

TEACHERS GUIDE

PLAGUED

History, Destiny and Disease

Also known as

INVISIBLE ENEMIES

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BACKGROUND TO THE SERIES

PLAGUED is the first major television series to investigate the epic relationship between history, destiny and disease.

We live in an era which is obsessed with health; in which people are jogging and dieting, sometimes to death. Since we evolved into humans 50,000 years ago, our wellbeing has been constantly 'shadowed' by our ills. And the temptation has always been to underestimate both the power of disease and its causes.

When AIDS suddenly appeared in the late 20th century, many people thought it was the first new disease to hit humanity. But AIDS wasn't the first 'new' disease, it certainly won't be the last and its causes are far wider than the Human Immunodeficiency Virus (HIV).

Programs in the four part series are:

- Episode 1: The Origins Of Disease
- Episode 2: Epidemics–Products of Progress
- Episode 3: Invisible Armies
- Episode 4: Will we ever learn?

HOW TO USE THIS PACK

- View the video and/or read the program overview to familiarise yourself with the contents.
- Read the program breakdown to decide how much can be viewed each lesson.
- Decide which of the teaching/learning activities are relevant to your students. Devise your own activities to suit your own lesson objectives if necessary.

OBJECTIVES

The information presented in PLAGUED is designed to help students to:

- Understand what is meant by health and disease
- Recognise the complex influences (biological, social, economic, political) that affect our wellbeing.
- Show how disease has changed the course of history and how it could do so again.
- Learn from the lessons of the history of disease, to avoid the mistakes of the past.
- Develop awareness of the mounting pressure on our earth's ecology- of how diminishing diversity and greater interconnections mean that we are all more vulnerable to influences happening anywhere on the globe.
- Realise that medical 'fixes' do not have all the answers to our ills.
- Understand how the issues in the series are connected to the decisions and choices they make in their personal lives.

PLAGUED AND THE CURRICULUM

This series, consisting of four one hour video documentaries, and could be used at all secondary and tertiary institutions. The programs raise so many varied issues; they can be used in a variety of courses across the curriculum. The table below gives a general guide to the main subject area of each program.

	1. Origins of Disease	2. Epidemics	3. Invisible Armies	4. Will We Ever Learn?
Aboriginal Studies	*			
Australian Studies	*	*		
Environmental Studies	*	*	*	*
Geography	*	*	*	*
Health & Personal Development	*	*	*	*
History	*	*	*	*
LOTE	*	*	*	*
Science	*	*	*	*

EPISODE ONE: THE ORIGINS OF DISEASE

PROGRAM OVERVIEW

In this episode, we investigate how new diseases arise and in the process discover that some are not diseases at all; they're suffering made worse by factors as diverse as medical jargon and management style.

The story starts in the dockside suburb of Baltimore on the East Coast of the United States. A disease is sitting quietly amongst rodents living in the alleys. It hasn't swept across the United States yet but no one knows why.

The scene switches to Korea in 1951. The war was raging. A similar disease found in Baltimore today, afflicting thousands of soldiers at the time, many of whom died. The film traces the efforts of US researchers to find the cause of the disease. Despite millions of dollars they failed. Twenty five years later, a Korean team found the virus again near the Hantaan River, a scene of the wars most fierce fighting. It was named Hantaan Fever.

A second startling discovery uncovered a similar virus in rodents in downtown Seoul. The impact of this new find was very important as house rats are found all over the world-and many travel the world on ships-, which takes the viewer back to Baltimore. The virus has been found in nearly half of the rats in one section of Baltimore's slums. The disease hasn't shown up in humans yet, but with the right conditions a disaster could occur.

'There will always be new viruses waiting for the right circumstances to produce an illness which doctors will call a disease- and often an important factor is loss of control - such as losing control of the environment'. (Narration)

The video shifts to an earlier war—World War One.

Looking at the treatment of 'shellshock', the program explores 'those diseases that aren't diseases'. They are suffering reinforced by medical jargon. Putting a medical label on a psychological problem places the blame on the wrong things.

We meet a variety of people who are suffering from Post Traumatic Stress Disorder. Some are veterans from Vietnam suffering from the after shock of a disastrous war. Others are victims who have survived armed robberies where many people died. Today these people are treated for trauma, where the focus should be.

'In World War 1, the label (shell shock) was part of the problem. It may sound extraordinary but a name can create a disease, and in Australia in the early 80s a name did help to create a disease- and epidemic in fact.' (Narration)

The next section deals with Repetitive Strain Injury (RSI) which is shown as another example of how medical jargon can create a disease. Identifying the condition as an injury without any evidence exacerbated the problem. *'If you create a disease, there will always be those who rush to join it.'* (Commentary)

Abandoning the medical approach (operations, drugs, etc.) to its treatment in Australia actually helped the epidemic disappear here, but these lessons have not been learnt overseas. The video takes us to the Los Angeles Times office, where RSI has become a major problem. We meet victims, executives and experts all grappling with its solution.

The lead-in to the next section is 'So a sick workplace can be the breeding ground for a disease. It's possible to imagine such a situation on a much greater scale, like a whole country that has lost control'.

The story continues in Budapest, the capital of Hungary in Eastern Europe. More than half the people in this country die from heart disease- caused by excessive cholesterol and smoking, among other causes. The solution in this case isn't hospitals and doctors. It's to do with personal control over people's lives. Just released from 50 years of communism, the health problems in Hungary will probably get worse in the near future. There is increasing poverty, more inequality and a greater degree of uncertainty about life-, all of which are not good for health.

In this section we meet the Director of Health and Promotion, and other citizens who are plagued by health problems. The Director says, 'I think coping is the main health issue in Hungary'. He is referring to stress, poverty, conflict and lack of control over every day life. The video moves now to Kerala in Southern India. The program continues on a note of optimism. Health statistics here are amongst the best in the developing world. The reason put forward is the high educational standards and confident status of women in this tropical Indian State. This has the effect of promoting greater control over every ones lives. However there are signs of future problems. As society develops, diet and lifestyle change, there is an increasing incidence of the diseases of the west, such as coronary heart disease and diabetes.

The final section moves to north western Australia and looks at an experiment with Aboriginal people who have developed diabetes and high blood pressure—a result of high fat, salt and sugar diets promoted by European influences on their lifestyles.

Reverting to their traditional lifestyle—eating bush food, hunting, walking reducing sugar and alcohol—their illnesses began to disappear in as little as two months.

This section shows how strong the link is between health and how societies are organised.

Norman Swan concludes the video with, 'Understanding where disease comes from; this intricate relationship between our genes, the environment, our past and even the way we think of ourselves, helps us gain control over our well being. But that's not a lesson that is easily learned, because since the Stone Age its been disease that's had the power—the power to change the course of history.'

PROGRAM BREAKDOWN

In order to plan lessons, the program can be broken down into the following major segments:

NB: *These are approximate timings from the beginning of the program.*

- Korea–Hantaan Fever (0-9 mins)
- Post Traumatic Stress Disorder–World War 1 cases of shellshock, Vietnam veterans (Australia) (9-19 mins)
- Repetitive Strain Injury–the Australian example in the 1980s and in the office of the Los Angeles Times today (19-29 mins)
- Heart disease–a society plagued by ill health–Hungary (29-38 mins)
- The role of woman in health–a case study from Kerala in south India (38-45 mins)
- Aborigines of north western Australia–the links between our genes, social change and health (45–52 mins)

SUGGESTED TEACHING/LEARNING ACTIVITIES

1. The following key terms and concepts are used in the video. Before viewing the program, define what is meant by each.

HIV/AIDS

ecological change

antibodies

diagnosis

shellshock

neurosis

trauma

agent orange

repetitive strain injury

ergonomics

cholesterol

heart disease

diabetes

genes

2. After viewing 'The Origins of Disease', hold a class discussion on the main issues raised by the program. Explain what is meant by the following key statements from the narration:

- 'And as so often in history, we created a new disease for ourselves. This film is about our vulnerability to new diseases–partly because we ignore where they really come from.
- 'There will always be a new virus waiting for the right circumstances to produce an illness which doctors will call a disease, and often, an important factor is loss of control'.
- 'The reactions to Vietnam, World War 1 or a mass murder are all the same, the trouble with medical names for psychological problems like 'Shellshock' is that we put the blame on the wrong things.

- 'It may sound extraordinary, but a name can almost create a disease, and in Australia in the 1980s, a name did help to create a disease, an epidemic in fact.' (Repetitive Strain Injury)
- 'So Hungary is a sick country even though it looks deceptively beautiful. But if you're seeking solutions, hospitals and doctors aren't the place to go. Ill health goes far beyond smoking and cholesterol. It's really about personal control and where the disease comes from.'
- Kerala is also a place in transition—yet its health statistics are amongst the best in the developing world. You see, there's yet another factor we've missed in this story of where disease comes from and it's got to do with women.'
- 'The last stop in our search for the origins of disease is the most basic influence of all—our genes—our hereditary—which has hardly changed since the Stone Age when humans first appeared. It takes us to a remote corner of Australia where a fascinating experiment has shown us that we are designed for berries and lean meat, not burgers and chips.'

3. Using an atlas, locate the various locations named in this documentary.

- Baltimore, USA
- Korea
- Europe(the battle fields of WW1)
- Vietnam
- Los Angeles, USA
- Budapest, Hungary
- Kerala, India
- northwestern Australia

4. The first segment of the program deals with Korean Haemorrhagic fever, or Hantaan Disease. After viewing this section complete the following.

- Describe the symptoms of Hantaan fever.
- How long has the disease been around?
- What caused the disease to appear during the Korean War? What has caused its reappearance since?
- How are humans infected? Why was it so difficult to find a cause for the disease?
- Where else is it appearing?
- How is it spread?
- Why is this disease such a potential threat to humans?
- What can be done to stop further outbreaks?
- Why does Dr Norman Swan state in the commentary, that 'we will have only ourselves to blame' if Korean Haemorrhagic Fever spreads and turns into a world threat?

5. Explain how 'loss of control over ourselves and our environment' is an important factor in producing a disease'.

6. The second segment in the program examines the effects of trauma on human beings, using examples of 'shellshock' in World War 1, Agent Orange (among other traumas) in the Vietnam War and victims of violent crime. After viewing, answer the following.

- How does 'Shellshock' affect the victim?
- How was it treated in World War 1? Why was this form of treatment ineffective?
- What kind of treatment produced better results?
- Describe the symptoms suffered by Glen Shilling, the victim of the armed robbery at the credit union.
- Why is today's medical label—Post Traumatic Stress Disorder—a more appropriate description for victims of so-called 'shellshock'?
- *'The medical label (shellshock) invented a disease and its useless treatment.'* (Narrator) Explain what this statement means.

7. The third segment develops the theme of 'how a medical label can almost create a disease'. It deals with Repetitive Strain Injury (RSI), looking at the epidemic in Australia in the early 80s and the current experience at the offices of the Los Angeles Times.

- Describe how the video portrays the Australian epidemic of the 80s. What change in the approach to treatment helped it die away?
- What are the symptoms of RSI? What causes its onset?
- How is RSI affecting the Los Angeles Times today?
- Why has the medical label 'injury' made the condition harder to cure? Why is fatigue a better term?
- Describe how person's belief systems can either promote or hinder relief.
- Why do you think the lessons learnt about RSI were not heeded in America?

8. The fourth segment takes us to Hungary where a 'whole country has lost control'.

- What does the video tell us about the main health problems affecting the Hungarian people?
- Why are the doctors and hospitals not the right places to go and seek solutions?
- Why is it expected that health problems in Hungary will get worse?
- Why is it difficult for ordinary Hungarians to have healthier eating habits?
- 'Bad health tends to occur where ever people lack power and choice'. What is meant by this statement?
- 'I think coping is the main health issue in Hungary.' How does stress affect health? What are the main causes of stress in Hungary today?

9. The fifth segment moves onto Kerala in Southern India. It is a society in transition, with a communist government and a fair amount of poverty. Yet its health statistics are amongst the best in the world. And it's got to do with women.

- The video shows the confidence and educational level of women in Kerala contributes to good health for the total population. Why?
- Why are these education levels for women traditionally high?
- In the transition from 'developing to developed', new health problems are emerging today. What are they and what are their causes?

10. The last segment in this video takes us to north western Australia, where we observe an experiment concerning diet with Aboriginal people. The main issue concerns the influence of our genes on health and disease.

- Why has such a high incidence of diabetes and high blood pressure occurred in the Aboriginal people living in this area?
- What lifestyle changes helped these illnesses disappear?
- How did the Aboriginals look and live before Europeans destroyed their way of life?
- What changes to their lifestyle occurred as a result European influences?
- What solutions for some of the Western diseases does this video segment suggest?

11. 'Understanding where disease comes from—this intricate relationship between, our genes, the environment, our past and even the way we think of ourselves—helps us gain more control over our well-being. But that's a not a lesson that is easily learnt, because since the Stone Age, it's been disease that's had the power—the power to change the course of history'. (Narration)

- Analyse this statement in light of the content of this video. Answer the following:
- Give examples of the cause for this disease.
- How can you take more control or eliminate disease?
- Give examples of diseases that have changed the course of history.

EPISODE TWO: EPIDEMICS—PRODUCTS OF PROGRESS

PROGRAM OVERVIEW

This episode takes up two recurrent themes of the series, namely that 'products of progress are epidemics' and that despite the seeming protection of medical technology, we are still vulnerable to new and old diseases.

Infectious or contagious diseases have co-existed with humans for centuries. People have survived the most punishing epidemics which have changed the course of history. Yet despite all our medical knowledge, only one disease—small pox—has been completely eradicated.

Epidemic diseases have left their fingerprints throughout the world, and given the right circumstances, they could wreak havoc again.

This film explores the complex reasons why some diseases have become epidemic and why they remain with us. It will show how, as we change the way we live, we create the circumstances for diseases to reach epidemic proportions and that it is only through a set of learned controls that we have managed to police, keep at bay, the ancient diseases that have shaped our past.

The film looks at two infectious diseases that affect the lives of millions of people in the world today: bubonic plague and cholera.

Bubonic plague, also known as The Black Death, was the infection that wiped out one quarter of Europe in the 14th century. It also killed at least 11 million people in the last century and still exists in affluent California. It's just waiting for the right circumstances to break out again.

The video starts with a recent death of a kindergarten teacher in the Lake Tahoe region of California. The diagnosis was Pneumonic Plague that was apparently transferred from her cat, which had in turn been infected by a chipmunk.

This introduction to plague in North America in the 1990s then takes the viewer into a history of the disease - one of the greatest scourges of human history.

Plague evolved in Central Asia where it was more or less under control. With the opening of the trade routes, which were soon to become disease routes, the disease spread to medieval Europe. Living conditions at the time—overcrowded cities, widespread poverty and basic lack of hygiene—were perfect for plague to thrive. And it did in three major pandemics that changed people's lives forever.

For the 300 years that plague lasted in Europe there was no real understanding of the diseases' causes. Outsiders were blamed, like the Jews. Some Italian states isolated visitors for 30 days and when that didn't work, they tried 40 days. This was called the 'quarantana' and is the origin of the word 'quarantine'. The program outlines the social conditions and the immense confusion and human suffering that successive plague epidemics caused up to the early 1700s in Europe. But for reasons not fully understood, plague disappeared as mysteriously as it appeared. The third pandemic began in the late 1800s in China and then started to spread into the New World. Australia had its own plague outbreak in the early 1900s.

The video describes the measures taken by the authorities in Australia to control the epidemic. They were similar in many ways to the draconian steps taken in Medieval Europe. However this was the first time that connection between rats, fleas and the disease was made. As a result, the government encouraged people to exterminate rats by paying a capitation fee on each rodent caught.

Australia was lucky. The infection didn't find a permanent home amongst the continent's wild rodents. Not so in the United States. The same pandemic that affected Australia spread to the USA in the first years of the 20th century. In California, plague bacterium spread into the wild animal population and now cities like San Francisco live under threat of this ancient disease.

The final part of this section of the video takes us back to Lake Tahoe where we see rangers and scientists taking preventative measures to stop the disease infecting humans. But the potential is still there, just waiting for the right conditions to strike.

The narrator sums up the message for the day, *'The potential horror is hidden amongst trees, but at least it's in my country where there is knowledge and resources to maintain some sense of control. Plague is all too real in some developing countries. It kills untold numbers of people each year because of their appalling living conditions. It would be in our interest to see that those people's lot is improved—if only to reduce the areas of active plague in this small world of ours.'*

The second part of the video deals with another infectious disease, which is on the march again around the world again. Cholera burst upon Europe in the 19th century and even though we know its causes, there have been further outbreaks in South America today. Now it's been found in oyster beds off the coast of Louisiana and Alabama.

Cholera is the disease of the slum town. The epidemic grew from the unsanitary conditions in the closely-knit cities of industrialising Europe in which drinking water was being mixed with effluent. The 'progress' being made by the Industrial Revolution also had many problems—a major one being this usually fatal disease. The program takes viewers to Manchester in the UK, a city that grew up because of the Industrial Revolution—a city poised at that time to become a medical disaster. Conditions were perfect for the accident of Cholera to invade.

We learn that Cholera's first home was at the mouth of the Ganges river in India, from which it was carried to Europe probably by soldiers. We also see how the outbreak of the disease had a political impact, forcing the construction of clean water and sewage systems in the burgeoning cities of Europe.

The causes of cholera have been known for a century, yet new outbreaks continue to occur. The 1990–91 epidemic killed more than 3000 people in Peru alone. There is no room for complacency.

US authorities are monitoring the new evidence of cholera along its coastline. Every effort is being made to investigate the oyster beds and estuarine waters to make sure the disease doesn't get into the seafood chain and affect humans.

In New Orleans, seafood markets are carefully checked and even the sewage system is being monitored to trace excreta containing cholera bacteria.

Cholera cannot be eradicated. It will continue to pose a threat, so we've got to learn to live with it and protect ourselves against it.

The narrator finishes the film with a statement with the lessons to be learned:

'We now live in a world which is vastly more interconnected; smaller than the previous eras. It is a world in which we've become more vulnerable to events or human activity in distant places. The lesson from Black Death, from cholera, from AIDS is that changes to the way we live can bring new epidemic diseases, which once established, rarely disappear—and often have the power to shape our destiny.'

PROGRAM BREAKDOWN

In order to plan lessons, the program can be broken down into the following major segments:

NB: These are approximate timings from the beginning of the program.

1. The Plague (0–25 mins)

- Lake Tahoe in California—a plague case today
- Europe—information on the second pandemic in the 14th century mostly dealing with Italy
- Australia—plague epidemic at the beginning of the 20th century
- California—techniques to prevent human infection from the squirrel population.

2. Cholera (25–52 mins)

- Introduction—symptoms of the disease, causes
- Manchester, UK—typical of the living conditions that spread cholera among the population
- Political changes wrought by the outbreak of cholera in Europe. No room for complacency with further outbreaks occurring the latest being in South America in 1991.
- North America—new evidence of the wide spread of the cholera vibrio to the coastal waters of Louisiana and Alabama. Efforts to prevent its spread into the human population.

SUGGESTED TEACHING/LEARNING ACTIVITIES

The following key terms and concepts are used in the video. Before viewing the program, define what is meant by each.

diagnosis

autopsy

the black death

antibiotics

epidemic

pandemic

medieval society

feudalism

quarantine

capitation fee

cholera

Industrial Revolution

victorian town

immunity

vibrio

toxigenic

2. After viewing 'Epidemics', hold a class discussion on the main issues raised by the program. Explain what is meant by the following statements from the narration:

- 'It would be very tempting to think of epidemics a bit like hurricanes or flashes of lightning—coming out of the blue from nowhere. I think that's a far too simple way of looking at the relations between epidemics and society. There's a kind of independence in biology: it has its own life but it is also interconnected in very, very complicated ways with society itself.'
- 'This social chaos (in Medieval Europe) was the grounds in which plague thrived'.
- 'Plague changed peoples lives. They were lost, angry and confused. They wondered why all of this suffering had been inflicted on them. Their crisis was in faith. The clergy were decimated. People searched for reasons to explain what was happening. They blamed outsiders in their midst, like the Jews.'
- 'Plague is primarily an animal disease and to infect humans it needs the coincidence of a whole range of factors that are favourable to the flea, the rat, to the human population. It takes an element of human behaviour to perhaps intrude in what is basically an animal disease. In Sydney in 1900 all those things came together.'
- 'Plague is all too real in several developing nations. It kills untold numbers of people each year, because of their appalling living conditions. It would be in our interest to see that those people's lot improved, if only to reduce the areas of active plague in this small world of ours.'
- 'Cholera is an infection that takes advantage of a changing environment—usually due to what some people call progress.'
- 'A disease of the poor had the nerve to threaten the European rich and so it was self interest that hastened social reforms.'
- 'In a city where drinking water mixes with sewage, it's easy to contaminate the whole population. So, given this knowledge has been known for a century, it makes the cholera epidemic in South America even more of a tragedy.'
- 'We now live in a world in which we've become more vulnerable to events or human activities in distant places. The lesson from the Black Death, from cholera, from AIDS...is that changes to the way we live can bring new epidemic diseases, which once established, rarely disappear—and often have the power to shape our destiny.'

3. Using an atlas, locate the various locations named in the documentary

- Lake Tahoe, California, USA
- Genoa, Florence, Venice and Bologna in Italy
- China
- Sydney, Australia
- Peru and Brazil
- mouth of the Ganges river in India
- Warsaw, Poland
- Manchester, UK
- Cholera epidemics in Istanbul, Portugal, Italy, Israel
- US states of Alabama and Louisiana
- New Orleans, USA

4. The first section of the video takes the viewer to California with the revelation that the ancient disease–plague–is still a real threat in modern America. After viewing this section, answer the following:

- Describe how the kindergarten teacher died.
- How did she become infected by the plague?
- Name the three types of plague and parts of the body they affect.
- Why are antibiotics usually ineffective as treatment?

5. The second section of the video looks at the origins of plague and provides details on the second pandemic in Medieval Europe in the 14th century. After viewing this section, answer the following:

- Where did plague evolve?
- How did it spread to Europe? What is meant by the phrase, 'disease routes'?
- Describe the living conditions of the people in European medieval society around 1350 AD.
- 'Social chaos was the ground on which the plague thrived.' Explain what this statement means.
- Why did plague 'change people lives'?
- What reasons did people give for the outbreak of plague at the time?
- Describe the measures that were taken by the authorities in Florence (Italy) to protect the city from plague. Why were they ineffective?
- When did plague recede from Europe? What reasons were given for its disappearance?

6. The third section of the video takes us to Australia at the beginning of the 20th century, where plague struck in the third pandemic.

- Where did plague first break out in Australia?
- What were the official responses to the epidemic?
- Describe the living conditions of the poor during that time in Australia. Why did plague affect them more than the wealthier people?
- Describe what happened to the Chinese people. Why did they suffer so much?
- How is plague passed on to humans from rodents?

'Plague is primarily an animal disease and to infect humans it needs the coincidence of a whole range of favorable factors–that are favorable to the flea, the rat, to the human population. It takes an element of human behaviour to perhaps intrude in what is basically an animal disease. In Sydney all of those things came together.'

- Explain how all these things came together in Sydney in the early 1900s.

8. The same plague pandemic which killed some 11 million people (mostly in Asia) also arrived in California. Unlike Australia, the plague bacteria escaped into the wild animal population and is still present in these animals today.

- What methods are the authorities in California using today to control the plague and to stop it from infecting humans? How effective is it?

- How could a serious earthquake help start a new epidemic in San Francisco?

9. The video now moves onto another 'disease lying in wait'—cholera. The first section deals with the symptoms, origins and social conditions that spread the disease.

- What are the symptoms of cholera? How is it spread?
- Where has the latest largest outbreak occurred?
- Describe the urban environment in Manchester in the 19th century that led to the cholera epidemic.
- Explain how the Industrial Revolution could be seen as a 'huge step forward' but on the other hand a change that created large problems for people.
- Where was cholera first found? How did it spread to Europe?
- Why did cholera epidemics in the cities usually cause conflict between the rich and the poor?
- How did cholera change sanitation standards in Victorian towns?
- If the causes of cholera are so well known, why do epidemics still occur around the world?

10. The final section of the video takes us to America where the cholera vibrio has been found in oysters in estuarine waters off the coast of Alabama and Louisiana.

- What methods are the US authorities using to trace the origins of cholera in oysters?
- What theories have they come up about the origin of the cholera vibrio? How serious a threat is this cholera outbreak to the American population?
- If cholera is naturally found in all estuarine waters, why hasn't there been an epidemic in North America?

11. 'If you look at the history of bubonic plague and cholera, it seems to me they can tell us something about how we can understand the AIDS epidemic of the 1980s'

- What lessons can we learn for today, from the history of the diseases covered in this program?
- What is meant by the following narration: 'So the real causes of most epidemics aren't germs or heroine—they're the social forces that shape our lives—forces so powerful they can stop us using the medical knowledge we already have.'
- How does smoking contribute to disease?
- Why is the cigarette the most powerful product ever developed?
- Why do the tobacco companies have to pay out so much money to lawyers in the US?
- What is meant by 'so the power of profit is an enormous barrier'?
- If cigarettes are so harmful, why hasn't the government banned them outright?
- Describe what is happening concerning community attitudes towards smoking Australia today. Why and how are these attitudes changing?
- What are the symptoms associated with stroke? How is it caused? Why is it such a devastating condition?

- Why is it hard for many people to break the salt habit? Name foods that you eat that contain a lot of salt. How would they taste without salt?
- The campaign for low fat foods is having some success in Australia. Give examples of products you know that are promoted as 'low fat'. The video suggests that the poor could be victims of this campaign. How?
- How does the video suggest we can conquer the threats to our wellbeing?

EPISODE THREE: INVISIBLE ARMIES

PROGRAM OVERVIEW

The narrator, Dr Norman Swan, sums up the theme of the program with his introductory words:

We've created most of our diseases for ourselves through the way we live. Once released, these diseases have then become silent soldiers of history—powerful forces which in large part have created the human map of the world today. It's a fascinating interwoven story involving greed, immunity and our vulnerability to these diseases—these invisible armies.

The film gives an insight into how diseases have influenced the progress of civilisation around the world. The first section takes us to Los Angeles where the measles epidemic is affecting the poorer, mainly Hispanic people of this sprawling city of contrasting wealth and poverty.

Measles is preventable, by a simple injection, yet so many of the disadvantaged are not immunised. The epidemic in Los Angeles today is a warning that poverty and alienation can knock away the foundations of community health. The narrator begs the question: What's the next epidemic we're going to see—polio, tetanus, and diphtheria?

Measles, malaria, yellow fever and smallpox are all apart of that invisible army that changed the course of human history. They are part of a story of conquest—where the conqueror's silent weapons were the diseases, these invisible armies, inflicted on others.

The film then takes us to Africa, where human existence began some 50,000 years ago. There weren't enough humans around then for there to be exclusively human diseases. Numbers increased and people moved into Europe and Asia where there were different animals and insects. They walked into new diseases. During the Ice Age, some crossed the land bridge to Alaska and America, to become isolated when the ice melted. They lived in a virgin continent relatively free from infectious diseases.

The next big change in human history was the beginning of farming in the Nile and Indus valleys. Grouped together in unhealthy towns for the first time, diseases proliferated—crowd diseases like smallpox and measles.

But some parts of the world never had the crowds to sustain such diseases. Iceland is the example given. With no immunity to the measles virus, an epidemic spread unimpeded in 1904 after contact with a sailor. Every family in one town was infected and 23 died. The film points out the experience of the Icelanders is what happened on a much larger scale to American Indians 500 years before. Having no new resistance to the new European disease, the Indians were decimated before these invisible armies.

The first recorded European expedition into North America was by Spanish Hernando De Soto in 1540. He witnessed a rich civilisation with developing cities of 14,000 people and impressive ceremonial mounds. The disease his soldiers brought to the Indian people wiped out this civilization—and all memory of it.

Story after story witnesses the decimation of a once proud people by disease and appalling cruelty. The Pilgrim fathers who arrived on the Mayflower in 1627 believed it to be God's Will that the Indians were struck down with disease. 4000 Cherokees died of cholera, measles and whooping cough as they were forcibly marched from their homelands in the infamous 'Trail of Tears'.

In Hawaii, it was venereal disease that slayed an innocent population. Captain Cook and his sailors arrived on those peaceful isles in 1778 to be greeted by people who saw nothing wrong with sexual hospitality. Syphilis and gonorrhoea were introduced for the first time and shattered the culture in 100 years.

The film now moves to Africa and the West Indies—the pivotal points of the slave trade in the 19th century. In these terrible dark days 11 or 12 million people were uprooted and 5 million died in agony. The program then shows how the story of slavery is inextricably bound up with the story of disease and history.

Europeans were susceptible to diseases from the tropics and needed a labour force for the sugar plantations with a stronger immune system. The indigenous people of the West Indies didn't survive the disease onslaught from the European fleet, so Africans were grabbed by force to fill the gap.

The program gives a graphic account of the slave trade and the horrific conditions that were enforced upon them. From the disease angle, Dr Norman Swan says; 'Caribbean nations built on slavery—a triumph for the human spirit, but also a triumph for the black genes that were moulded in Africa.'

The next section looks at the colonisation of Africa and the need to overcome their weakness to tropical diseases—particularly malaria. It tells the story of botanical espionage, in which 600 cinchona tree cuttings were stolen from the Spaniards in the Andes Mountains in 1858. They then established their own crop plantations, and by 1880 they had ample and cheap supplies of quinine to combat malaria.

The result was the rapid colonisation of Africa. For the first time, the colonisers didn't have to rely on their own immunity. A drug could defend them from the invisible armies of others.

The final segment of the program takes us to the Amazon Basin in Brazil. Isolated tribes, living in the rainforest, were thought of as untouched—the last virgin wilderness and people. But experts have found that the civilisation found here now is very different from the past.

Tests in the soil show that as far back as 2000 years ago, these people planted huge areas of maize and they lived in towns. Ironically, the destruction of the Indian population by European and African diseases, meant that the trees could grow back. 300 years of isolation in the rainforest has been more than enough to revert the indigenous people into a virgin population.

Now with the discovery of gold in their forestlands, they have been forced into contact with the 'New World', and as a result many are dying of 'new' diseases. This story may have modern trappings, but it's been the same pattern for the past 500 years—since the Old World met the new—it's just that this is the last time it will ever happen.

The film concludes with the commentary: 'There aren't separate disease pools nowadays. The world is small and vastly more interconnected and we have to care what happens in every corner, because it's all now in our backyard.'

PROGRAM BREAKDOWN

In order to plan lessons, the program can be broken down into the following major segments.

NB: These are approximate timings from the beginning of the program.

- Los Angeles today—measles epidemic (0–7 mins)
- From Africa and the dawn of humankind through to the development of farming in the Middle East and India and the new 'crowd diseases' (7–11 mins)
- Iceland—1904 measles epidemic (11–14 mins)
- American Indians—decimated by European diseases (14–23 mins)
- Hawaii—a culture shattered by the introduction of venereal disease (23–28 mins)
- The slave trade—Africa and the West Indies (28–39 mins)
- Colonisation of Africa with help from quinine (39–43 mins)
- Amazon Indians—the last clash of disease pools? (43–52 mins)

SUGGESTED TEACHING/LEARNING ACTIVITIES

1. The following key terms and concepts are used in the video. Before viewing the program, define what is meant by each.

immunity
immunisation
measles
Hispanic
smallpox
parasite
ice age

virgin population
vulnerable people
indigenous nations
venereal disease
syphilis
gonorrhoea
Eurasia
slavery
mortality rate
cinchona tree
quinine
colonisers
Mesopotamia
Amazon Indians
thinning arctic ozone
lack of diversity
disease pools

2. After viewing 'Invisible Armies' hold a class discussion on the main issues raised by the program. Explain what is meant from the following key statements from the narration.

- 'We've created most of our diseases for ourselves through the way in which we live. Once released, these diseases have then become silent soldiers in history. Powerful forces which in large part have created the human map of the world today.'
- 'The measles epidemic in Los Angeles today is a warning that poverty and alienation can knock away the foundation of community health.'
- 'This is a story of conquest—where the conquerors' silent weapons were the diseases they inflicted on others and to understand the origins of these diseases—these invisible armies—we have to go back to where human existence began, to Africa.'
- 'Around 8000 years ago, new deserts formed. Woodlands became the Sahara, putting up a barrier to tropical Africa. Then we fundamentally changed the way we lived. In the well-watered valleys of the crescent valley of the Nile and the Indus, farming began. Farming was to have a huge impact on human disease'.
- 'But some parts of the world never had the crowds to sustain crowd diseases. In Iceland, the terrifying experience of a sudden epidemic in a virgin population is within living memory.'
- 'The first Americans had no idea they were to face a race whose immune system had been armour-plated by 2000 years of crowd diseases. The Europeans' disease history made them dangerous enemies of native Americans.'
- 'God in his infinite wisdom might have smited the Indians with disease, killing them in large numbers to prepare the place for our (Pilgrim Fathers) coming. There can be no doubt on it.'
- 'The Hawaiians went through an experience similar to ours. Ours took thousands of years to go through—the Hawaiians—an avalanche, a very short time. Repeated thousands of times in the Pacific and America. It's what happens when the technologically advanced mass populations overtake the populations who walked out of Africa and Eurasia thousands and thousands of years ago.'

- 'The anger and frustration of American blacks led to United States 60s race riots when US cities burned. The bitterness is seen in city slums from Los Angeles to London—a communal black pain which has festered in the memories of the 11 or 12 million people who were uprooted and the five million or more who died in the terrible dark days of slavery.'
- Before 1880, there were few decent sized settlements in Africa. By 1910 it had changed dramatically, as European nations sent their people armed with now affordable quinine. So, almost for the first time, the colonisers didn't have to rely on their own immunity. A drug could defend them against the invisible armies of others.'
- 'The human face of the globe has changed by people's vulnerability. The Amazon Indians are clearly in a fragile state, but we shouldn't kid ourselves that we are invincible. We may think that modern medicine may protect us but there are greater forces at work and they can overwhelm the ability of doctors and vaccines to cope.'
- 'There aren't separate disease pools nowadays. The world is small and vastly more interconnected and we have to care what happens in every corner because it's now all in our backyard.'

3. Using an atlas, locate the various locations named in the program.

- Los Angeles, California, USA
- The African Savanna
- Alaska—where would the land bridge have been to allow the passage of people from Europe to the Americas in the last Ice Age?
- The Nile and Indus Valley
- Iceland
- Trace Christopher Columbus's voyage
- Florida and Louisiana, USA
- . Jamaica, West Indies—trace the main slave-trade routes from West Africa to the West Indies.
- Equador and the Andes Mountains
- Amazon Basin, South America

4. The first section of the program deals with a measles epidemic in Los Angeles. After viewing this section, complete the following:

- Measles is preventable through a vaccine. Why is it still prevalent in Los Angeles today?
- Which groups of people suffer the most? Why?
- What other epidemics are possible?
- 'Measles is part of an invisible army. It was a terrible army drafted out of human history.' What is meant by this statement?

5. The second section of the program traces the history of humankind from our origins in Africa, through hunter-gatherer societies to the birth of farming—and their impact on the evolution of human disease. After viewing this section answer the following.

- How does the video describe life and disease of humans in the African Savanna 50,000 years ago?
- Describe how humans got to America. How did they become isolated?
- Why did farming have such an enormous impact on human diseases? Describe how living conditions changed when farming communities and towns evolved.
- What is meant by the term 'crowd disease'?

6. The next part of the program takes us to Iceland, where crowd disease has never had a chance to develop. There were no crowds.

- What is meant by the phrase 'a virgin population'?
- Describe how measles was introduced to Iceland in 1904. What effects did it have?

7. The following sequence in the video is prefaced by narration: 'The experience of the Icelanders earlier this century on a small scale is what the people of North America suffered terribly 500 years ago.' This leads the viewer into the effects of crowd disease on the hitherto isolated American Indians.

- Describe the map of the disease world, as Christopher Columbus might have known it.
- Why did the Europeans' disease history make them so dangerous to the Indigenous Americans?
- What effects on the indigenous population did the expedition of Hernando De Soto have?
- What are your opinions/feelings about the statements made by the 'Pilgrim fathers'?
- 'For the Cherokees, few events were worse than the trail of tears.' Why?

8. The sequence that follows takes us to Hawaii, where the native population was conquered by yet other European diseases—syphilis and gonorrhoea.

- 'In 1788, Captain Cook arrived. Eurasia—the whole Old World arrived—technology, religion, administration practices and its diseases.' Explain what this statement means. Give other examples of where this has occurred.
- 'In Hawaii, syphilis and gonorrhoea were the seeds of destruction and tragically, the Hawaiians' own culture worked against them.' In what ways did the culture work against them? What happened to the Hawaiian people after contact with the crew of Captain Cook's ship?
- Why were the Hawaiians so susceptible to diseases?

9. The next section shows scenes of race riots in American cities and introduces a new theme—the terrible dark days of slavery.

- 'What we can't understand is the psychological dimensions of being a chattel.' What do you think is meant by this statement?
- Why did the Spaniards need to go off to Africa to obtain labour to work the sugar plantations of the West Indies?
- Describe how the slave trade was organised. Why were the death rates so enormous?

- Describe what life was like for the slaves who worked the Jamaican plantations. Imagine you are a slave. Write a letter back to your family describing your daily existence.

10. The section that follows tells the story, in part, of how development of the drug helped the British to colonise Africa.

- Do some research into the botany of the cinchona tree. What are its main characteristics?
- 'When the British went to North America, there's no question they were conquerors, but when they went to Africa they were knocked over by the germs.' Why is it so?
- Tell the story of how the British managed to develop its own supply of quinine.
- How did affordable supplies of quinine change the political map of Africa?

11. The last sequence in this video takes us to South America and the Yanomami Indians of the Amazon Basin today.

- After the recent 'discovery' of the isolated tribe in the Amazon rainforests they were thought of as the last 'virgin wilderness people'. After viewing this section, describe what seems to be the real picture. How has their history been affected by European and African diseases?
- How has the discovery of gold in their tribal lands affected their lives?

12. 'The earth has become less diverse. There are fewer cultures, animals and plants and this lack of diversity means we and our environment are potentially weaker. We share vulnerability across the globe. Now any of us can be the Yanomami Indians of tomorrow and the cause won't be so much germs as the untoward effects of human activity. (Concluding narration)

- Explain in your own words what this statement means.

EPISODE FOUR: WILL WE EVER LEARN?

PROGRAM OVERVIEW

This episode draws together ideas from the series to show that we don't easily learn from history or the available information around us.

We don't need to spend millions of dollars on medical research or new hospitals to solve the world's health problems today. What we need are the guts and will to overcome the largely non-biological causes of our ills which have existed since people first appeared on the earth.

To illustrate this theme, the first part of the program deals with a disease, which first appeared in the 15th century—syphilis. It also draws out comparisons between the rise of syphilis then and the AIDS epidemic today. It appears we haven't learnt the lessons from the past yet again.

Syphilis first appeared in Italy in Naples and is believed to have spread by the soldiers of the conquering Emperor Charles of France. It spread quickly throughout Europe and by the end of the 16th century; whole communities were going down with the ghastly disease.

People became ill with syphilis much more severely in those days than today. It starts with a chancre on the genitals. Secondary syphilis (a rash) and tertiary syphilis—bone, nerve and widespread body damage occurs.

The similarities between syphilis and AIDS today are striking. Both arrived through international travel and occurred predominately in young people in urban communities. In both cases safe sex wasn't promoted early enough to prevent its spread across the globe.

With both diseases, there has been a tendency to blame others for the spread of the disease. With syphilis, the Neapolitans saw it as a French disease, and vice versa. 'It's never straight/gay, German or French. It's always somebody else and that's where the danger lies. It lies across the border from who we think we are.'

Strong prejudice was also inflicted on STD sufferers. Some Christian groups were, and still are, very moralistic, having theories about a vengeful God that strikes down those who break his laws.

Unlike AIDS, a cure was found for syphilis at the turn of the 19th century, which was superseded in the 1940s by the best 'magic bullet' in history—penicillin. While the cure was an enormous relief for individual sufferers, it gave the population a false confidence in medical fixes. Medical fixes are not stopping the spread of AIDS or syphilis in the world's richest country.

The program now moves to New York City today. 'Black and Hispanic New York is a dangerous place. Not just by muggings and robberies, but because of the risk of catching HIV or syphilis.'

It's the poor people who are the focus of the epidemic in New York today. With abysmal living conditions and little access to health care and the AIDS epidemic—along with syphilis—is out of control.

Intravenous drug use and prostitution feed the raging fire. More than one third of the emergency patients in the Bronx hospital—people off the street—test positive to HIV. More and more babies are being born with the diseases already in their blood, from which they will die prematurely.

The film suggests that there's a third epidemic. It's the use of illegal drugs, from which flows HIV and syphilis. The program then provides a detailed insight into the drug problem in New York and opposing viewpoints about its control. Hard line enforcement with needle exchanges declared illegal is the 'solution' approach taken by the present authorities. And still HIV spreads, with tragic results.

The scene changes now to Liverpool in north-western England. Here the soft approach is adopted to control drug use with outstanding results.

Help for IV drug users is legal here, from prescribing heroin to providing clean needles and syringes. 'What is radical about the system is instead of punishing drug users, they try and keep them as healthy as possible until they give up their habit.' Despite its seaport location, a lot of prostitution and many drug users, there has been no reports of HIV spread. As well there's been a 15 per cent reduction in crime and a 12-fold reduction of individual new drug taking cases.

A psychiatrist says on the program. 'If prohibition returned again to England in the way it is in America, then I think HIV would spread as it has in America. In one city alone—New York—there are one quarter of a million affected with HIV and it's really a public health hazard to the rest of the world, in that New Yorkers travel.'

The final section of the film continues the theme that powerful social forces—and not germs—are the main causes for disease in society. The examples are tobacco, excess salt and fat, the effects of which kill millions of people around the world each year—and all of which can be dealt with if there is a will to do so.

Tobacco is responsible for the deaths of three jumbo jet loads of people each week in the United States. Both strokes and heart disease are major smoking related diseases. The industry is so profitable—and hence powerful—that few politicians have the power to stand up to it.

The only way governments will stand up to is if there's an equal force on the other side and that force has to be the force of organised citizens demanding action. This is happening increasingly in the developed world, putting the tobacco industry on the run. However they are now diverting their persuasive force to new young victims in the developing world. Stroke is the third most common cause of death in Western countries. One person in seven will have a stroke, partly caused by smoking, but also because their blood pressure is too high. One cause is too much salt in the diet.

The taste for salt is a habit that slowly develops through childhood and is encouraged by slick advertising campaigns from fast food companies. So the battle against salt is also a battle against the 'hard sell' and powerful industries.

There are similar problems for high fat foods. Although there has been a successful campaign for low fat products in recent years, this hasn't really solved the problem. The mountain of butterfat to get rid of is dumped into cheap processed foods that are bought by the poor.

The film concludes with 'We know how to prevent the commonest causes of death, and the 'magic bullets' only help a little. Whatever epidemics we face we will never be free of the threats to our wellbeing. The way of conquering these threats is to realise where they come from and to do something about them. It's only then we might avoid the future being plagued.'

PROGRAM BREAKDOWN

In order to plan lessons, the program can be broken down in the following major segments.

NB: These are approximate timings from the beginning of the program.

- The origin and spread of syphilis from the 15th century in Naples and the similarities with AIDS today (0–16 mins)
- HIV/AIDS epidemic in New York today—associated with illegal drug use and syphilis (16–30 mins)
- Northwest England–Liverpool—a radical alternative—legalising drug use and control and reducing HIV infections (30–40 mins)
- The smoking, salt and fat epidemics—powerful social forces that kill, but are so preventable (40–50 mins)

SUGGESTED TEACHING / LEARNING ACTIVITIES

1. The following key terms and concepts are used in the video. Before viewing the program define what is meant by each.

Neapolitans
syphilis
gonorrhoea
AIDS/HIV
vaccine
safe sex
penicillin
straight/gay
sexually transmitted diseases (STDs)
magic bullet/ medical fix
illegal drugs
crack
congenital syphilis
treatable diseases/preventable diseases
public health problem/criminal law problem
narcotics squad
needle exchange program
intravenous
psychotherapy/counseling
heart attack
stroke
tobacco lobby lawyers bought a 'conspiracy of silence'
power of profit
lobby group
passive smoking
'hard sell'
high blood pressure
cheap processed foods

2. After viewing 'Will we ever learn?' hold a class discussion on the main issues raised by the program. The following key statements from the narration may act as a guide.

- 'Never before in history have we had such powerful weapons against disease—we've come to depend on them. But this dependence has its risks, because we tend to think that the causes and cures of our ills are simple.'
- 'The disease that arrived in the 15th century was syphilis and it arrived in much the same way as the new disease in the 1980s—AIDS—but it arrived so long ago that we've forgotten the lessons.'
- 'Syphilis was the first disease ever to have a magic bullet—a treatment for the germ. But in the 1940s the best magic bullet came along—penicillin. It had a serious side effect. It gave us false confidences in medical fixes.'
- 'Poor people have always been the focus of epidemics throughout history. There's an epidemic of syphilis in the US now associated with a number of things: The abysmal living conditions of a lot of people, absence of health care and the HIV epidemic. They interact together.'
- 'So there's a third epidemic and this one is an epidemic of illegal drugs and from it flows AIDS and syphilis and it's a needless waste.'
- 'About half of the 200,000 drug injectors in New York are infected by the AIDS virus and yet the city has steadfastly refused any needle exchange program to offer clean needles to drug users, arguing that it gives the wrong message.'
- 'Here (England), help for IV drug users is legal—from prescribing heroin to drug users to providing clean needles and syringes. And what's radical about this system is that instead of punishing drug users, they try to keep them as healthy as possible until they give up the habit.'
- 'So the real causes of most epidemics aren't germs or heroin, they're the social forces that shape our lives—forces so powerful they can stop us using the medical knowledge we already have. The tobacco epidemic is an example of this.'
- 'The tobacco companies don't care that their products cause disease; don't care that their products kill people. The only thing they care about is making a profit. The power of profit is an enormous barrier.'
- 'Like smoking, the battle against the taste for salt is also a battle against the 'hard sell'.'
- 'So the battle against avoidable tragedies like stroke is just as complex as the war against drugs.'
- 'Just as it was wrong to focus on the germ in syphilis and AIDS, so the causes of heart disease and strokes are far more than sugar, salt and fat.'

3. Using an atlas, familiarise yourself with the locations of the documentary.

- Naples, Italy
- New York, USA
- Liverpool, England

4. The first section of the program looks at the origin of syphilis in 15th century Naples and compares this epidemic with the AIDS epidemic today.

- Why does our dependence on medicines to fight disease have its risks?
- Describe how syphilis first arrived in Naples.
- What are some of the symptoms of syphilis?
- Outline the similarities between the syphilis epidemic of the 15th century with that of the HIV/AIDS epidemic today.
- What lessons could we have learned from the past to reduce the seriousness of the AIDS epidemic today?
- 'It's never anyone's fault—it's always their sexuality at fault'. What is meant by this statement and what parallels can be drawn with the AIDS situation today? What is the danger in blaming someone else for an epidemic?
- How does the program describe the reaction of religious groups to AIDS today and syphilis in the 16th century Europe? What is your reaction to those views?
- Why does the program suggest that the discovery of penicillin had serious side effects?

5. The next major section of the video deals with the AIDS epidemic in New York City today.

- 'The reasons for these frightening epidemics have more to do with forces that fracture our society than any germs.' What is meant by this statement? Relate your answer to the situation in New York today.
- Why is it that the poor suffer more from epidemics? Give examples in your answer.
- After viewing this section, describe your feelings about the situation in New York. Why do you feel this way?
- What are the reasons for the very high incidence of AIDS and syphilis in New York today?
- Outline the seriousness of the illegal drug problem in New York.
- There are two alternative views expressed in the program on dealing with the drug problem. What are they? Which one would be more effective and why?

6. The following section shows how the legislation of drugs in northwestern England reduces HIV infection, amongst other things.

- Describe the system used by authorities in Liverpool to help control drug use.
- Why is this program referred to as 'radical'?
- What have been the effects of this program?
- The psychiatrist says at one stage 'I think we bore them off drugs, if we get them off.' Do you think if a drug is illegal it makes it more attractive and exciting to take? Why?
- Why does the psychiatrist say that New York is really a hazard to the rest of the world?
- What is your view on the legalisation of drugs? Explain your answer.

7. The last section deals with preventable epidemics caused by smoking, sugar, salt and fat.

- What is meant by the following narration: 'So the real causes of most epidemics aren't germs or heroin—they're social forces that shape our lives—forces so powerful they can stop us using the medical knowledge we already have.'
- How does smoking contribute to disease?
- Why is the cigarette the most profitable product ever developed?
- Why do the tobacco companies need to pay out so much money to lawyers in the US?
- What is meant by 'so the power of profit is an enormous barrier'?
- If cigarettes are so harmful, why hasn't the government banned them outright?
- Describe what is happening concerning community attitudes towards smoking in Australia today. Why and how are these attitudes changing?
- What are the symptoms associated with stroke? How is it caused? Why is it such a devastating condition?
- Why is it hard for many people to break the salt habit? Name foods you eat that contain a lot of salt. How would they taste without salt?
- The campaign for low-fat foods is having some success in Australia. Give examples of products you know that are promoting 'low fat'. The video suggests that the poor could be victims of this campaign. How?
- How does the video suggest we conquer the threats to our wellbeing?



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