Cases	% of the total for that age group
Below 1	Malaria	397	54.9
Total=723	Pneumonia	131	18.1
NR=15	Anaemia	40	5.5
	Measles	22	3.0
	Gastroenteritis	14	1.9
1-4	Malaria	823	58.7
Total=1401	Pneumonia	200	14.3
NR=1	Anaemia	103	14.2
	Malnutrition	59	4.2
	Measles	50	6.9
5-14	Malaria	278	47.
Total=590	Pneumonia	74	12.5
NR=14	Anaemia	55	9.3
	Malnutrition	17	2.9
	Measles	17	2.9
15-24	Malaria	87	21.4
Total=407	Anaemia	38	9.3
NR=6	Pneumonia	36	8.8
	RTA	18	4.4
	AIDS	23	5.7
25-34	Malaria	97	18.1
Total=537	AIDS	66	12.3
NR=10	Tuberculosis	47	8.8
	Anaemia	31	5.8
	Pneumonia	45	8.4
35-49	Malaria	154	21.2
Total=728	AIDS	86	11.8
NR--15	Pneumonia	70	9.6
	Tuberculosis	51	7.0
	Anaemia	34	4.7
L ^ 5 0 - 6 4	Malaria	85	16.9
Total=504	Tuberculosis	40	7.9
NR=2	Pneumonia	37	7.3
	Anaemia	32	6.3
I,	AIDS	28	5.6
	Malaria	518	35.2
--_ [oia]=1472	Pneumonia	218	14.8
h__NR=37	Anaemia	73	5.0
K 1 Z Z '	Tuberculosis	54	3.7
	Cancer	41	2.8

Appendix 6 Causes of death by age of the deceased, Bungoma 2000

Age Group	Common disease	Cases	% of the total for that age
Below 1	Malaria	612	56.7
Total=1079	Pneumonia	181	16.8
NR=27	Anaemia	73	6.8
	Measles	17	1.6
	Malnutrition	13	1.2
1 - 4	Malaria	872	57.6
Total=1514	Pneumonia	206	13.3
NR=56	Anaemia	120	7.9
	Malnutrition	67	4.4
	Measles	31	2.0
5-14	Malaria	353	53.6
Total=658	Pneumonia	74	11.2
NR=34	Anaemia	41	6.2
	Meningitis	21	3.2
	Malnutrition	14	2.1
15-24	Malaria	133	28.8
Total=515	Anaemia	49	9.5
NR=23	Pneumonia	46	8.9
	Tuberculosis	29	5.6
	AIDS	28	5.4
25-34	Malaria	137	19.6
Total=698	AIDS	129	18.5
NR=33	Tuberculosis	69	9.9
	Anaemia	33	4.7
	Pneumonia	28	4.0
35-49	Malaria	135	16.3
Total=826	AIDS	123	14.9
NR=33	Tuberculosis	89	10.8
	Pneumonia	64	7.7
	Anaemia	36	4.4
50-64	Malaria	88	18.6
Total=472	Pneumonia	36	7.6
NR=20	Tuberculosis	27	5.7
	Anaemia	26	5.5
	Cancer	23	4.9
65+	Malaria	337	34.6
Total=974	Pneumonia	116	11.9
	Anaemia	74	7.6
	Cancer	46	4.7
	Tuberculosis	44	4.5

Appendix 5 Causes of death by age of the deceased, Bungoma district, 1999

Age group	Common causes	Cases	%of the total for that age
Below 1	Malaria	344	58.6
Total=587	Pneumonia	101	17.2
NR=13	Anaemia	49	8.3
	Meningitis	15	2.6
	Gastroenteritis	6	1.0
1-4	Malaria	893	59.7
Total=1497	Pneumonia	187	12.5
NR=82	Anaemia	144	9.6
	Malnutrition	46	3.1
5-14	Malaria	367	52.1
Total=704	Pneumonia	78	11.1
NR=29	Anaemia	69	9.8
	Meningitis	15	2.1
	Malnutrition	14	2.0
15-24	Malaria	166	33.9
Total=490	Anaemia	38	7.8
NR=30	Pneumonia	29	5.9
	AIDS	27	5.5
	Meningitis	18	3.7
25-34	Malaria	144	21.8
Total=661	Anaemia	134	20.3
NR=45	AIDS	42	6.4
	Pneumonia	40	6.1
	Meningitis	33	5.0
35-49	AIDS	162	17.9
Total=	Malaria	159	9.1
NR=	Tuberculosis	81	5.9
	Pneumonia	52	4.9
	Anaemia	43	5.2
50-64	Malaria	91	10.2
Total=453	Pneumonia	46	6.4
Nr=51	AIDS	29	6.0
	Tuberculosis	27	2.7
	Sudden death	22	4.9
65+	Malaria	452	37.7
Total=1199	Pneumonia	113	9.4
NR=90	Anaemia	92	7.7
	Tuberculosis	54	4.5
	Cancer	40	3.3

Appendix 8 Cause of death by age of the deceased, Bungoma 2002

Age Group	Common disease	Cases	%
Below 1	Malaria	688	45.7
Total=1504	Pneumonia	191	12.7
NR=49	Anaemia	94	6.3
	Meningitis	45	3.0
	Gastroenteritis	33	2.3
1 - 4	Malaria	911	53.0
Total=1504	Pneumonia	220	12.6
NR=49	Anaemia	176	10.2
	Malnutrition	89	5.2
	Measles	42	2.4
5-14	Malaria	338	43.5
Total=1504	Pneumonia	77	9.9
NR=49	Anaemia	49	6.3
	Malnutrition	31	4.0
	Tuberculosis	22	2.8
15-24	Malaria	156	25.4
Total=1504	•Pneumonia	40	6.5
NR=49	Anaemia	39	6.4
	Sudden death	34	5.5
	Tuberculosis	22	3.6
25-34	Malaria	131	16.9
Total=776	AIDS	87	11.2
NR=11	Tuberculosis	65	8.4
	Anaemia	55	7.1
	Pneumonia	37	4.8
35-49	Malaria	219	20.4
Total=1073	AIDS	100	9.3
NR=29	Tuberculosis	88	8.2
	Anaemia	66	6.2
	Pneumonia	61	5.7
50-64	Malaria	142	22.7
Total=625	Pneumonia	59	9.4
NR=25	Anaemia	52	8.3
	Tuberculosis	5	8.0
	Sudden death	31	5.0
65+	Malaria	624	37.1
Total=1681	Pneumonia	189	11.2
NR=50	Anaemia	124	7.4
	Cancer	86	5.1
	Tuberculosis	69	4.1

Appendix 10 Cause of death by age of the deceased, Nairobi 2000

Age group	Common causes	Cases	%
0	Pneumonia	730	25.1
NR=21	Pre-maturity	339	11.7
Total=2902	Gastroenteritis	179	6.2
	Malaria	171	5.9
	Respiratory failure	140	4.8
	AIDS	59	2.0
1-4	Pneumonia	352	25.7
Total=1371	Malaria	189	13.8
NR=7	Gastroenteritis	108	7.9
	Dehydration	93	6.8
	ADS	77	5.6
5-14	Pneumonia	126	18.6
Total=679	Malaria	73	10.8
NR=2	Gastroenteritis	47	6.9
	Tuberculosis	37	5.4
	Anaemia	36	5.3
	AIDS	23	3.4
15-24	Tuberculosis	126	9.1
Total=1388	AIDS	104	7.5
NR=2	Pneumonia	96	6.9
	Malaria	92	6.6
	Gastroenteritis	89	6.4
25-34	Tuberculosis	452	15.5
Total=2907	AIDS	444	15.3
NR=12	Meningitis	201	6.9
	Pneumonia	195	6.7
	Gastroenteritis	183	6.3
35-49	AIDS	562	17.5
Total=3207	Tuberculosis	499	15.6
NR=6	Pneumonia	232	7.2
	Gastroenteritis	188	5.9
	Malaria	164	5.1
50-64	Tuberculosis	147	4.6
Total=1514	AIDS	91	6.0
NR=7	Pneumonia	89	5.9
	Diabetes	80	5.3
	Hypertension	79	5.2
65+	Pneumonia	190	10.9
Total=1748	Hypertension	138	7.9
NR=80	Diabetes	90	5.1
	Gastroenteritis	58	3.3
	AIDS	31	1.8

Appendix 10 Cause of death by age of the deceased, Nairobi 2000

Age Group	Common disease	Cases	% of the total for that age group
0	Pneumonia	628	25.2
Total=2493	Pre-maturity	371	14.9
NR=6	Septicaemia	140	5.6
	Malaria	135	5.4
	Gastroenteritis	134	5.3
	AIDS	49	2.0
1-4	Pneumonia	408	29.6
Total=1378	Malaria	187	13.6
NR=5	Gastroenteritis	113	8.2
	AIDS	84	6.1
	Dehydration	79	5.7
5-14	Pneumonia	80	12.8
Total=624	Malaria	62	9.9
NR=2	AIDS	28	4.5
	Meningitis	28	4.5
	Tuberculosis	25	4.0
15- 24	Tuberculosis	146	9.8
Total=1493	AIDS	128	8.6
NR=4	Malaria	108	7.2
	Pneumonia	95	6.4
	Gastroenteritis	79	5.3
25-34	AIDS	622	20.6
Total=3026	Tuberculosis	547	18.1
NR=9	Pneumonia	228	7.5
	Gastroenteritis	203	6.7
	Malaria	183	6.4
35 -49	AIDS	666	20.1
Total=3311	Tuberculosis	622	18.9
NR=9	Pneumonia	237	7.2
	Gastroenteritis	201	6.1
	Malaria	173	5.2
50-64	Tuberculosis	161	9.3
Total=1739	AIDS	142	8.2
NR=4	Pneumonia	108	6.2
	Hypertension	90	5.2
	Diabetes	83	4.8
65+	Pneumonia	518	18.2
NR=41	Hypertension	141	5.0
Total =2841	Diabetes	125	4.4
	Respiratory failure	116	4.1
	Malaria	86	3.0
	AIDS	61	2.1

Appendix 10 Cause of death by age of the deceased, Nairobi 2000

Age Group	Causes	Cases	% of the total for that age group
0	Pneumonia	767	34.
Total=2254	Pre-maturity	168	7.5
NR=9	Gastroenteritis	108	4.8
	Respiratory failure	110	4.9
	Meningitis	106	4.7
1-4	Pneumonia	408	32.2
Total=1268	Malaria	158	12.5
NR=3	Gastroenteritis	104	8.2
	AIDS	65	5.1
	Anaemia	54	4.3
5-14	Pneumonia	109	17.0
Total=641	Malaria	60	9.4
NR=0	AIDS	46	7.2
	Tuberculosis	40	6.2
	RTA	37	5.8
15-24	Tuberculosis	152	11.3
Total=1343	Malaria	110	8.2
NR=5	AIDS	104	7.7
	Pneumonia	91	6.8
	RTA	72	5.4
25-34	Tuberculosis	576	19.0
Total=3035	AIDS	513	16.9
NR=9	Pneumonia	222	7.3
	Meningitis	168	5.5
	Gastroenteritis	160	5.3
35-49	AIDS	644	19.1
Total=3363	Tuberculosis	541	16.1
NR=6	Pneumonia	258	7.7
	Gastroenteritis	177	5.3
	Malaria	142	4.2
50-64	Tuberculosis	140	9.1
Total=1543	AIDS	134	8.7
NR=8	Hypertension	108	7.0
	Diabetes	90	5.8
	Pneumonia	73	4.7
65+	Pneumonia	255	13.0
Total=1965	Hypertension	129	6.6
NR=57	Diabetes	101	5.1
	Tuberculosis	81	4.1
	Respiratory failure	70	3.6

Appendix 10 Cause of death by age of the deceased, Nairobi 2000

Age group	Common causes	Cases	%of the total for that age
0	Pneumonia	521	24.1
Total=2158	Pre-maturity	312	14.4
NR=3	Malaria	151	7.0
	Gastroenteritis	135	6.3
	Dehydration	110	5.1
	AIDS	20	0.9
1-4	Pneumonia	343	23.7
Total=1450	Malaria	223	15.3
NR=4	Gastroenteritis	140	9.7
	Dehydration	112	7.7
	Malnutrition	79	5.4
	AIDS	56	3.9
5-14	Malaria	79	13.7
Total=575	Pneumonia	58	10.1
NR=1	Tuberculosis	31	5.4
	Anaemia	29	5.0
	Gastroenteritis	26	4.5
	AIDS	24	4.2
15-24	Malaria	121	8.5
Total=1425	Tuberculosis	117	8.2
NR=5	Pneumonia	102	6.7
	AIDS	99	6.9
	Gastroenteritis	90	6.3
25-34	Tuberculosis	422	14.7
Total=2870	AIDS	402	14.0
NR=7	Gastroenteritis	217	7.6
	Pneumonia	193	6.7
	Malaria	180	6.3
35-49	Tuberculosis	460	14.1
Total=3266	AIDS	435	13.3
NR=6	Pneumonia	242	7.4
	Gastroenteritis	216	6.6
	Malaria	184	5.6
50-64	Tuberculosis	123	8.1
NR=0	AIDS	102	6.7
Total=1521	Hypertension	84	5.5
r r	Pneumonia	82	5.4
	Diabetes	79	5.2
L H 65+	Hypertension	121	4.7
L Total=2600	Malaria	119	4.6
L NR=84	Gastroenteritis	114	4.4
	Diabetes	95	3.7
	Respiratory failure	86	3.3
	AIDS	54	2.1

Appendix 13 Cause of death by occupation of the deceased, Nyeri 1999

Occupation	Cause of death	Cases for the listed cause	% of the total for that occupation
Farm workers	Pneumonia	97	10.8
Total=898	Malaria	74	8.2
NR=12	AIDS	83	9.2
	Tuberculosis	37	4.1
	Diabetes	• 32	3.6
Agricultural subsistence	Pneumonia	101	17.1
Total=591	Sudden death	69	11.7
NR=14	Malaria	51	8.6
	AIDS	50	8.5
	Cancer	28	4.7
House wife	AIDS	64	18.1
Total=353	Pneumonia	33	9.3
NR=1	Hypertension	20	5.7
	Malaria	15	4.2
	Anaemia	15	4.2
Business profession	AIDS	50	22.4
Total=223	Tuberculosis	18	8.1
NR=2	Pneumonia	18	8.1
	Malaria	10	4.5
	Diabetes	8	3.6
Student	Pneumonia	5	6.2
Total=81	Malaria	7	8.6
NR=0	Renal failure	4	4.9
	Sudden death	4	4.9
	Anaemia	3	3.7
Unemployed	Pneumonia	12	19.4
Total=62	AIDS	9	14.5
NR=2	Malaria	5	8.1
	Tuberculosis	4	6.5
	Sudden death	4	6.5
Drivers	AIDS	13	22.8
Total=57	Tuberculosis	3	5.3
NR=1	Haemorrhage	4	7.0
Labourer construction	AIDS	18	32.2
Total=56	Pneumonia	4	7.1
NR=0	Anaemia	3	5.4
	Malaria	2	3.4
	Tuberculosis	2	3.4
Teaching	AIDS	4	10
Total=40	Pneumonia	4	10
NR=14	Gastroenteritis	4	10
	Hypertension	2	5.0
	Sudden death	2	5.0
Legal profession	All causes		
Total=54			

Appendix 15 Cause of death by occupation of the deceased, Nyeri 2001

Occupation	Cause of death	Cases	% of the total for that occupation
Farm workers	Pneumonia	193	13.2
Total=1467	HIV/AIDS	150	10.2
NR=30	Malaria	86	5.9
	Tuberculosis	81	5.2
	Sudden death	65	4.4
Agricultural subsistence	Pneumonia	161	19.3
Total=834	HIV/AIDS	69	8.3
NR=5	Sudden death	67	8.0
	Tuberculosis	63	7.6
	Malaria	59	7.1
Business profession	HIV	76	23.3
Total=326	Pneumonia	25	7.7
NR=0	Tuberculosis	24	7.4
	Hypertension	13	4.0
	Malaria	12	3.7
House wife	Pneumonia	40	12.8
Total=313	HIV/AIDS	36	11.5
NR=2	Malaria	27	8.6
	Tuberculosis	23	7.3
	Sudden death	16	5.1
Unemployed	Pneumonia	13	10.7
Total=121	HIV/AIDS	11	9.1
NR=0	Tuberculosis	10	8.3
	Sudden death	9	7.4
	Malaria	8	6.6
Student	HIV/AIDS	9	8.5
Total=106	Pneumonia	7	6.6
NR=0	Malaria	8	7.5
	RTA	5	4.7
Teaching	Respiratory failure	6	10.2
Total=59	Malaria	5	8.5
NR=0	HIV/AIDS	5	8.5
	Pneumonia	4	6.8
	Tuberculosis	3	5.1
Drivers	HIV/AIDS	29	36.7
Total=79	Tuberculosis	13	16.4
NR=2	RTA	7	8.9
Sales & services	HIV/AIDS	10	20
Total=50	All others		
NR=0			
	HIV/AIDS	7	14.3
Labourer construction	Tuberculosis	6	12.2
Total=49			

Appendix 14 Cause of death by occupation of the deceased Nyeri 2000

Occupation	Cause of death	Deaths from the listed cause	% of the total for that occupation
Farm workers	Pneumonia	137	14.0
Total=980	AIDS	95	9.7
NR=11	Malaria	80	8.2
	Sudden death	56	5.7
	Tuberculosis	46	4.7
Agricultural subsistence	Pneumonia	85	12.6
Total=672	AIDS	65	9.7
NR=9	Malaria	60	8.9
	Sudden death	36	5.4
	Anaemia	30	4.5
Housewife	AIDS	55	15.6
Total=353	Pneumonia	25	7.1
NR=3	Anaemia	20	5.7
	Malaria	21	5.9
	Tuberculosis	15	4.2
Business professional	AIDS	89	33.7
Total=264	Tuberculosis	24	9.1
NR=3	Pneumonia	23	8.7
	Anaemia	10	3.8
	Diabetes	8	3.0
Labourer agriculture	AIDS	26	16.7
Total=156	Malaria	17	10.9
NR=4	Pneumonia	13	8.3
	Tuberculosis	8	5.1
	Gastroenteritis	6	3.8
Student	Pneumonia	7	1.4
Total=81	Menengitis	8	9.9
NR=0	Malaria	6	7.4
	RTA	5	6.2
	Anaemia	4	4.9
Teaching	AIDS	11	22.4
Total=49	Hypertension	5	10.2
NR=2	Tuberculosis	3	6.1
Drivers	AIDS	22	40.7
Total=54			
NR=0			
Sales & services	AIDS	17	36.2
Total=47			
NR=0			

Appendix 16 Cause of death by occupation of the deceased, Nyeri 2002

Occupation	Causes	Cases	% of the total for that occupation
Agricultural subsistence			
Total=1387	Pneumonia	216	15.6
Nr=13	Malaria	147	10.6
	Sudden death	106	7.6
	HIV/AIDS	67	4.8
	Cancer	54	3.9
Farm worker	Pneumonia	53	10.6
Total=499	HIV/AIDS	29	5.8
NR=6	Diabetes	25	5.0
	Sudden death	25	5.0
	Tuberculosis	23	4.6
House wife	HIV/AIDS	62	15.2
Total=408	Pneumonia	40	9.8
NR=0	Anaemia	34	8.3
	Malaria	28	6.9
Business professional	HIV/AIDS	69	29.2
Total=236	Tuberculosis	15	6.4
	Pneumonia	14	5.9
	Malaria	12	5.1
	Diabetes	9	3.8
Student	Malaria	16	12.2
Total=131	Pneumonia	12	9.2
NR=0	Anaemia	7	5.3
Labourer agriculture	Pneumonia	22	23.2
Total=95	HIV/AIDS	9	9.5
Nr=0	Malaria	9	9.5
	Sudden death	9	9.5
	Tuberculosis	6	6.3
Unemployed	HIV/AIDS	8	11.2
Total=70	Pneumonia	8	11.2
NR=0	Sudden death	8	11.2
Drivers	HIV/AIDS	11	16.4
Total=67	RTA	7	10.4
	Diabetes	5	7.5
	Tuberculosis	5	7.5
	Pneumonia	6	9.0
Other professions	All causes		
Total=43			

Appendix 17 Causes of death by occupation of the deceased, Bungoma 1999

Occupation	Cause of death	Deaths from the listed cause	% of the total for that occupation
House Wife	Malaria	74	18.6
Total=398	Pneumonia	49	12.3
NR=3	HIV/AIDS	37	9.3
	Anaemia	33	8.3
	Tuberculosis	19	4.8
Student	Malaria	40	22.2
Total=180	Anaemia	23	12.8
NR=5	Pneumonia	12	6.7
	RTA	8	4.4
	P/C/Birth	8	4.4
Unemployed	Malaria	42	25.8
Total=163	Malaria	16	9.8
NR=2	HIV/AIDS	16	9.8
	Pneumonia	9	5.2
	Anaemia	6	3.7
Agriculture subsistence	Malaria	175	24.2
Total=723	Pneumonia	68	9.4
NR=15	Tuberculosis	52	7.2
	Anaemia	34	4.7
	HIV/AIDS	31	4.3
Farm workers	Malaria	35	20.2
Total=173	Pneumonia	21	12.1
NR=5	Anaemia	13	7.5
	Malnutrition	13	7.5
	HIV/AIDS	11	6.4
Labourer agriculture	Malaria	18	22.8
Total=79	Tuberculosis	12	15.2
NR=2			
Sales & services	Pneumonia	6	18.2
Total=33			
Nr=0			
Drivers Total=32	RTA	9	28.1
NR=0			
Teaching	Malaria	14	30.4
Total=46	HIV/AIDS	8	13.6
NR=0	Malaria	8	13.6
	RTA	10	16.9

Appendix 18 Cause of death by occupation of the deceased, Bungoma 2000

Occupation	Cause of death	Deaths from the listed cause for that occupation	% of the total for that occupation
Farm worker	Malaria	137	25.0
Total=548	HIV/AIDS	48	8.8
NR=19	Pneumonia	40	7.3
	Tuberculosis	29	5.3
	Anaemia	28	5.1
House wife	Malaria	127	23.3
Total=546	HIV/AIDS	58	10.6
NR=16	Tuberculosis	53	9.7
	Anaemia	43	7.9
	Pneumonia	34	6.2
Agricultural subsistence	Malaria	105	20.8
Total=506	Tuberculosis	54	10.7
NR=19	Pneumonia	49	9.7
	Anaemia	43	8.5
	HIV/AIDS	23	4.5
Student	Malaria	69	34.5
Total=200	Anaemia	14	7.0
NR=5	Meningitis	14	7.0
	Pneumonia	12	6.0
Unemployed	Malaria	31	25.6
Total=121	Tuberculosis	10	8.3
NR=11	Pneumonia	14	11.6
	HIV/AIDS	8	6.6
	Anaemia	8	6.6
Business professional	HIV/AIDS	24	19.7
Total=122	Tuberculosis	10	8.2
Nr=4	Malaria	13	10.7
	Dehydration	8	6.6
	Pneumonia	5	4.1
Sales & services	HIV/AIDS	9	7.8
Total=116	Tuberculosis	9	7.8
NR=0	Malaria	8	6.9
	RTA	11	9.5
	Tuberculosis	10	8.6
	Malaria	6	5.3
Teaching	HIV/AIDS	12	18.5
Total=65	Anaemia	6	9.2
NR=1			

Appendix 20 Cause of death by occupation of the deceased, Bungoma 2002

Occupation	Cause of death	Deaths from the listed cause	% of the total for that occupation
Farm worker	Malaria	212	28.5
Total=745	HIV/AIDS	65	8.7
NR=81	Tuberculosis	39	5.2
	Anaemia	35	4.5
	Sudden death	24	3.2
House wife	Malaria	113	22.1
Total=512	HIV/AIDS	78	15.2
NR=8	Anaemia	41	8.0
	Pneumonia	38	7.4
	Tuberculosis	37	7.2
Agricultural subsistence	Malaria	75	19.8
Total=379	HIV/AIDS	32	8.4
NR=11	Pneumonia	45	11.9
	Tuberculosis	39	10.3
	Anaemia	35	9.2
Student	Malaria	71	35.5
Total=200	Pneumonia	15	7.5
NR=6	Anaemia	16	8.0
Unemployed	Malaria	43	37.4
Total=115	Pneumonia	19	16.5
NR=6	HIV/AIDS	8	7.0
Business professional	Malaria	9	8.6
Total=105	HIV/AIDS	25	23.8
NR =4			
Teaching Total=77	HIV/AIDS	14	18.2
NR=0	Tuberculosis	8	10.4
Labourer agriculture	Malaria	16	27.6
Total=58 NR=0	HIV/AIDS	10	17.2
Pri pre primary	Malaria	14	35.0
Total=40			
NR=3			
Other professions	All causes	41	
Total=41			
NR=0			

Appendix 20 Cause of death by occupation of the deceased, Bungoma 2002

Occupation	Cause of death	Total deaths for that occupation	% of the total for that occupation
Agricultural subsistence	Malaria	230	25.6
Total=897	Anaemia	70	7.8
NR=22	Pneumonia	68	7.6
	Tuberculosis	57	6.4
	Cancer	55	6.1
H/wife	Malaria	128	21.5
Total=596	Anaemia	52	8.7
NR=3	HIV/AIDS	39	6.5
	Pneumonia	36	6.0
	Tuberculosis	25	4.2
Student	Malaria	68	30.8
Total=221	Anaemia	16	7.2
NR=6	Sudden death	11	5.0
	Pneumonia	12	5.4
Unemployed	Malaria	59	30.0
Total=198	Pneumonia	19	9.6
NR=3	Anaemia	16	8.1
Business professional	HIV/AIDS	18	13.5
Total=133	Gastroenteritis	12	9.0
N=3	Malaria	11	8.3
	RTA	9	6.8
	Pneumonia	8	6.0
Teaching	Tuberculosis	14	14.9
Total=94	Hypertension	9	9.6
NR=0	Malaria	7	7.4
	Cancer	7	7.4
Armed forces	HIV/AIDS	16	21.1
Total=76	Malaria	17	22.4
NR=3	Tuberculosis	10	13.2
Drivers	HIV/AIDS	10	13.2
Total=68			
NR=3			
Other professionals	HIV/AIDS	11	23.4
Total 47			
Other clerks	Malaria	11	30.6
NR=3			
Total=36			

Appendix 24 Cause of death by occupation of the deceased, Nairobi 2002

Occupation	Cause of death	Total deaths from the listed cause	% of the total from that cause
Housewife	HIV	134	11.8
Total=1140	TB	111	9.7
NR=1	Malaria	85	7.5
	Pneumonia	73	6.4
	Gastroenteritis	59	5.2
Unemployed	HIV/AIDS	131	13.4
Total=974	TB	105	10.8
NR=0	Pneumonia	101	10.4
	Meningitis	54	5.5
	Gastroenteritis	45	4.6
Business professional	TB	124	15.2
Total=814	HIV/AIDS	98	12.0
NR=2	Pneumonia	63	4.4
	RTA	46	7.7
	Meningitis	44	5.4
Farm workers	Heart failure	20	9.5
	HIV	14	6.7
Sales & Services	HIV	26	12.3
	TB	29	14.4
Armed forces	HIV	65	35.5
	TB	21	11.5
Retired	Pneumonia	42	10.8
	Hypertension	30	7.7
Other staff	HIV	20	16.9
	TB	14	11.9
Drivers	HIV	27	17.4
	TB	24	15.5

Appendix 24 Cause of death by occupation of the deceased, Nairobi 2002

Occupation	Cause of death	Total from the listed cause	% of the total for that occupation
Housewife NR=2 Total=1118	HIVAIDS	176	15.7
	Tuberculosis	136	12.2
	Malaria	68	6.2
	Pneumonia	66	5.9
	Gastroenteritis	55	4.9
Unemployed NR=4 Total=1348	Tuberculosis HIVAIDS	175	13.0
	Pneumonia	149	11.2
	Gastroenteritis	119	8.2
	RTA	71	5.3
		45	3.3
Business professional NR=2	HIV/AIDS	146	16.1
	TB	136	15.0
Total=906	Pneumonia	51	5.6
	Diabetes	39	4.3
	Gastroenteritis	38	4.2
	Hypertension	27	8.5
	Pneumonia	25	7.8
Retired NR=1	Diabetes	24	7.5
	HIV/AIDS	15	4.7
Total=319	Tuberculosis	15	4.7
	HIV	20	7.8
	Tuberculosis	17	6.6
	Renal/failure	14	5.5
	Hypertension	11	4.3
Farm workers NR=0 Total=256	Pneumonia	10	3.9
	HIV/AIDS	84	38.0
	TB	25	11.3
	RTA	12	5.4
	Pneumonia	8	3.6
Armed forces NR=0 Total=221	Meningitis	5	2.3
	HIV	36	17.2
	Tuberculosis	30	14.2
	RTA	15	7.1
	Pneumonia	15	7.1
Sales & Services NR=1 Total=211	Gastroenteritis	12	5.7
	Tuberculosis	38	18.5
	RTA	27	13.2
	HIV/AIDS	28	13.7
	RTA	27	13.2
Drivers NR=0 Total=205	Pneumonia	14	6.8
	TB	26	18.0
	Malaria	16	11.1
	HIV	13	9.0
	Gastroenteritis	10	6.9
Labourers in Construction Total ³ 144 NR= 1	Pneumonia	7	4.9

Appendix 24 Cause of death by occupation of the deceased, Nairobi 2002

Occupation	Cause of death	Cases	% of the total for that occupation
Unemployed	HIV/AIDS	162	16.6
	NR=0		
Total=973	Tuberculosis	99	10.2
	Pneumonia	72	7.4
	Meningitis	44	4.5
	RTA	36	3.4
House wife	HIV/AIDS	169	17.6
	NR=1		
Total=962	Tuberculosis	113	11.7
	Pneumonia	52	5.4
	Meningitis	45	4.7
	Malaria	48	5.0
Business professional	Tuberculosis	114	13.6
	NR=2		
Total=840	HIV/AIDS	133	15.8
	Pneumonia	73	8.7
	Meningitis	45	5.4
	Malaria	35	4.2
Sales and services	HIV/AIDS	36	14.5
	NR=0		
Total=248	RTA	20	8.2
	Tuberculosis	17	6.9
	Pneumonia	17	6.9
	Meningitis	16	6.5
Retired	Hypertension	27	11.3
	NR=0		
Total=238	Heart failure	17	7.1
	Diabetes	18	7.6
	HIV/AIDS	13	5.5
	Tuberculosis	13	5.5
Student	HIV/AIDS	18	7.6
	NR=1		
Total=236	Pneumonia	18	7.6
	RTA	21	8.9
	Tuberculosis	16	6.8
	Malaria	15	6.4
Drivers	Tuberculosis	24	14.7
	NR=1		
Total=163	HIV/AIDS	23	14.1
	RTA	12	7.4
	Pneumonia	11	6.7
	Gastroenteritis	11	6.7
Farm workers	HIV/AIDS	17	9.4
	NR=0		
Total=180	Tuberculosis	11	6.1
	Diabetes	11	6.1
	Hypertension	8	4.4
	Renal failure	6	3.3
Other professions	HIV/AIDS	29	16.5
	NR=0		
Total=176	Tuberculosis	23	13.1
	RTA	8	4.5
	Meningitis	8	4.5
	Hypertension	8	4.5
Armed forces	HIV/AIDS	71	40.6
	NR=0		
Total=175	Tuberculosis	15	8.6
	Pneumonia	12	6.8
	RTA	9	5.1

Appendix 24 Cause of death by occupation of the deceased, Nairobi 2002

Occupation	Cause	Cases	% of the total deaths for that occupation
House wife	HIV/AIDS	134	11.8
NR=1	Pneumonia	73	6.4
Total=1140	Tuberculosis	111	9.7
	Malaria	85	7.5
	Gastroenteritis	59	5.2
Student	RTA	25	10.1
NR=1	Malaria	19	7.7
Total=247	Tuberculosis	18	7.3
	Pneumonia	14	5.7
	HIV/AIDS	6	2.4
Unemployed	Tuberculosis	136	14.0
NR=0	HIV/AIDS	131	13.4
Total=974	Tuberculosis	105	10.8
	Pneumonia	101	10.4
	Meningitis	54	5.5
Retired	Pneumonia	44	10.9
NR=2	Hypertension	31	7.7
Total=403	Tuberculosis	20	5.0
	Diabetes	20	5.0
	Renal failure	19	4.7
	HIV/AIDS	9	2.2
Business professional	Tuberculosis	124	15.2
NR=2	HIV/AIDS	98	12.0
Total=814	Pneumonia	63	7.7
	RTA	46	5.7
	Meningitis	44	5.4
Armed forces	HIV/AIDS	65	39.4
NR=0	Tuberculosis	21	11.5
Total =183	RTA	11	6.0
	Gastroenteritis	11	6.0
	Pneumonia	11	6.0
Other professions	Tuberculosis	16	12.9
NR=1	HIV/AIDS	20	16.1
Total=124	Meningitis	10	8.1
	Pneumonia	7	5.6
	Malaria	4	3.2
Farm workers	HIV/AIDS	14	6.7
Nr=1	Hypertension	13	6.2
Total=209	Meningitis	9	4.3
	Tuberculosis	9	4.3
	Diabetes	9	4.3
	HIVAIDS	5	2.4
Drivers	HIV/AIDS	27	17.4
NR=0	Tuberculosis	24	15.5
Total=155	RTA	15	9.7
	Pneumonia	13	8.4
	HIV/AIDS	6	3.9
Sales & services	HIV/AIDS	27	13.4
Nr=0	Tuberculosis	31	15.3
Total=202	RTA	16	7.9