

# The Astley Cooper School

## Geography Bridging Task Summer 2019

**Links with:** Unit 7 - Global systems and global governance  
Unit 9 - Contemporary Urban environments  
Unit 10 - Population and the environment

### Key Ideas/Questions:

1. What are the global patterns of health, morbidity and mortality?
2. What is the distribution and impact of an infectious disease (HIV/AIDS) on health, economic development and lifestyle?
3. What is the distribution and impact of a disease of affluence (coronary disease) on health, economic development and lifestyle?

**What are the global patterns of health, morbidity and mortality?**

### What is good health?

It is very important to distinguish between health as it applies to an individual as it applies to society as a whole. The latter is usually described as public health.

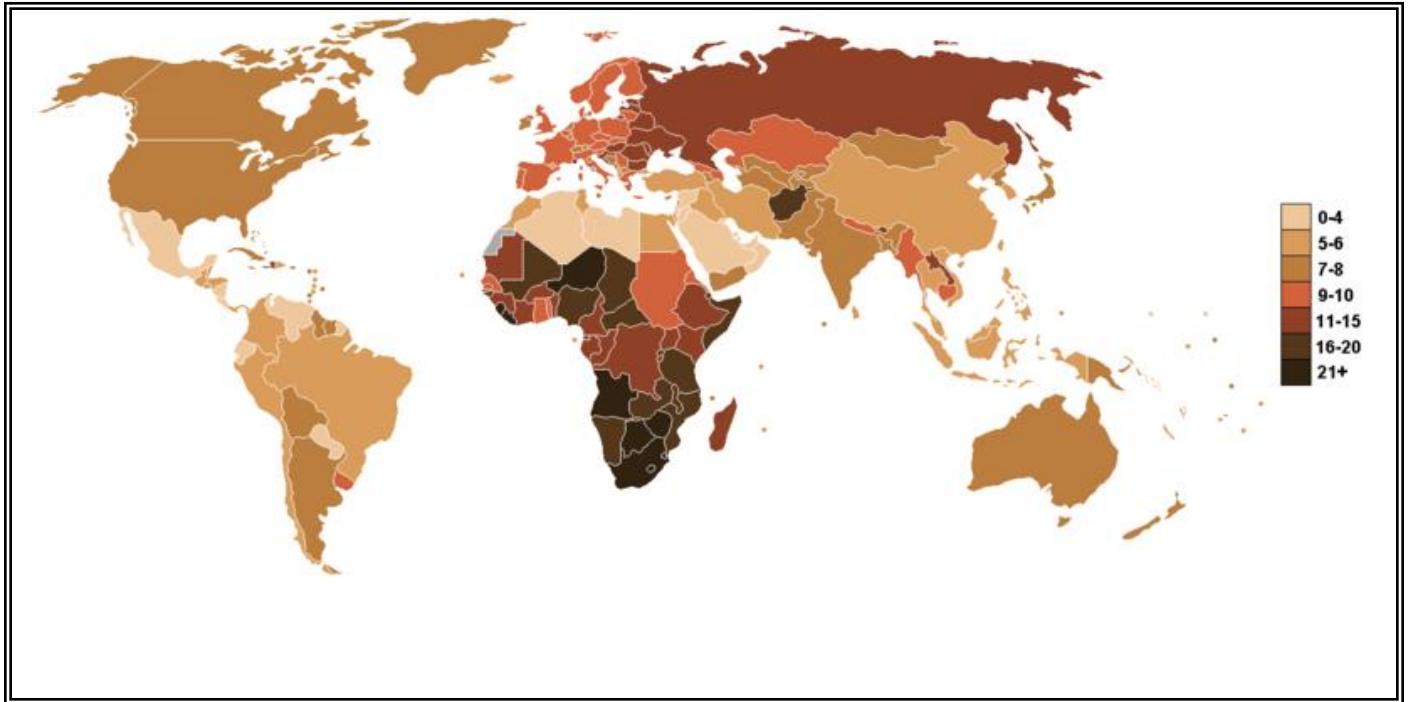
Individuals are ultimately responsible for their own and their family's health and good public health depends to a large extent on making all members of society fully engaged in their own good health. However, individuals need the health and support of government in:

- Making good decisions about their own health and welfare
- Having access to the best possible facilities to receive health care
- Having support in maintaining good health as well as trying to improve bad health.

Good health is being able to function in an efficient and productive way. It involves good functioning of both mind and body. Bad health is sometimes referred to as morbidity.

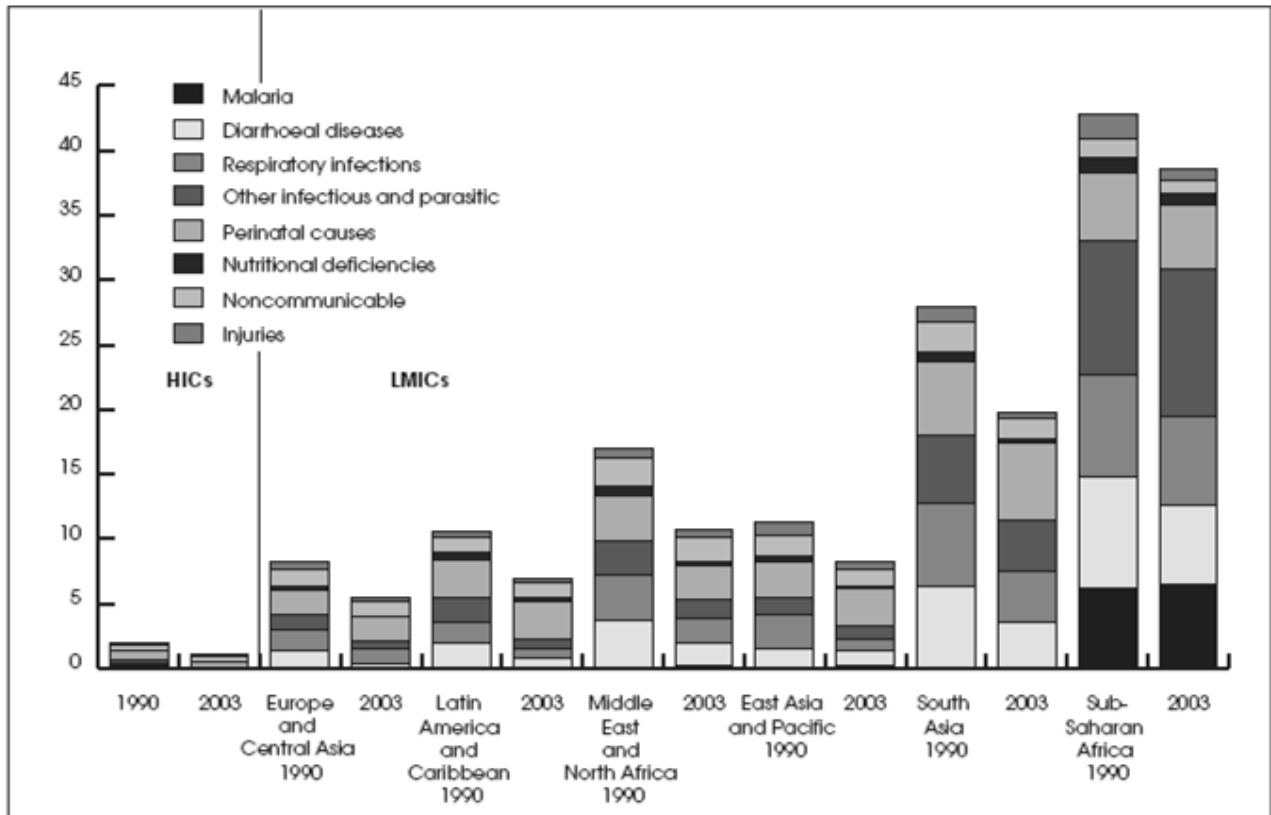
### Global patterns of mortality

Some of the highest crude death rates are found in the less developed countries, particularly in sub-Saharan Africa. Liberia, Niger, Sierra Leone, Zambia and Zimbabwe all have death rates of 20 or more per 1,000. However, some of the lowest mortality rates are also found in countries at the lower end of the development range, for example Kuwait (2 per 1,000), Bahrain (3 per 1,000) and Mexico (5 per 1,000).

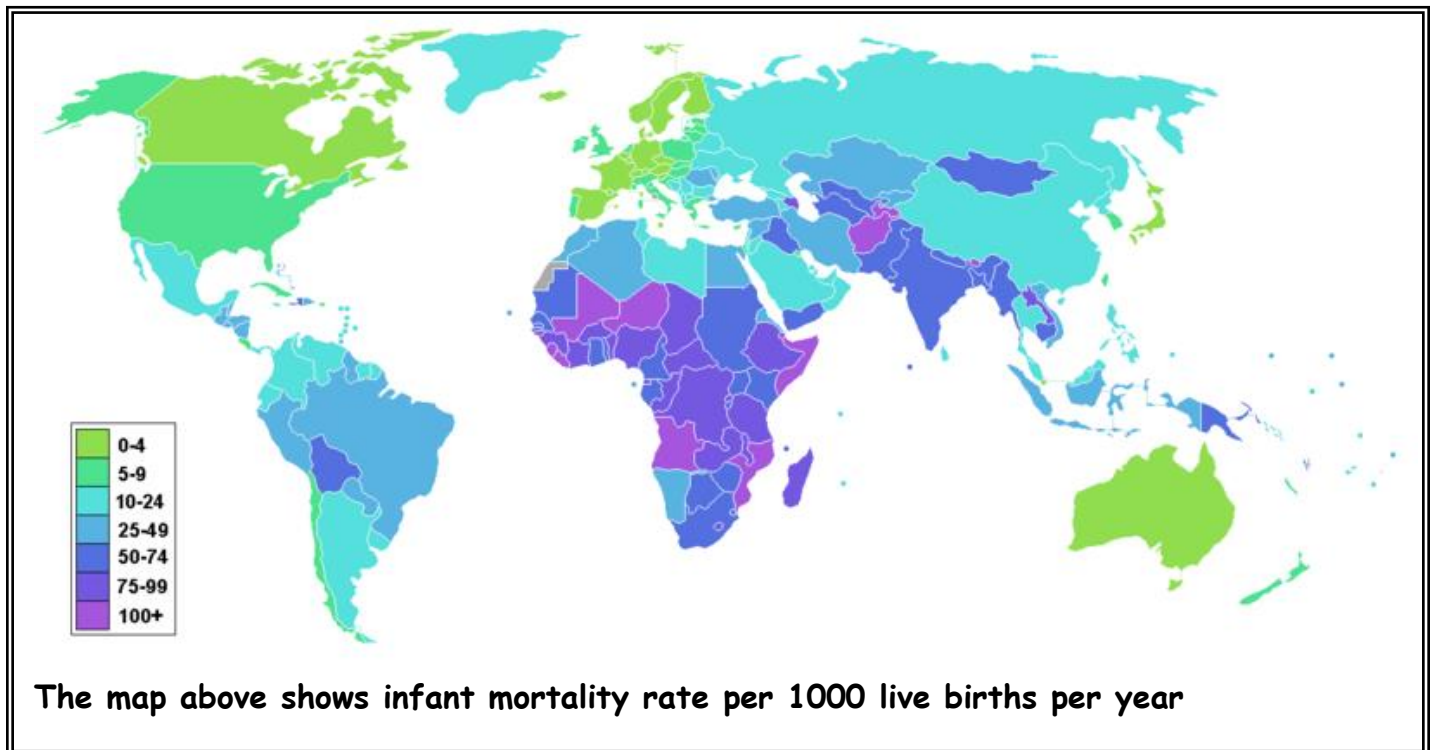


**The map above shows the death rates per 1000 population/per year across the world.**

Clear patterns exist between countries at different stages of development. For example, 98% of all deaths in children younger than 15 years are in the developing world. 83% and 59% of deaths at 15-59 and 70 years, respectively, are in the developing world. The probability of death between birth and 15 years ranges from 22.0% in sub-Saharan Africa to 1.1% in the established market economies. Probabilities of death between 15 and 60 years range from 7.2% for women in established market economies to 39.1% for men in sub-Saharan Africa. The graph below highlights the variations in death rates and causes of deaths by region.



Infant mortality is falling across the world, but there are still wide variations between nations-142 infant deaths per 1,000 births in Liberia, compared to 3 per 1,000 in Finland. Areas with high rates of infant mortality have high rates of mortality overall.



The map above shows infant mortality rate per 1000 live births per year

HIV/AIDS is having a major impact on mortality around the world but especially in sub-Saharan Africa. More than 40 million people are now living with HIV/AIDS, over 25 million of them in sub-Saharan Africa. In Swaziland, Botswana, Lesotho and Zimbabwe, over 20% of the total population of the country are affected. Asia is also badly affected and of the 7 million HIV/AIDS victims in south/southeast Asia, over 5 million live in India. It is estimated however, that infection rates have begun to decline in a number of countries.

HIV/AIDS is the fourth highest leading cause of deaths across the world and this is predicted to increase despite infection rates falling. Heart disease is the main cause of death, followed by cerebrovascular disease (strokes) with respiratory infections third. The table below highlights the main causes of death and projects how they will change by 2030. Significantly traffic fatalities are projected to increase by 66% in 2030, moving them up to 8 in the league table. 70% of deaths in 2030 will be accountable to non-communicable diseases suggesting that vaccinations, medication and care will cope with infectious disease over the next 20 years. This falls in line with disease such as tuberculosis and malaria falling out of the top 15 causes of death by 2030.

**Table 2.** Changes in Rankings for 15 Leading Causes of Death, 2002 and 2030 (Baseline Scenario)

Category	Disease or Injury	2002 Rank	2030 Ranks	Change in Rank
Within top 15	Ischaemic heart disease	1	1	0
	Cerebrovascular disease	2	2	0
	Lower respiratory infections	3	5	-2
	HIV/AIDS	4	3	+1
	COPD	5	4	+1
	Perinatal conditions	6	9	-3
	Diarrhoeal diseases	7	16	-9
	Tuberculosis	8	23	-15
	Trachea, bronchus, lung cancers	9	6	+3
	Road traffic accidents	10	8	+2
	Diabetes mellitus	11	7	+4
	Malaria	12	22	-10
	Hypertensive heart disease	13	11	+2
	Self-inflicted injuries	14	12	+2
	Stomach cancer	15	10	+5
Outside top 15	Nephritis and nephrosis	17	13	+4
	Colon and rectum cancers	18	15	+3
	Liver cancers	19	14	+5

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Morbidity refers to illnesses and the reporting of disease. In the UK in the 2001 census respondents were asked how well they felt and whether they had a long term limiting illness. Some diseases are so infectious that by law they must be reported; these are usually included in international surveillance programmes. Plague, cholera and yellow fever are the most serious, but malaria, influenza and typhoid are other examples. Patterns of morbidity vary according to the nature of the illness.

## **Influenza**

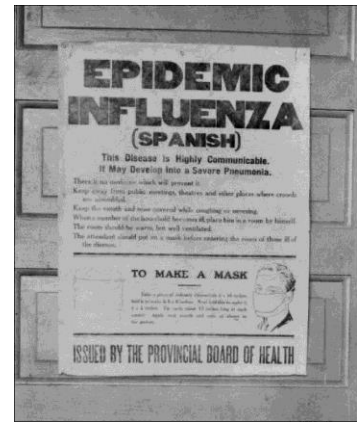
**Influenza**, commonly known as **flu**, is an infectious disease of birds and mammals caused by RNA viruses of the family Orthomyxoviridae (the influenza viruses). In humans, common symptoms of the disease are the chills, then fever, sore throat, muscle pains, severe headache, coughing, weakness and general discomfort. In more serious cases, influenza causes pneumonia, which can be fatal, particularly in young children and the elderly. Although it is sometimes confused with the common cold, influenza is a much more severe disease and is caused by a different type of virus. Typically influenza is transmitted from infected mammals through the air by coughs or sneezes, creating aerosols containing the virus. Influenza can also be transmitted by saliva, nasal secretions, faeces and blood. Infections also occur through contact with these body fluids or with contaminated surfaces. Flu viruses can remain infectious for about one week at human body temperature, over 30 days at 0°C (32°F), and for much longer periods at very low temperatures. Most influenza strains can be inactivated easily by disinfectants and detergents.

Flu spreads around the world in seasonal epidemics, killing millions of people in pandemic years and hundreds of thousands in non-pandemic years. Three influenza pandemics occurred in the 20th century and killed tens of millions of people, with each of these pandemics being caused by the appearance of a new strain of the virus in humans. Often, these new strains result from the spread of an existing flu virus to humans from other animal species. A deadly avian strain named H5N1 has posed the greatest risk for a new influenza pandemic since it first killed humans in Asia in the 1990s. Fortunately, this virus has not mutated to a form that spreads easily between people.

Vaccinations against influenza are usually given to people in developed countries with a high risk of contracting the disease. A vaccine formulated for one year may be ineffective in the following year, since the influenza virus changes rapidly over time, and different strains become dominant. Antiviral drugs can be used to treat influenza.

In annual influenza epidemics 5-15% of the population are affected by upper respiratory tract infections. Hospitalisation and deaths mainly occur in high risk groups. Although difficult to assess, these annual epidemics are thought to result in between 3 and 5 million cases of severe illness and between 250,000 and 500,000 deaths every year around the world. Most deaths currently associated with influenza in industrialised countries occur among those over 65 years of age.

The most famous and lethal outbreak was the so-called Spanish flu pandemic which lasted from 1918 to 1919. Older estimates say it killed 40-50 million people, while current estimates say 50 million to 100 million people worldwide were killed. This pandemic has been described as "the greatest medical holocaust in history" and may have killed as many people as the Black Death. This huge death toll was caused by an extremely high infection rate of up to 50% and the extreme severity of the symptoms. Indeed, symptoms in 1918 were so unusual that initially influenza was misdiagnosed as dengue, cholera, or typhoid. One observer wrote, "One of the most striking of the complications was hemorrhage from mucous membranes, especially from the nose, stomach, and intestine. Bleeding from the ears and hemorrhages in the skin also occurred." The majority of deaths were from bacterial pneumonia, a secondary infection caused by influenza, but the virus also killed people directly, causing massive hemorrhages and edema in the lung.



The Spanish flu pandemic was truly global, spreading even to the Arctic and remote Pacific islands. The unusually severe disease killed between 2 and 20% of those infected, as opposed to the more usual flu epidemic mortality rate of 0.1%. Another unusual feature of this pandemic was that it mostly killed young adults, with 99% of pandemic influenza deaths occurring in people under 65, and more than half in young adults 20 to 40 years old. This is unusual since influenza is normally most deadly to the very young (under age 2) and the very old (over age 70). The total mortality of the 1918-1919 pandemic is not known, but it is estimated that 2.5% to 5% of the world's population was killed. As many as 25 million may have been killed in the first 25 weeks; in contrast, HIV/AIDS has killed 25 million in its first 25 years.

Later flu pandemics were not so devastating. They included the 1957 Asian Flu and the 1968 Hong Kong Flu but even these smaller outbreaks killed millions of people. In later pandemics antibiotics were available to control secondary infections and this may have helped reduce mortality compared to the Spanish Flu of 1918. Limited outbreaks of a new influenza subtype (H5N1) directly transmitted from birds to humans occurred in Hong Kong Special Administrative Region of China in 1997 and 2003 and there have been fears that this cause a pandemic.

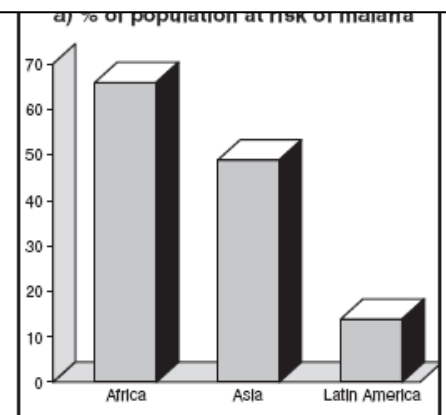
## Malaria

Approx 40% of the world are at risk from catching malaria. It kills over 1 million people annually and affects up to 500 million people. The main area of incidence is Sub-Saharan Africa (80% of all cases), where it affects 50% of the population. Worldwide, a child dies of malaria every 30 seconds.

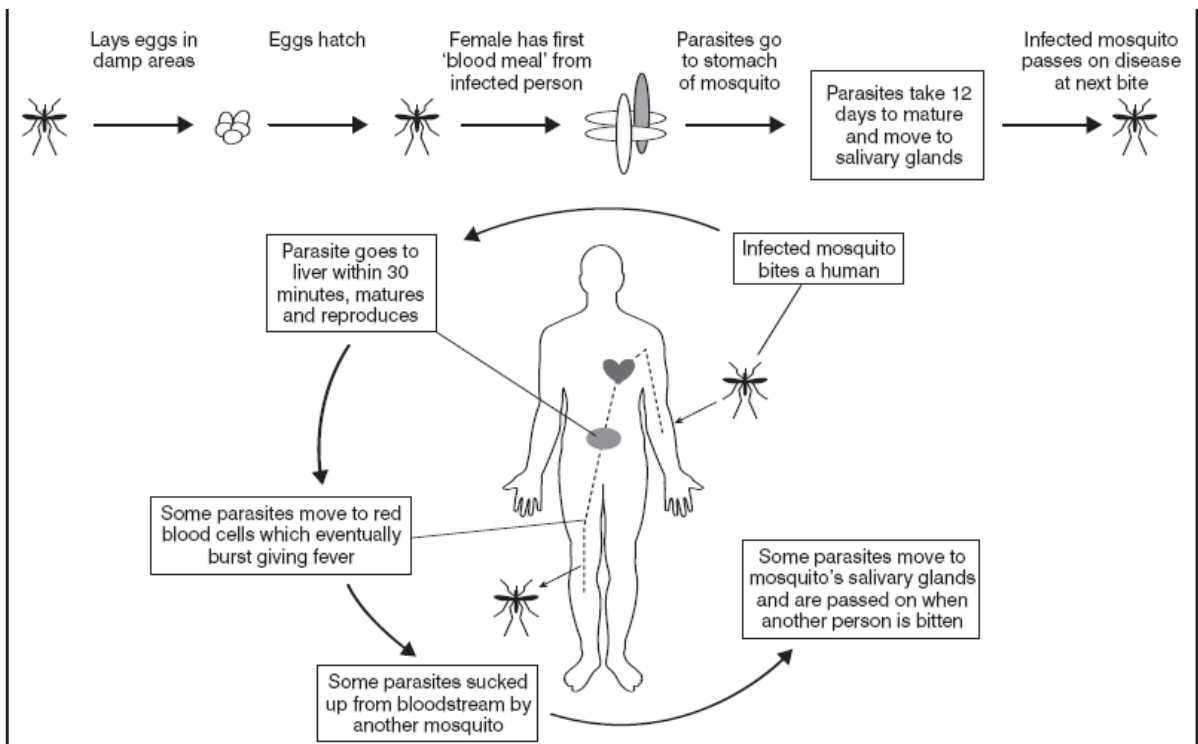


Areas where malaria is found

Malaria is a parasitic, mosquito-borne disease which is common in tropical areas where the anopheles mosquitoes can survive and multiply. The malaria parasite needs a temperature of above 20°C in order to complete its life cycle and the mosquitoes prefer humid conditions such as valleys, deltas, irrigation channels so, unfortunately, they tend to inhabit densely populated fertile farming lands. One of the possible consequences of climate change could be the migration of malaria carrying mosquitoes into latitudes outside of the tropics. If this was the case then the global patterns of malaria could change significantly.



The way in which the disease is transmitted can be seen in the diagram below.



The disease has fever and flu-like symptoms and if untreated can cause convulsions, coma and death. Children who survive can suffer from learning impairment and brain damage. Repeated episodes lead to anaemia and general lethargy, which weakens the adult workforce.

### **Solutions to the malaria problem**

There are several ways in which countries can be helped:

- Drug treatment: originally quinine and more recently chloroquine are both effective.
- Controlling the vector (anopheles mosquito) by insecticides:- elimination or reduction in numbers of the carrier mosquito has been successful using the insecticide DDT, but due to environmental side-effects its use is restricted now. It is still used to spray the walls of houses in mosquito-infested areas targeting, and hopefully killing, the adult female in the 12-day period when parasites are growing inside her. Such spraying is a good solution as it is cheap and only needs to be carried out every 6 months.

Recently a new alternative chemical has been introduced - pyrethrine - which is more expensive but needs a shorter contact time with the mosquitoes. It also kills another major pest, cockroaches, and causes less damage to the walls - insecticide-treated bed nets are also very effective, easy to use and target the main area of attack. They can reduce child deaths by over 20% and cases of illness by 50%. However, by the end of 2004 only 5% of potential sufferers were using nets, the cost of around three dollars per net being too expensive for many countries to implement on a wide scale.

- Killing mosquitoes at the larval stage by:
  - draining and filling in suitable breeding sites
  - screening or covering water tanks
  - drying out irrigation channels weekly to interrupt the life-cycle of the mosquito
  - stocking water sites with fish which will eat the larvae; these fish can also be used to provide a food source, e.g. grass carp in parts of Asia.

All the major world organisations are very aware of the seriousness of the problems that malaria creates. In 1998 a multi-agency programme (involving input from WHO, UNICEF, the UN and the World Bank) was set up for the research and control of the disease. 'Roll Back Malaria' aims to halve deaths from malaria by 2010. It remains to be seen how successful the programme will be, but early results are very encouraging.



## What is the distribution and impact of an infectious disease (HIV/AIDS) on health, economic development and lifestyle?

### What is HIV/AIDS?

AIDS is **Acquired Immune Deficiency Syndrome**. It is caused by virus known as HIV (Human Immunodeficiency Virus). This is a retro virus, which can be transmitted through bodily fluids.

- Blood
- Semen
- Vaginal secretions
- Breast milk



Transmission takes place in one of 4 ways

- Unprotected sexual intercourse
- Sharing needles when injecting drugs (or other skin piercing equipment)
- Via blood and blood products for example infected transfusion, organ or tissue transplants.
- From infected mother to child through breast milk

Once in the body HIV infects the cells of the immune system making it easy for opportunistic diseases like cancers, pneumonia and meningitis to take advantage of a weakened immune system. HIV is asymptomatic which means that it can be in the body for up to 6 months before it can be detected by a conventional AIDS test, and HIV positive people can live for a number of years without any symptoms. There is no cure for AIDS

### How does AIDS impact on health, economic development and lifestyle?

- Full blown AIDS eventually leads to death. Before death sufferers are susceptible to other illnesses like influenza and pneumonia. In developing countries especially those in Sub Saharan Africa life expectancy has dropped dramatically. In Zimbabwe life expectancy has fallen from 52 in 1991 to just 34 now.
- There are an increasing number of AIDS orphans in the developing countries. In Zimbabwe, the government estimates that nearly 1m. children under the age of 15 are without a mother because of this disease.
- The loss of the main income earner in developing countries is devastating communities in terms of their ability to support themselves. The FAO estimated that 16 million farmers will die in the next 20 years. This will have huge consequences for food production in developing countries.
- The cost of AIDS treatment is expensive. The UK health service has calculated treatment will be £300million for drugs. A course of ARV costs \$10,000 per year. However, cheaper generic drugs are available. UNAIDS estimated that \$20 billion is needed to manage the hazard.

- In developed countries it can affect people's ability to hold down a job especially if secondary illnesses leads to lots of time off work.
- It can be difficult to get a mortgage and insurance.
- Social stigma associated with AIDS cannot be measured, but in extreme cases women can be ostracised from society and become destitute. This is particularly the case in developing countries where there is generally less understanding of the disease. In developed countries AIDS sufferers are often those already marginalised by society such as drug users, sex workers and Africans in the UK.



### What is the geographical pattern of AIDS?

There is a biannual AIDS conference. This is the time when data on AIDS and HIV epidemic, new research and financial plans are discussed.

In 2006 there were 39.5 million globally infected with HIV. This is an increase from 35 million in 2001. There were 4.3 million new infections in 2006 and 3 million deaths. (Since the first recorded outbreaks in 1981 20 million people have died) However there are huge variations across the globe.

### ASIA

This is where the epidemic is **increasing rapidly**. The epidemic is concentrated in China, Indonesia and Vietnam. There are 7.5 million infections mainly among homosexual males and sex workers. There are fewer problems in Thailand as the government openly tackle high risk behaviour. In India, the spread of the disease can be plotted along truck routes, just as it could in East Africa 10 years ago. In China AIDS and HIV is a huge stigma and the government did not really admit there was an issue with the disease until 1995.

### AFRICA

25 million people are infected with HIV. This is 2/3 of those infected globally. The epidemic appears to be stabilising but this is only because new infections are balanced by deaths. This is the most dangerous stage of any epidemic. In 2003 there were 3 million new infection and 2.2 million deaths. However there are vast variations over the continent for example in Botswana 35% of the population are infected with HIV. In Uganda infection rates have declined from 13% in early 1990 to 4.1% in 2003.

There are also big differences in rates of infection between men and women. Overall there are 13 women to every 10 men with HIV but in Kenya it is 45 women to every 10 men. The main causes of spread are sexual transmissions both heterosexual and homosexual as well as mother to child transmission.

*"It is a culture where marriage parties, harvest festivals, graduations all come with sex... In Malawi 10 years ago, when the AIDS virus was rampant and ignored by a stern Presbyterian president, young girls were taken out into the bush and prepared for married life. The ritual involved sex with a single man elected by the village elders, a man of experience who could prepare them for marriage and infect the next generation of women. The practice still goes on in some parts of the country.*

*The name of the elected man, the Faesis, means hyena. The tradition that allowed an entire village of 14 year old girls to be initiated by one man also dictated that: a widow should be cleansed by sex by an outsider to clear her home of spirits; in the last months of pregnancy and for the first six of a new- born's life a woman should allow her husband to seek other partners; ... In such a culture of sexual dictates, multiple partners and women without power, AIDS has triumphed."*

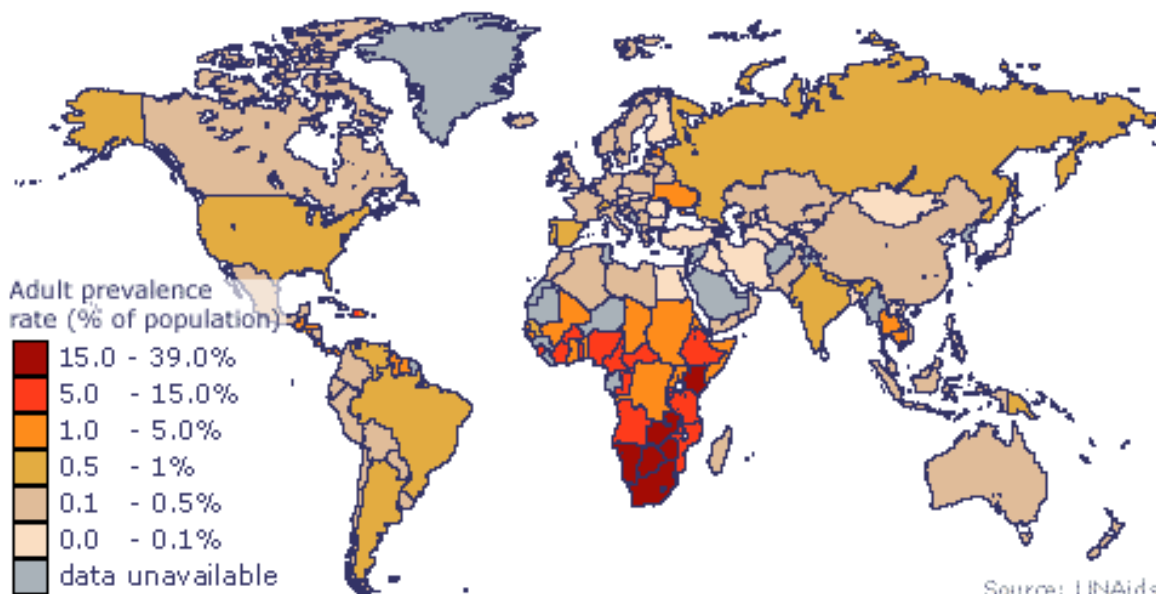
[Guardian July 8<sup>th</sup> 2000]

## LATIN AMERICA

1.6 million are infected. This is mainly linked to drugs and same men to men sexual relations. Brazil has low rates of HIV due to open government policy and attitude towards high risk behaviours.

## DEVELOPED COUNTRIES

Generally much lower rates of infection. People also stay alive for much longer due to the availability of drugs to prevent the onset of full blown AIDS. In North America 1 million are known to be living with HIV, and in Western Europe 610 000. There has been a 122% rise in infection through heterosexual sex.



50 000 people are living with HIV infection with probably a 1/3 more to be diagnosed. The numbers are increasing overall mainly because the death rate has fallen. Since 1981 there

have been 15000 deaths from HIV and AIDS. In 2003 there were a reported 7000 new cases. HIV and AIDS are more prevalent in urban areas than rural ones, with concentrations in London, Birmingham and Glasgow. However there are also smaller concentrations in traditional seaside resorts like Blackpool and Brighton. This is mainly because of their associations with the sex industry. Most people in the UK have contracted HIV through unprotected sex between men. However 54% of new infections are from heterosexual transmissions. There are no transmissions from using blood products as since 1985 all blood is screened and heat treated.

### **Evidence for the AIDS Hazard**

There are a number of sources of evidence for measuring the extent of the AIDS hazard.

#### **GLOBAL SCALE**

- WHO (World Health Organisation)
- UNAIDS (United Nations branch that deals with AIDS)

#### **NATIONAL SCALE**

- Government Health Department
- Coroners reports
- Local Health authorities
- AIDS clinics/charities (eg: Terence Higgins Trust)

*However it is very hard to assess the overall numbers*

- i. Death certificates often don't have AIDS as the cause of death because patients usually die from infections caused by a weakened immune system such as influenza or pneumonia
- ii. Fear of stigma and discrimination mean that people especially in developing countries are less likely to have an AIDS test.
- iii. HIV can lay dormant for up to 6 months meaning that new infections can take place before an AIDS test shows up the infection.
- iv. Some Governments under represent figures to protect tourism industries and investment opportunities. This was the case in China who did not acknowledge AIDS infections until 1995.
- v. In LEDCs where population per doctor figures are very high..... it may be very difficult to get an AIDS test. Therefore cases go uncounted and unacknowledged.

## **Management of the hazard**

Responses can be classified as reactive, protective and preventative, can be seen on an individual and group basis and on a variety of scales. Responses vary considerably in western advanced economies and in Africa.

### **Individual**

In a country such as the UK or the USA, an individual's reactive response may well be to have an AIDS test if they think they are at risk. The individual protective response will be to modify behaviour - through celibacy or safe sex, using clean needles and so on. In Africa, going for an AIDS test may not be feasible, as population-per-doctor figures are high and the disease carries an enormous social stigma. The availability of condoms may be restricted, either through cost or because of the influence of the Catholic Church. For the individual, there is no preventative response. Indeed, there is not yet any preventative response. Research continues to aim to find a vaccine that would prevent people contracting HIV. Government health departments and private drug companies fund this. So far no vaccine has been found.

**Group** responses are can be seen at a variety of scales.

### **LOCAL**

Local reactive response

- On a local scale, the reactive response of Local Health Authorities has been to establish AIDS clinics. Similarly, charities such as the Terence Higgins Trust and Lighthouse have set up centres providing support and advice for AIDS sufferers and their relatives and friends.

Local protective response

- As a protective response, some Local Area Health Authorities provide a free needle exchange for drug users. This was first introduced in Glasgow and did slow the spread of the disease, although the scheme faced criticism because taxpayers' money was being spent to support a drugs habit. The scheme has been extended to other areas where the disease spread by drug-users.

## NATIONAL

- MEDIA CAMPAIGNS AND EDUCATION PROGRAMMES inform young people in particular of the dangers of AIDS. The slogan of a successful UK campaign was "*Don't die of ignorance*". National campaigns are run by AIDS charities with red lapel ribbons and an AIDS Awareness Day each year. Such campaigns are essentially protective. In Thailand and Uganda the promotion of ABC (Abstain, Be faithful, Condom) has been successful.



The HEART CAMPAIGN in Zambia has helped reduce infection in urban areas from 28.3% to 24.1%.

- PLOTTING THE SPREAD OF OUTBREAKS. This can help identify areas where resources need to be most used. In developing countries, tourist areas, long distance truck stops and mining communities where there is a sex trade are particularly vulnerable to HIV infections. This means there has been a focus on education to try and change behaviours.
- BLOOD SCREENING. Other national protective responses include the development of blood screening services to prevent the spread of HIV through blood transfusions. This has been largely successful, although HIV is not detected through a routine blood test for up to 12 weeks. Since 1985 all blood products in the UK has been heat-treated and there have been no recorded infections from transfusions since then. This is not often the case in developing countries. In China's Henen province the health authorities were told that they needed to make a profit. One way was by collecting blood from the local population and selling it on. For a donation of 800cc, locals were paid enough to feed a family for a week. However to enable people to make more frequent donations the collectors would pump 400cc of blood back into the donors' veins. This blood was unchecked and untreated and the practice has led to catastrophic outbreak of HIV and AIDS in the Henen province. This shows the importance of screening products.

## GLOBAL SCALE

On a global scale, the United Nations has established UNAIDS This is an umbrella group which co-ordinates the anti-AIDS efforts of different UN agencies and pushes through a global agenda which includes influencing the World Bank, large drug companies

and the Gates Foundation, an American charity, to allocate funds to fighting AIDS globally and not just in rich westernised countries where improved drugs are reducing the effects of the disease. Every two years UNAids hosts a high-profile international conference to push governments into taking a more pro-active role in their fight against the disease, either through pledging more development aid, or through attempting to influence governments' attitudes to the disease and drug companies' attitudes to profit margins.

Antiretroviral drugs can help delay the onset of full blown AIDS and prolong life for a number of years. They have been available for about 10 years. They are expensive at about \$10000 per annum. Much of the cost has come about because the drugs are patented by big drug companies. However, lower cost versions are now available. A major issue facing the global management of the AIDS epidemic is the availability of ARV drugs in areas where the disease is spreading most rapidly, in sub-Saharan Africa, China and India.

- ARVs are widely available in MEDCs and have substantially cut the number of AIDS deaths.
- In Brazil ARVs have been given away free and patient deaths have dropped by 50%. The Brazilian Government calculated that the cost of giving free ARVs was \$240 million but the potential cost for non-treated patients would be \$300 million thus saving \$60 million.
- Although drug companies have made cheaper version available even \$1 a day would be too expensive in Sub Saharan Africa.
- The first country in Africa to give free ARVs was Botswana. However this is a relatively rich country due the diamond mines in the country.
- UNAIDS want to give AZT a form of antiretroviral to all pregnant mothers who are infected especially in LEDCs. This may ensure survival and cut the numbers of AIDS orphans.
- G8 conference in July 2005 pledged funding for the wider availability of ARV drugs throughout Africa bringing "near-universal access to HIV/AIDS treatment drugs."

## AIDS IN UGANDA: A success story?

AIDS was first recognised in Uganda in the early 1980s. Within 10 years it had become deeply affected by the virus largely because people responded to the disease by denying its existence. The rates of infection were about 15%. At the height of infections 18.5% of the people were infected.

YEAR	HIV PREVALENCE
1995	18.5%
1996	15.3%
1997	14.7%
1998	9.5%
1999	8.3%
2000	6.1%
2001	5.0%

The reduction of the prevalence of AIDS is regarded as sub Saharan Africa's success story. A number of strategies have put forward to tackle AIDS. **The most important was when the government decided to show openness about the disease. President Museveni made AIDS an issue of national importance** and he toured the country speaking openly about HIV. The issue was discussed on radio programmes, humorous but factually accurate magazines were written for young people and pop stars sung about infection.

**TASO:** Action Aid started working in community based care in 1987 and Tao was set up by Noerine Kaleeba with support from Action Aid. Her husband died from AIDS leaving her with 4 daughters to bring up. TASO slogan is '**Living positively with AIDS**'. It calls for those with AIDS to take responsibility but also provides support for 30 000 families. It involves running day care centres, providing specialist medical care and an outreach service.

Noerine Kaleeba





**STEPPING STONES:** When it became clear that the government's lectures on safe sex was not working, Stepping Stone changed tack in that it encouraged people to address issues about sex and relationships and then decide what action to take. It is part of the curriculum at a major Ugandan teaching institution. The ideas have been used by 2000 organisations in 100 countries.

"I used to have casual sex with a few women in the village. I thought it was okay because I'm a man. Since the workshop I've been faithful to my wife. We've started using condoms because my wife also attended the workshop and we learnt about family planning and AIDS prevention. The family planning officer passes by every week and gives them to us for free. My wife and I also learnt how to settle conflicts without quarrelling. These days, when there is a problem between us we sit down and talk about it like adults."

**Fred Ilwala, 32,** Ugandan farmer.

Other projects include **Open Secret** which is a book and video aimed at breaking the silence around the disease. **Memory Books** which provide information for children about their family history, it reduces the stigma for children of having parents infected by HIV and allows parents to tell their children things they find difficult.

"Uganda has been cited as sub-Saharan Africa's success story in its efforts to reduce HIV prevalence levels. In Kampala, the major urban area, HIV prevalence among antenatal clinic attendees increased from 11% in 1985 to 25% in 1990 then 29.4% in 1992. Beginning in 1993, however, HIV prevalence among antenatal clinic attendees began to decline in Kampala reaching 13.8% in 1998 and 11.25% in 2000."

## How do attitudes to HIV/AIDS affect the management of the hazard?

### **Personal attitudes**

Attitudes to AIDS/HIV have been a major factor influencing its spread. Homosexual men took messages about safe sex on board quickly and the rate of spread amongst homosexual males has declined as many within the gay community have personal experience of a friend or loved one affected by AIDS. Unfortunately, heterosexuals have tended to dismiss their personal risk from the disease. The problem here is that the term 'risk groups' enters the language, with the implication that if you are not an intravenous drug-user, or gay, or African, then you are unlikely to get the disease. That is ridiculous. The only kind of risk with AIDS is 'risk behaviour' - unsafe sex or shared drug needles, for instance. Heterosexuals who do not listen to the warnings put themselves at an increasing level of risk as AIDS moves inexorably into the heterosexual community in developed countries.

## Group attitudes

When HIV/AIDS was first diagnosed in the 1980s, its sufferers were often blamed for their condition, rather than given any sympathy. AIDS occasioned a marked anti-gay backlash in the tabloid press. Gays working in restaurants and bars were sacked or, in the worst cases, beaten up. At this time, it was very difficult to raise money for AIDS charities.

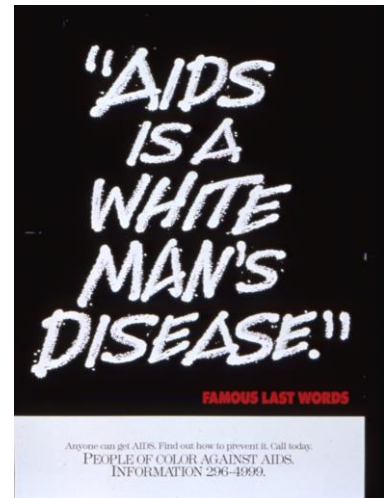
While this attitude is seen less now in developed countries, there is still a good deal of prejudice about AIDS in developing countries.

- China has only recently admitted that it has a problem.
- Thabo Mbeki, President of South Africa, caused a stir at the opening of the 13<sup>th</sup> global AIDS conference in July 2000, by suggesting that there is no accepted link between HIV and AIDS, so giving his government an excuse to do little to counteract the epidemic of AIDS-related illness sweeping his country.

In other sub-Saharan African states, the threat of AIDS has been managed much more successfully because governments have accepted their responsibility towards AIDS sufferers and directed funds towards combating the disease. Uganda, for example, has reduced its level of infection from 14% to 8% in the last decade. There are a few simple but important steps that need to be taken.

- The first is to change attitudes and to stop being squeamish about sex. Talking about sex is taboo in many African cultures. In places like Uganda, this taboo had been overcome, although the present regime seems to be more interested in promoting celibacy than condoms. As a result, the progress made in combating the AIDS epidemic is thought to be at risk (Observer August 2005).
- The second idea is to test pregnant women and give them ARVs if they are infected. This is a cheap and effective use of use of anti-AIDS drugs which ought to be near the top of even the poorest country's health budget.
- The third way to stop the spread of AIDS is to empower women to say no. This is really difficult in the many patriarchal - i.e. exploitative - African cultures. Yet women who are educated have a much better chance of saying no than those who are not. The no does not have to be no to all sex. But it does need to be no to unprotected sex with anybody about whose HIV status a woman is unsure. So female education is a very important part of an effective anti-AIDS strategy.

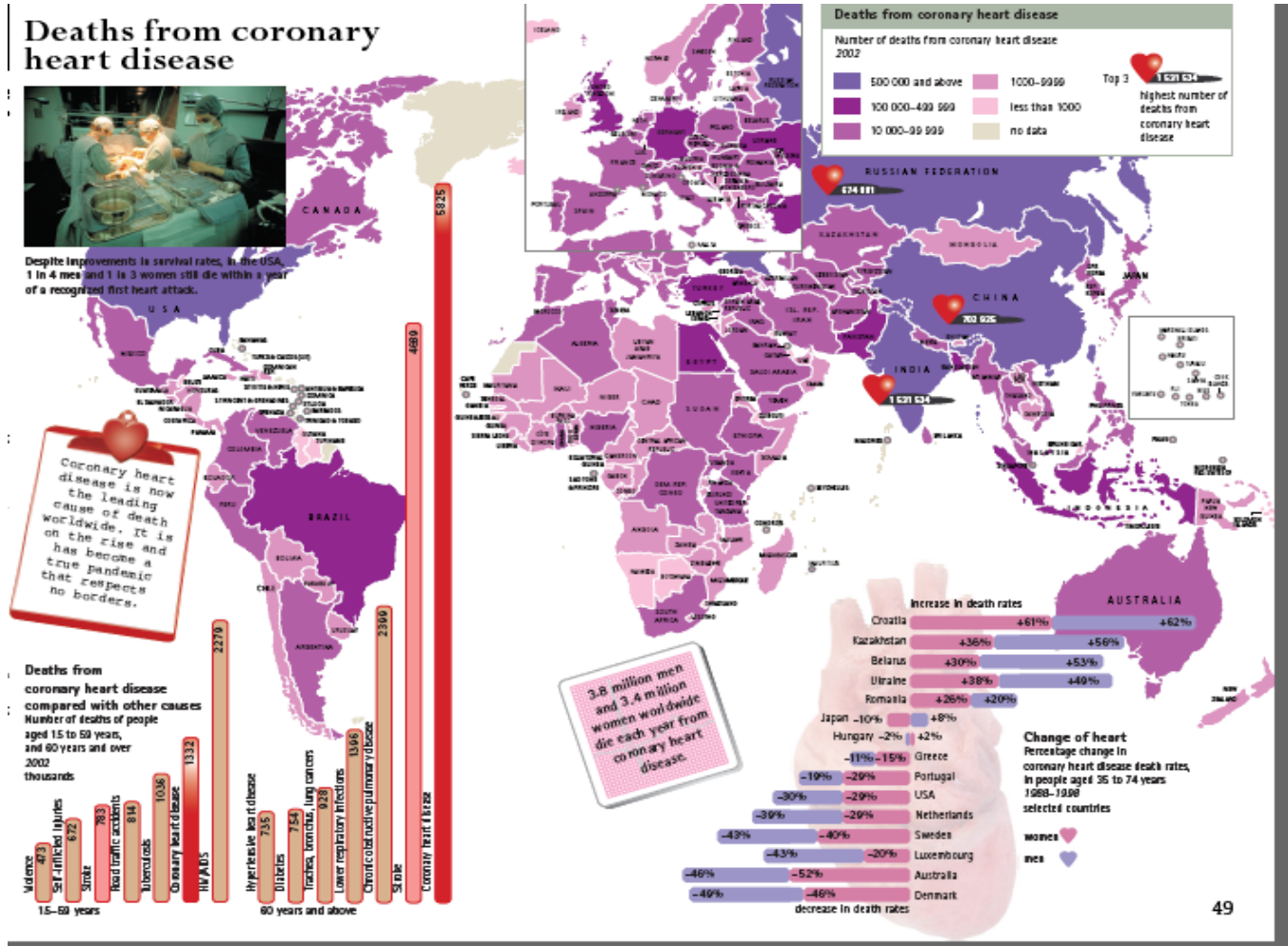
Condoms, healthy births and educated women will not abolish AIDS. That preventative response will require a vaccine which is cheap enough for African countries to use. This is still years away and while drug companies see the development of the vaccine as a means of making money it is unlikely to impact on those sub-Saharan countries which need it most.



Poster images in the fight against AIDS show how campaigns have changed. The two on the right are both from USA in the late 1980s. At this time, afro-Americans commonly saw AIDS as a gay white's disease, while conservative Christian were unhappy to promote the use of condoms, as this was seen to condone sex before marriage. The image on the left is from 2004. It focuses on the role of women in the epidemic and comes from the African AIDS Action campaign website

**What is the distribution and impact of a disease of affluence (coronary disease) on health, economic development and lifestyle?**

A heart attack occurs when the blood vessels supplying the heart muscle become blocked, starving it of oxygen and leading to the heart's muscle failure or death. A wide range of risk factors can be responsible for a heart attack, often acting in combination. The incidence of these factors varies around the world and so does the occurrence of the disease. The impact of heart disease is measured both by deaths and by disability-adjusted life years (DALYs). DALYs are an indication of the number of healthy years of life lost and years lost due to disability. The measures indicate the total burden of diseases, as opposed to just the number of deaths. Since 1990, more people around the world have died from coronary heart disease than any other cause. Its disease burden is projected to rise from around 47 million DALY's globally in 1990 to 82 million DALYs in 2020. Cardiovascular disease is responsible for 10% of DALYs lost in low and middle income countries, and 18% in higher income countries.



Variations in death rates are marked, they are lower in populations with short life expectancy. Coronary heart disease is decreasing in many more developed countries due to improved prevention, diagnosis and treatment, and in particular reduced cigarette smoking

and lower than average levels of blood pressure and cholesterol. However, it is increasing in less developed countries, partly as a result of increasing longevity, urbanisation and lifestyle changes. The World Health Organisation (WHO) states that more than 60% of the global burden of coronary heart diseases occurs in newly developing countries. Is this a disturbing sign of development?

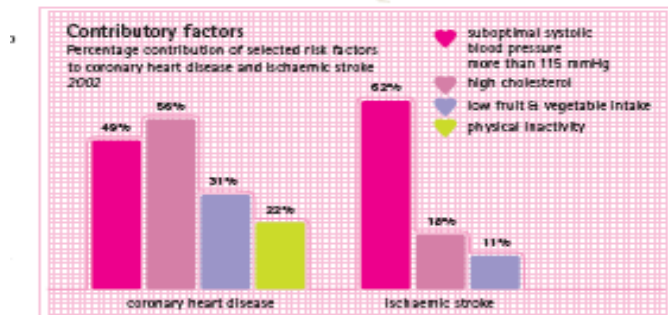
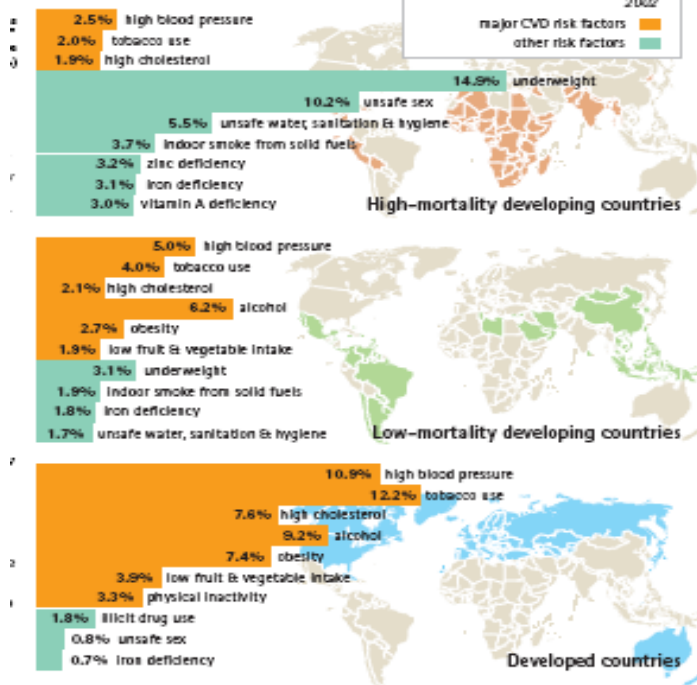
In developing countries coronary heart disease has historically been more common in the more educated and higher socioeconomic groups, but this is beginning to change. In industrial countries such as Canada and the UK, there is a widening social class differences but in the opposite direction. Studies in developed countries suggest that low income is associated with a higher incidence of coronary heart diseases and with higher mortality after a heart attack. The prevalence of risk factors for heart disease, such as high blood pressure, smoking and diabetes, is also higher. The use of medications is lower, especially of lipid-lowering agents, as well as other treatments, such as cardiac catheterization.

### What are the risk factors?

Over 300 risk factors have been associated with coronary heart disease. Many of these are significant in all populations. In MEDC's there are five major risk factors: alcohol use, tobacco use, high blood pressure, high cholesterol, obesity. In developing countries with low mortality, such as China, the same risk factors apply, with the additional risks of under-nourishment and communicable diseases. In developing countries with high mortality, such as those of sub-Saharan Africa, low vegetable and fruit intake are also important factors. The relative impact of these risk factors is shown in the table below:

<b>Risk Factor</b>	<b>Developed countries (%)</b>	<b>Low mortality developing countries (%)</b>	<b>High mortality developing countries (%)</b>
<b>Tobacco use</b>	12.2	4.0	2.0
<b>High blood pressure</b>	10.9	5.0	2.5
<b>Alcohol use</b>	9.2	6.2	<1.0
<b>High cholesterol</b>	7.6	2.1	1.9
<b>Obesity</b>	7.4	2.7	<1.0
<b>Under-nutrition</b>	No importance	3.1	14.9
<b>Unsafe sex</b>	0.8	1.0	10.2

## Risk factors



Some major risk factors are modifiable in that they can be prevented, treated and controlled. There are considerable health benefits at all ages, for both men and women, in stopping smoking, reducing cholesterol levels and blood pressure, eating a healthy diet and increasing physical activity.

## Economic costs

The economic costs of heart disease include the cost to the individual and to the family of healthcare and time off work, the cost to the government of healthcare and the cost to the country of lost productivity. All of these are difficult to quantify. However:

- Health care costs associated with smoking-related illnesses result in a global new loss of US\$200 billion per year, with one third of those losses occurring in developing countries.
- If only 10% of all adults began walking regularly, Americans would save US\$5.6 billion in costs relating to heart disease (President George W. Bush, 2002)

- 'The direct costs of physical inactivity accounted for an estimated US\$24 billion in healthcare costs in 1996 (WHO)
- 'Health problems related to obesity, such as heart disease, cost the USA an estimated US\$177 billion a year' (WHO)
- 'Cholesterol-reducers were the top selling medications in 2003, generating US\$14 billion in sales' (WHO)
- 'The cumulative Medicare costs of treatment of heart diseases in people aged 65 and over in the USA amounted to US\$76 million in 2000' (WHO)
- 'Expenditure in OECD countries on heart disease medications increased from 9.4% in 1989 to 11.0% in 1997' (WHO)
- 'The number of people who die or are disabled by coronary heart disease could be halved with wider use of a combination of drugs that costs just US\$14 a year' (WHO)

## Prevention strategies

Significant health gains in the treatment of heart disease can be made within a short period of time through public health and treatment interventions. Governments are stewards of health resources and have a fundamental responsibility to protect the health of citizens. They can do this by educating the public, making treatments affordable and available and advising patients on healthy-living practices. Some examples of prevention strategies are:

- In the UK, dieticians promote the benefits of heart health through the eating of oily fish, more fruit and vegetables, and eating less saturated fat.
- In Finland, community based interventions, including health education and nutrition labelling, have led to a population wide reductions in cholesterol levels closely followed by a sharp decline in heart disease.
- In Japan, government-led health education campaigns and increased treatment of high blood pressure have reduced blood-pressure levels in the population.
- In New Zealand, the introduction of recognisable logos for healthy foods has led many companies to reformulate their products. The benefits include greatly reduced salt content in processed foods.
- In Mauritius, a change from palm to soya oil for cooking has brought down cholesterol levels, but obesity has been unaffected.

## Health education

The above strategies are not effective without public understanding, support and demand. Health education is essential to promote healthy choices. Schools are an ideal venue for health education as they can provide a healthy diet, prohibit smoking and allow opportunities for exercise. WHO has initiated a number of activities to assist schools around the world, and since 2000 has coordinated World Heart Day events and activities, including:

- Medical activities such as blood pressure testing
- Activities to engage the public in physical activity
- Scientific conferences
- Activities to promote a heart-healthy diet.

The number of countries taking part in World Heart Day increased from 63 in 2000 to 120 in 2006.

## Policies and legislation

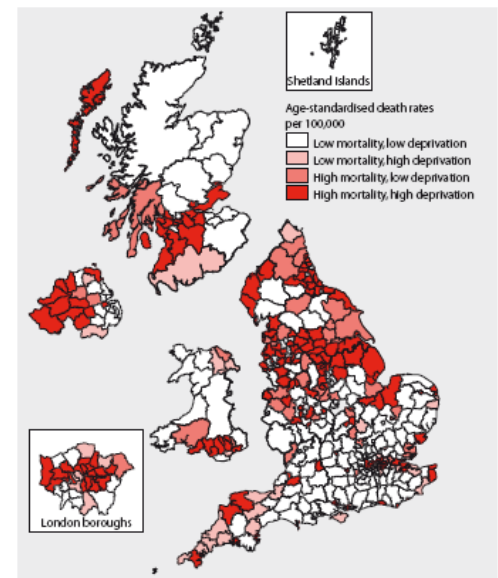
Only governments can legislate for the prevention and/or control of disease. The most common legislation involves reducing tobacco smoking, which has clear links to reducing heart disease. Legislation can include advertising bans, smoke free areas, health warnings

on packets, taxation and outright bans in public places. A smoking ban was first introduced in Singapore in 1970 and 37 years later the idea was implemented into the UK. Another interesting form of legislation was introduced in the USA in 2004. The House of Representatives banned lawsuits against fast-food restaurants by obese customers who argue that they have become overweight from eating there.

## Coronary Heart Disease in the UK Prevalence

Heart disease kills more people in England and Wales than any other condition. 1 in 5 men and 1 in 6 women died from heart disease, including heart attacks, in 2005. Whilst the number of people dying from heart disease has been falling in the UK since the 1970's, more people than ever are living with its consequences. There is a clear north-south divide with heart disease. The further north you head across Britain, the higher the number of cases recorded. There is some geographic variation in prevalence rates of coronary heart disease (CHD) in men is nearly twice as high in Yorkshire and the Humber (12%) than in the South West (7%) and East (7%) of England. Only 4% of women in the South West and East of England report a doctor diagnosis of CHD compared with 10% of women in the North East. Middlesbrough has one of the highest rates of heart disease and deaths from heart disease in Britain. In fact you are 25% more likely to suffer from the condition if you live in the area. Middlesbrough has its own unique set of reasons. 34% of all adults smoke, 27% binge drink and 23% are obese which all increase the risk of heart disease. The areas industrial past also plays a part. Heavy industry and dock workers commonly smoked and drank heavily, took little exercise and ate a poor diet. Now some workers are suffering the consequences. The industries also brought immigrants from Scotland and Ireland and experts say that these groups brought with them a heritage already prone to the disease. The Primary Care Trust in Middlesbrough has set up Britain's first Lifestore- a one stop place in shopping centre where people can drop by and have medical checks like blood pressure readings and cholesterol levels taken. The PCT also has a specialist nurse visiting mosques to carry out health checks. Research has shown that the Asian community has a high incidence of the disease too and won't often visit the GP. However, whilst many schemes are in place to improve Middlesbrough's record, it will take many more years to reverse decades of poor health.

*Age-standardised death rates from CHD and degree of deprivation by local authority, men aged under 75, 2001/06, United Kingdom*





## Cost

Researchers in 2006 found that heart disease in the UK costs the economy £29 billion a year in healthcare expenditure and lost productivity. The UK spends more of its healthcare budget on cardiovascular disease than any other EU country. The UK spends £60.57 a head on treating heart disease compared to Germany at £57.93 and Malta (the lowest in the EU) at £4.10. The researchers calculated that healthcare accounted for 60% of the total cost to the UK economy. Lost productivity made up for 23%, and informal care the rest. Cardiovascular care cost the NHS £16 billion in 2004, with the private sector running up a bill of almost £1.5bn. More than 69 million work days were lost to the disease in 2004, at a cost to the UK economy of almost £3bn. The research also found that although it is expensive to provide exercise facilities such as playing fields and gyms, this research shows that it is much more expensive not to.

## Policies in the UK to tackle heart disease

**Tackling smoking**-Following on from the smoking in public places ban in July 2007 and the raising of the legal age of smoking from 16 to 18, the Government are now looking at other ways in which they can reduce the amount of people who smoke as this is known to be a direct risk factor for CHD. Plans were published in June 2008 looking at banning cigarette vending machines and the selling of packets of 10 cigarettes. This is directly aimed at stopping young people and children smoking. TV advert campaigns are also tackling parents who smoke, with the advert warning that children of smokers are three times more likely to take up the habit than those of non-smokers. The Government is hoping by highlighting the issues to young people, the incidences of smoking related CHD in the future will be fewer.



**Tackling obesity**-The Government has introduced a Healthy Weight, Healthy lives strategy. The aim of the strategy is to cut the proportion of overweight and obese children by 2020 to levels in 2000. It is predicted that 60 per cent of men, 50 per cent of women and 25 per cent of children could be obese by 2050 if action is not taken.

This strategy includes:

- A £75 million marketing campaign to persuade parents to improve their children's diet and encourage physical activity
- A code of practice to be agreed with the food and drink industry
- £30 million invested in "healthy towns" to encourage walking, cycling and other activities
- Increased funding over three years for personalised weight-loss programmes and competitions in workplaces and the community
- Cookery lessons compulsory in all secondary schools by 2011
- Ofcom to bring forward a review into junk food advertising to children

**Year 12**

**Bridging Task**

**Geography**

**Name:** \_\_\_\_\_