HC 622
ISBN 978-0-10-295578-1

Health Protection Agency
Annual Report and Accounts 2008

Erratum

Page 9, fifth paragraph

According to the Met Office, nearly **40cm** of rain fell between May and July 2007, making it the wettest May to July period since records began in 1766.

July 2008
London: The Stationery Office

Health Protection Agency

HEALTH PROTECTION AGENCY ANNUAL REPORT & ACCOUNTS 2008

Protecting people's health

SOME HIGHLIGHTS FROM

2007/08

APRIL

Malaria is a continuing danger to UK travellers

The Agency's Malaria Reference Laboratory (MRL) produces its yearly epidemiology data, which reveals there were 1,758 cases of malaria reported in 2006 – an almost identical number to that seen in 2005.

Working closely with the National Travel Health Network and Centre, and the Agency's Travel and Migrant Health section, the MRL raises awareness of malaria risk and prevention for travellers, and promotes the HPA Advisory Committee on Malaria Prevention's guidelines for health professionals advising the travelling public. Since the largest proportion of malaria cases are reported in residents from the London region, a special group has been convened with a wide range of stakeholders to develop a strategy for reducing the burden of imported malaria in the capital. An Agency conference is planned later this year to engage with communities affected by malaria.

MAY

Risks from accidental exposure to raised levels of chlorine in swimming pools

During April and May 2007 more than 140 people are exposed to raised levels of chlorine as a result of swimming pool incidents. Twenty per cent of those exposed require medical attention. Since 2005 the Agency has given advice following 30 such incidents.

HPA assesses very low level radioactive waste disposal in landfill sites

The radiological impact of disposing of large quantities of very low level solid radioactive waste (VLLW) from the nuclear industry in sites built to conventional landfill site standards is assessed. The work is funded by the Department for Environment, Food and Rural Affairs (Defra) and the Environment Agency. It provides the UK government with information on potential radiation doses from the disposal of large quantities of VLLW and assists policy development in this area.

Based on the dose criteria used in the study, disposal of a million tonnes of waste with very low levels of radioactivity in a site built to current landfill site standards is estimated to be acceptable for six out of 11 of the radioactive elements considered. For five of the radioactive elements it would be necessary to consider the exact characteristics of the site to determine the quantity that could be disposed of.

Recall of fresh basil due to salmonella contamination

The Agency carries out an investigation into a rise in the number of people infected with *Salmonella senftenberg*. Twenty-six cases were reported to the Agency in England and Wales since the beginning of April 2007, while fewer than 10 cases had been reported in 2006 and 2005. Molecular typing shows that at least some of the strains of *Salmonella senftenberg* from patients match those found in fresh basil. The Agency informs the Food Standards Agency, which issues a food alert.

Avian influenza H7N2 infection confirmed

H7N2 avian influenza is found in birds on a small farm in north Wales. The Agency provides expert support and advice to the National Public Health Service for Wales and carries out tests on specimens from nine people associated with the incident; seven from Wales and two from north west England.

Plastics fire in Northamptonshire

Three thousand people from 20 firms are evacuated due to a blaze at Caswell Adhesives in Corby, Northamptonshire. Sixty-five firefighters from Northamptonshire and Leicestershire Fire and Rescue Services tackle the blaze and the Agency sends factsheets on the chemicals involved to the fire and rescue services and advises on health effects.

Tuberculosis screening at Luton school

A child at a junior school in Luton is diagnosed with tuberculosis and initial tests from the child's classmates show seven children are in the early stages of the disease. The Agency's Bedfordshire and Hertfordshire Health Protection Unit, Luton Teaching Primary Care Trust and the school work together to screen the whole school.

A total of 148 children and 92 adults are screened. Some 19 children in the early stages of the disease and 66 children with latent tuberculosis are identified and given a course of antibiotics. As a result of the screening a second child is found to have an infectious form of the disease. In total 114 children with previous negative results are retested and results show no new active cases of infection.

E. coli O157 outbreak in Bradford

The same month 39 people are contacted as part of an investigation into an outbreak of severe gastroenteritis in the Cottingley area in Bradford, West Yorkshire.

Twenty-three people test positive for *E. coli* O157 and 13 people receive hospital treatment. The Health Protection Agency, Bradford Council's environmental health department and Bradford and Airedale Teaching Primary Care Trust work together to identify the cause and source of the infection and prevent any potential spread. As a precautionary measure, anyone who recently bought and stored cooked meat from a local butcher's shop is advised to throw it away.

JUNE

The Agency becomes the UK's focal point for International Health Regulations (IHR) that came into force in 2007. The IHR aim to prevent the spread of infectious diseases across borders without unduly affecting international travel and trade and covers all disease outbreaks that constitute 'public health emergencies of international concern'.

Summer floods

In June and July Agency staff from across the country give health advice to those affected by flooding in several regions of England, particularly in Yorkshire and the Humber, Gloucestershire, West Midlands and large areas of central and southern England.

The Agency coordinates the establishment of Scientific and Technical Advice Cells (STACs) at both national and local level, to bring together the agencies with scientific, health or other technical expertise and agrees the best advice for those coordinating the response.

→

As well as providing health advice during the incidents, the Agency carries out enhanced surveillance for reports of infection in the affected areas and no outbreaks of diseases are reported as a result of the floods once the waters have receded.

JULY

Guidance published on management of norovirus in cruise ships

Norovirus or 'the winter vomiting bug' infects between 600,000 and one million people in the community in the UK every year. Working with the cruise ship industry through the Passenger Shipping Association, the Maritime and Coastguard Agency and the Association of Port Health Authorities, the Agency publishes *Guidance for the Management of Norovirus Infection in Cruise Ships*. This guidance is to help prevent and control the comparatively rare outbreaks on cruise ships.

Radiation and chemical dose criteria

The Agency publishes in its 'Documents of the HPA' series a *Comparison of Processes and Procedures for Deriving Exposure Criteria for the Protection of Human health: Chemicals, Ionizing radiation and Non-ionising radiation*. In order to promote a common understanding of health-based protection criteria, this document reviewed and compared the bases for establishing exposure criteria for chemicals, ionising radiation and non-ionising radiation. In general very similar procedures and criteria are used, but some differences in approach were identified.

AUGUST

Medical X-ray radiation doses continue to fall

The amount of radiation to which patients are exposed when they have a medical X-ray examination continues to fall, reports the Agency's latest five-yearly review of the National Patient Database. This database, which was established in 1992, collates the doses received by patients during routine X-ray examinations in hospitals throughout the UK.

The review shows the average reduction in dose per examination over the last five years in routine X-ray examinations is between 10 and 20 per cent, mainly due to the increased sensitivity of X-ray equipment and greater awareness among healthcare professionals of exposure levels since the introduction of national reference doses in the early 1990s. However, the number of X-ray examinations continues to rise.

Back-to-school MMR jabs promoted

With the number of measles cases continuing to rise, parents are urged to protect their children against measles by having them immunised with two doses of MMR before they return to school in September.

Exercise Winter Willow – lessons learned

A report outlining the lessons learned from Exercise Winter Willow is published. Over 5,000 people from a large number of UK organisations representing government, industry and the voluntary sector participated in the exercise, which aimed to check the preparation for the major disruptive challenges that an influenza pandemic might bring.

Consultation on the Agency's Local and Regional Services

The aim of the consultation is to clarify the roles and responsibilities of the Agency alongside those of local and regional partner organisations, and ensure that the Agency provides consistent, good quality services that meet the needs of partners and of local populations. The response to the consultation, *Forward Thinking, Future Working*, is published on the Agency's website.

SEPTEMBER

Health Protection Agency annual conference

Over 1,300 delegates take part in the Agency's most successful conference to date. The conference focuses on the latest scientific research and its practical application to health protection.

Investigation into outbreak of Q fever

An investigation begins into an outbreak of Q fever among residents of Cheltenham and the surrounding area. The infection, which is rare in the UK, is usually caught from direct or indirect contact with farm animals that carry the organism *Coxiella burnetii*, or from their contaminated environment.

The investigation is carried out by the Agency with the assistance of colleagues from the NHS, the local authority, and the Veterinary Laboratories Agency. In total 31 human cases of Q fever are identified. The source remains unknown, but the most likely cause was airborne transmission of the organism from a local farm source.

OCTOBER

International sporting events workshop

The Agency hosts an international workshop on the management of health protection at major international sporting events, with support from the International Association of National Public Health Institutes. The aim is to distil and share lessons learned by identifying the public health issues associated with a high-profile mass gathering and the public health benefits that might be derived from preparing for and conducting such an event.

Homelessness increases risk of infection for injecting drug users

A new report from the Agency, *Shooting Up: Infections Among Injecting Drug Users in the UK*, shows that three-quarters of injecting drug users have been homeless at some point and those who have been homeless have higher levels of injecting risk and associated infections, primarily through the sharing of needles and low standards of hygiene. Sharing needles seriously increases the risk of contracting life-threatening infections such as hepatitis C and HIV.

Consultation on MRI examinations

A consultation document on the protection of patients and volunteers undergoing magnetic resonance imaging (MRI) examinations is published. MRI is a non-invasive technique used to provide internal images of the body, which has gained widespread use in medicine and research.

The document forms the basis of the Agency's advice to the Department of Health and is scheduled for completion in March 2008. The new advice will replace that provided in 1991 by the National Radiological Protection Board.

NOVEMBER

Two year study on deaths following MRSA infection published

A two-year study shows that the majority of patients dying following MRSA infection had significant underlying chronic medical conditions and short life expectancies, irrespective of their MRSA infection. The study reviewed a small randomly selected sample of patients and linked data on infection held by the Agency to mortality data held by the Office for National Statistics.

Asbestos exposure from large fires

The potential health impact and levels of asbestos exposures from large-scale fires is published. Asbestos causes a number of diseases and, in particular, is linked to the development of mesothelioma and lung cancer. Large-scale fires involving materials containing asbestos are relatively common in the UK and can cause significant public concern.

The report explores the potential public health consequences of such incidents by reviewing available evidence and concludes there is no significant public health risk, provided appropriate clean-up procedures are adopted.

Confirmed H5N1 avian influenza in Suffolk poultry farm

The highly pathogenic H5N1 strain of the virus is detected in poultry at Diss in Suffolk. Working alongside local NHS public health colleagues, Defra and Redgrave Poultry Ltd, the Agency identifies individuals who were potentially exposed and offers them preventative medicine. In total 176 people are offered prophylaxis.

Radon

An Indicative Atlas of radon in England and Wales is published. This is the result of joint work between the Agency and British Geological Survey. The Agency also launches a website (www.ukradon.org) where the estimated radon potential for an individual home can be obtained.

DECEMBER

Raised public awareness of hepatitis C

The number of newly diagnosed cases of hepatitis C infection in England reached 8,346 in 2006 – 10 per cent higher than in 2005. The rise may be due to the raised awareness of hepatitis C, which is encouraging more people to be tested.

Over the past 12 months there has been a considerable increase in the attention relating to hepatitis C. A significant contribution to the increase in media coverage about hepatitis C is the death of Dame Anita Roddick, who was diagnosed with hepatitis C and campaigned until her death to raise awareness and to encourage people to get tested. An NHS campaign aimed at healthcare professionals and the public is also launched with visits to the website (www.hepc.nhs.uk) and Hepatitis C Information Line doubling.

Recommendations on CT scanning

The Committee on Medical Aspects of Radiation in the Environment (COMARE) publishes a number of recommendations on the use of computed tomography (CT) X-ray scans by private clinics increasingly being used to provide examinations of people who have no symptoms of illness. While CT scans undoubtedly provide valuable diagnostic information, they produce significant radiation doses to patients which need to be justified on medical grounds.

The Agency's Radiation Protection Division has an ongoing programme of work on assessing radiation doses and risks from medical exposures and recommends national reference levels for radiation doses for CT and other X-ray examinations.

JANUARY

Oseltamivir resistance in European influenza viruses

Surveillance into seasonal flu viruses circulating in Europe reveals that 13 per cent of the A (H1N1) viruses show resistance to the antiviral drug, oseltamivir. However, these viruses remain sensitive to the antivirals, zanamivir and amantadine.

Further testing reveals that of 437 influenza A (H1N1) viruses isolated during November to January 2008, 59 samples show evidence of resistance.

Confirmed H5N1 avian influenza in Dorset swans

Defra confirms highly pathogenic H5N1 avian influenza among swans in the Chesil Beach area in Dorset. The Agency works closely with Defra and local NHS partners to ensure that people who may have been in close contact to the sick or dead birds are offered antiviral drugs and seasonal influenza vaccine.

Evidence from past outbreaks of H5N1 avian influenza shows that the virus does not easily infect people and there is no evidence of sustained human-to-human transmission.

FEBRUARY

The continuing HIV and STI epidemic in gay men

An estimated 73,000 adults are now living with HIV in the UK, according to *Testing Times*, the Agency's latest report on the UK's sexual health. This figure includes those who have been diagnosed and also around one-third (21,600) who remain unaware of their HIV status. The Agency warns of a continuing HIV and STI epidemic in gay men.

Figures received so far show 7,093 people were diagnosed with HIV in the UK in 2006. This is expected to rise to an estimated 7,800 when all reports are received, compared to the 7,900 diagnosed in 2005.

Advice on risks from tritium

The independent Advisory Group on Ionising Radiation publishes a report reviewing the risks of exposure to tritium. Tritium is used in scientific and medical research and has various industrial applications. Following an extensive review of scientific evidence on the health risks from exposure to tritium, the Advisory Group made recommendations that the Agency has communicated to the International Commission on Radiological Protection.

MARCH

Agency study warns that typhoid is no longer an enemy of the past

UK travellers visiting friends and relatives in the Indian subcontinent are carrying an unnecessary risk of infection from typhoid and paratyphoid (also known as enteric) fevers, says the Agency. Although the UK had its own typhoid problem several centuries ago, enteric fevers are now mainly confined to countries or regions of the world where sanitation and hygiene remain poor.

In 2006 there were almost 500 cases of enteric fever reported in England, Wales, and Northern Ireland – the highest level for 10 years. Results show very clearly that the majority of cases occurred in people of Indian, Pakistani or Bangladeshi ethnicity, either UK or non-UK-born, who had travelled from the UK to their own or their family's country of origin to visit friends and relatives.

Director awarded Healthcare Scientist of the Year 2007

Dr Christine McCartney, director of the Agency's Regional Microbiology Network, is awarded Healthcare Scientist of the Year 2007 by the Department of Health in recognition of her achievements in delivering new services and improving existing ones for the benefit of public health, and also for her excellent public communication skills dealing with complicated topics such as MRSA and *Clostridium difficile*.

Presented to the Houses of Parliament
pursuant to Schedule 1 paragraphs 24-25
of the Health Protection Agency Act 2004

HC 622

Ordered by the House of Commons to be printed 26 June 2008
LONDON: THE STATIONERY OFFICE

£25.75

Protecting People's Health

The Health Protection Agency is an independent organisation dedicated to protecting people's health in the UK. We do this by providing impartial advice and authoritative information on health protection issues to the public, communities, professionals and to government.

We combine public health and scientific expertise, research and emergency planning within one organisation. We work at international, national, regional and local levels and have links with many other organisations around the world.

Our role includes:

- Providing impartial expert advice on health protection and providing specialist health protection services
- Identifying and responding to health hazards and emergencies caused by infectious disease, hazardous chemicals, poisons or radiation
- Anticipating and preparing for emerging or future threats
- Supporting and advising other organisations with a health protection role
- Improving knowledge about health protection through research and development, education and training.

Our expertise is provided by specialist medical, nursing, scientific and technical staff, backed by administrative and support functions. We have a network of local and regional teams who work with GPs, hospital clinicians and other healthcare providers. Our laboratories help in the identification and analysis of disease or environmental samples. We have experts who monitor disease trends, chemical specialists who advise on the health effects of environmental hazards and radiological experts who advise on ionising and non-ionising radiation. Emergency response teams support the country's readiness and response to unexpected threats, both natural and deliberate. Our research programmes aim to develop new ways of diagnosing, treating and controlling disease and establish how health is damaged by exposure to harmful substances.

Protecting Health, Preventing Harm, Preparing for Threats

For more information on our work visit our website: www.hpa.org.uk

Cover image: Fotosearch

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Images: Gloucestershire County Council / Shutterstock / Inmagine

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FOREWORD

SIR WILLIAM STEWART FRS
CHAIRMAN

JUSTIN McCRACKEN
CHIEF EXECUTIVE

This report sets out the highlights from the Health Protection Agency's fifth year of operation. We acknowledge with thanks the substantial contribution made by the outgoing Chief Executive, Professor Pat Troop, to the period covered by this report and thank her for her hard work over the past five years. As can be seen from the breadth of work captured here, the Agency is now firmly embedded at the heart of health protection locally, regionally, nationally and internationally.

In another challenging but successful year the Agency has provided expert advice to health professionals, government, partner bodies, the public and the media on the health impacts and management of everything from avian influenza, healthcare-associated infections, large-scale outbreaks of norovirus, tuberculosis and measles to radiation protection, anthrax and vaccines. It has strengthened its science base through the expansion of its research and development capability, is now recognised as a world leader in the delivery of emergency response exercises, and has tackled new areas such as flooding.

Much has been achieved and the time is right, with important new senior staff changes in place and new health protection challenges to be addressed, to look forward to the next five years of the Agency's development.

The Agency brings together an exceptionally wide range of skills and experience across the entire public health protection spectrum to offer an integrated 24/7 service – a particularly valuable feature when it comes to emergency response and incident handling. It also works with an unusually broad range of partners within the fields of health, science, environment, education, emergency response and government at local, regional, national and international levels. These elements place the Agency in a unique position to champion public health and to help develop and shape this country's health protection service.

We are committed to building on the achievements of the first five years of the Agency's development to create an expert body that is widely recognised as authoritative and effective at protecting the health of the public through:

- Helping reduce the burden of infectious disease, particularly sexually transmitted infections, healthcare-associated infections and tuberculosis

- Giving people the advice they need in order to protect themselves against the health effects of climate change – an area for which the Agency has been given responsibility by the Department of Health in the past year – and

the health impacts of other environmental threats

- Ensuring we and our partners are fully prepared to meet any threat or emergency whether natural, accidental or deliberate

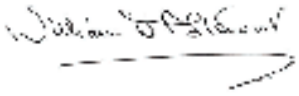
- Ensuring everything we do is underpinned by a sound evidence base and that our research and development makes a measurable contribution to improving the nation's health protection

- Providing clear, authoritative health protection advice and guidance that is the first choice for the public, health professionals and other key stakeholders, and the media.

To deliver this it is essential that we are expert in all the relevant sciences; that our frontline services are accessible, responsive and reliable; and that our information management, provision and communication is of the highest standard. We will exploit all our resources to maximum effect and we will strive to become a magnet for the brightest and best working in all parts of the public health protection field.

As a Non Departmental Public Body, one of the Agency's key strengths is its independence from government. Although we work closely with the Department of Health, our sponsor department, and with the devolved administrations, the boundaries are very clear. We provide the expert advice and information that is essential to formulate effective public health protection policy; government makes the policy decisions. From every point of view it is important that ours is an impartial, independent voice, the advocate and champion of health protection and public health on behalf of the public and our professional colleagues.

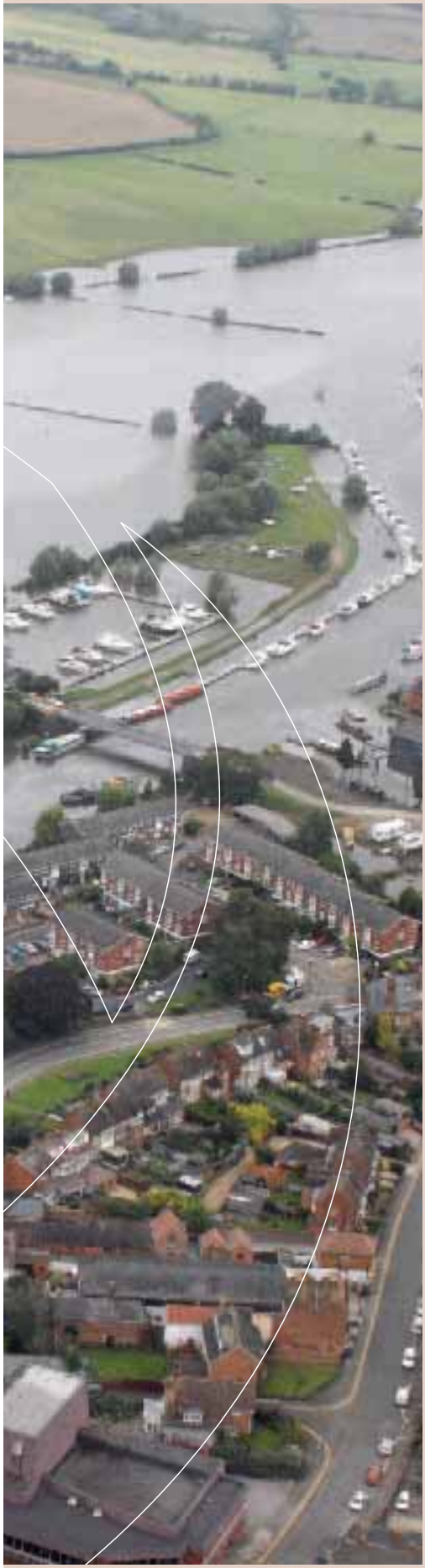
We will harness all our skills and resources – located in our centres, our regional laboratories and our frontline local and regional services – to deliver a world-beating public health protection service. We will do everything in our power to ensure that the public gets the right information at the right time and in the right way, that our professional colleagues can be confident that our expertise is constantly 'on tap', and that our science promotes an ever-improving public health protection service.



Sir William Stewart
Chairman

Justin McCracken
Chief Executive

Gloucestershire County Council



CHAPTER ONE

RESPONDING TO THE SUMMER FLOODS

The widespread floods of summer 2007 presented many public health challenges for the Agency to tackle

The Agency's response to the floods in the summer of 2007 was a multi-regional response coordinated by the Agency's National Emergency Coordination Centre (NECC). Planning for events such as these is an intrinsic part of the emergency preparedness and governance arrangements for the Agency, and is an ongoing process building on lessons learned from exercises and incidents.

The widespread flooding and loss of domestic water supplies in July 2007 was quickly declared a national incident and the Agency was required to provide information to the government as well as to partners on the ground locally.

The NECC was established at the Agency's Centre for Emergency Preparedness and Response at Porton Down in Wiltshire and a national Scientific and Technical Advice Cell (STAC) was set up in Birmingham, led by the Agency's West Midlands Region.

STACs are intended to bring together all those agencies with scientific, health or other technical expertise during an incident to discuss issues and agree the best advice for those coordinating the response. Information from the STAC was used to create information sheets and leaflets, which were posted on the Agency's website and distributed locally.

According to the Met Office, nearly four metres of rain fell between May and July 2007, making it the wettest May to July period since records began in 1766. This unprecedented amount of rain, together with severe flash flooding, had a devastating impact on several parts of the country.

The first areas hit were in Yorkshire and the Humber and parts of East and West Midlands, after rain fell for several days at the end of June 2007. Severe flash floods hit Sheffield, Doncaster and other parts of South Yorkshire, as well as Hull and areas in East Yorkshire.

In Yorkshire and Humber flooding led to local rivers breaking their banks, and urban drains and sewers were overwhelmed with the amount of water. There were three deaths in the region associated with the flooding. Thousands of people were evacuated from their homes and in all affected areas there

RESPONDING TO THE SUMMER FLOODS

was significant damage to transport systems, properties, schools and businesses.

The Agency was also directly affected by the catastrophic events as South Yorkshire Health Protection Unit (HPU) in Sheffield lost its premises for 24 hours and some staff in Humber were unable to travel to and from their base because of the transport disruption.

Despite this, both health protection units maintained their response to the floods, with staff continuing to attend and give health advice to local Gold and Silver Command (the names used by the police to describe the multi-agency groups that form to respond in an incident).

By late July the crisis had moved south and further heavy rain led to flash floods in Gloucestershire, Herefordshire, Worcestershire and parts of Warwickshire and Oxfordshire.

On 20 July two months' worth of rain fell in just 14 hours and the rivers Severn and Avon overwhelmed the Mythe water treatment works in Gloucestershire, putting it out of action and creating the major public health problem of a lack of clean drinking water.

This loss of mains water supply affected half the homes in Gloucestershire and 7,500 businesses, with the public having to survive on water supplied through bowsers and bottles of water. Some water supplies were disrupted for up to 17 days.

Providing health advice

The scale and consequences of the flooding, particularly the loss of mains water supplies in Gloucestershire, brought a range of health protection issues with them and the Agency was heavily in demand to provide health advice and support at local, regional and national levels.

Health protection advice ranged from potential chemical contamination from the floodwater and the risk of carbon monoxide poisoning from poorly ventilated fuel-driven pumps or heaters, to how to use safely and effectively what water was available in the county.

The Agency provided consistent and urgent advice in conjunction with other organisations on issues as diverse as infant feeding, use

Gloucestershire County Council

of produce from allotments, management of private water supplies and alternatives to sanitation. These organisations included the Drinking Water Inspectorate, the Food Standards Agency, the Health and Safety Executive, Severn Trent Water, the Government Decontamination Service, the Chartered Institute for Environmental Health and local resilience partners.

Public health advice was given using a variety of media. The Agency published a series of factsheets on its website for the public, along with more detailed information for professionals. In the Humber health information was produced as leaflets and handed out to the public at local rest centres. In South Yorkshire material was laminated and tied to lamp-posts in affected areas, while in Gloucestershire factsheets were written for distribution at bowser points, and all residents in the county received an information letter from the Gold Command.

Microbiological issues

Floodwater can irritate the skin and eyes and exposure to floodwater can result in illnesses such as gastroenteritis, but the risk is less than most people assume. Following simple precautions such as maintaining good hand hygiene is crucial as this can minimise risk of illness. Wearing protective clothing such as gloves, wellington boots and goggles where possible was also advised as it reduces the risk of coming into contact with the floodwater.

A programme of surveillance looking at symptoms was also used, drawing on a number of sources such as calls to NHS Direct and GP consultations, to ensure any health issues arising from the floods would be quickly identified. Reassuringly the surveillance identified no outbreaks of illness as a result of the floods.

Chemical and environmental hazards

The flooding affected domestic, industrial and agricultural premises, which meant that some chemicals would inevitably have been released into the floodwater. However, the sheer volume of water diluted the chemical pollution so the risks to the general public were considered to be low. The precautionary advice the Agency gave on avoiding possible infections in floodwater was also applicable to chemical pollution.

THE AGENCY WAS HEAVILY IN DEMAND TO PROVIDE ADVICE

Lessons learned

The Agency continues to contribute to local and national multi-agency work to consider the ongoing and longer term issues arising from the severe floods. A national Flood Coordination Group has been established in the Agency to oversee ongoing work around flooding and ongoing initiatives include:

- A flooding toolkit for HPUs covering action to take before a flood, during the acute phase and in follow-up
- A review of the available health guidance around flooding
- A risk assessment project
- Joint work with the Environment Agency and other partners
- A project looking at the psycho-social effect of flooding
- A report identifying lessons learned during the summer incidents
- A review of all public-facing information produced by the Agency on flooding.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CHAPTER TWO

PREPARING FOR EMERGENCIES

The Agency ensures the nation is prepared for incidents or emergencies harmful to health

The Health Protection Agency provides authoritative scientific and medical information and other specialist advice on both the planning and operational responses to major incidents and wider public health or other emergencies.

Emergency response

The Agency aims to continually improve the speed and effectiveness of its response to incidents and threats to reduce their impact on public health in terms of morbidity and mortality.

Over the past year projects to further develop the Emergency Operations Centres (EOCs) at the Centre for Radiation, Chemical and Environmental Hazards and at the Centre for Infections have been completed. The centre and regional EOCs have been activated in response to a number of incidents, including avian influenza in both poultry stocks and wild birds, and the floods of July 2007.

The Agency's response to the avian influenza incidents in Suffolk in 2007 involved providing health advice on post-exposure prophylaxis to poultry workers. Planning for events such as these is an intrinsic part of the emergency preparedness and governance arrangements for the Agency and is an ongoing process building on lessons learned from exercises and incidents.

Exercises

The Agency runs a series of exercises to test emergency preparedness in the health service community on behalf of the Department of Health. These exercises test and improve the current emergency health plans, helping to ensure that a wide cross-section of organisations can respond in a rapid and coordinated way to major incidents of all kinds, including the deliberate release of chemical, biological, radiological or nuclear materials. These exercises have a health focus.

Exercise Leodis

The Yorkshire and the Humber Region hosted Exercise Leodis in May 2007,

SPEED AND EFFECTIVENESS OF RESPONSE ARE IMPROVED CONTINUALLY

which examined and developed the strategic multi-agency response to multiple site, improvised bombs on the transport network, resulting in multiple casualties and transport disruption.

Exercise Phoenix

Held in London in November 2007 in conjunction with NHS London, Exercise Phoenix explored the challenges the health and social care community in London would face in an influenza pandemic as they look towards recovery and a new 'normality'.

Exercise New Day 5

Held in conjunction with NHS West Midlands, Exercise New Day 5 in December 2007 was a table top exercise exploring business continuity at the peak of the first wave of a pandemic influenza outbreak.

Exercise United Endeavour 2

Exercise United Endeavour 2 was a five-day exercise in January 2008 testing the processes for providing health surveillance and NHS situation reporting elements of a pandemic influenza outbreak to the Department of Health and the Cabinet Office.

Exercise Ancient Mariner

The responses of the Queen Elizabeth Hospital, King's Lynn, the wider health community and supporting partner agencies to a flooding scenario were examined in Exercise Ancient Mariner in January 2008.

Exercise de Montfort

The East Midlands Region hosted Exercise de Montfort in February 2008, which aimed to enhance the joint effectiveness of law enforcement and public health when both disciplines conduct concurrent criminal and epidemiological investigations.

Exercise Solent Shine

Exercise Solent Shine, which took place in the South East Region in March 2008, was designed to explore the health and multi-agency response to the detonation of an improvised radiological device on Southampton Water.

Exercise Chain Reaction

In addition to this exercise programme, the exercises team also delivered a number of exercises for specific customers. Exercise Chain Reaction was a bespoke exercise designed and delivered in collaboration with Mice Associates in response to a call from the pharmacy section of the Department of Health. The exercise, held in January 2008, explored the reliability of the medicines and healthcare consumables supply chain for primary and community care in the simulated event of an influenza pandemic.

The Agency's Local and Regional Services also take part in exercises planned and run by other organisations such as the NHS.

Exercise Golden Fox

In October 2007 Hampshire Primary Care Trust organised Exercise Golden Fox, which took place in Hampshire and was designed to test a multi-agency response to a potential radiation leak following an accident on board a nuclear submarine in Portsmouth Dockyard. The Royal Navy, Portsmouth City Council, emergency services and the Environment Agency were also involved.

Major Incident Exercise

Agency staff took part in another exercise in Surrey in February 2008, also organised by the NHS, which was designed to test communications in the event of a ricin spread incident.

Exercise Orpheus

Exercise Orpheus was the 2008 annual field exercise, hosted by the Agency at the 500 acre Fire Service Training College site at Moreton in Marsh in Gloucestershire. Planning for Exercise Orpheus, which was organised by the Agency on behalf of the Department of Health, took place over a nine-month period.

More than 600 specialists from police, fire and ambulance services across England, Scotland and Wales and over 150 emergency response vehicles from London, the South West, Wales, the South East, the West Midlands, Yorkshire, the East Midlands, the East of England and Scotland took part in the large-scale exercise.

In one simulated incident responders were faced with the aftermath of an incident where a terrorist had released deadly sarin nerve gas on a bus, causing it to crash into a crowded motorway service station. In a second incident, search and rescue

teams battled to free 'casualties' buried under tons of rubble in a collapsed building following a gas explosion. The exercise involved dozens of casualties, prepared by teams of specialist make-up artists, to test paramedics as well as fire and ambulance service decontamination crews.

European and international exercises

Exercise Brown Lagoon

Exercise Brown Lagoon was a European Centre for Disease Prevention and Control (ECDC) initiative, held over two days in June 2007, to provide an opportunity to review and practise internal procedures and systems to deal with major public health events. The exercise, conducted at the ECDC premises in Stockholm, was a Command Post Exercise (direction being given from a central location) with some supporting activities from Agency staff in the UK.

Exercise Red Wing

This exercise was the second in a series, assisting ECDC in revising, implementing and developing further its role in supporting member states in communicable disease outbreak detection, investigation and response. The exercise explored contact tracing procedures outlined in a draft paper developed by the working group of the Health Security Committee. Representatives from six member states and European coordinating bodies participated.

WHO/UNFAO Exercises

On behalf of the World Health Organization and the UN Food and Agriculture Organization, the exercises team developed a desktop simulation exercise for highly pathogenic avian influenza in animal and human populations for use by countries in Europe and Central Asia. This exercise was piloted in the Republic of Armenia in early 2007 and involved senior government officials from the Ministry of Health and Agriculture, regional authorities, scientific

PREPARING FOR EMERGENCIES

experts and responding agencies. The exercise has subsequently been successfully rolled out in the Republics of Moldova and Albania.

Training

The Diploma in Health Emergency Planning (DipHEP)

The Agency's emergency planning officers' course was accredited with diploma status by the Royal Society for the Promotion of Health (RSPH). The diploma is the first of its kind in the UK and was officially launched in October 2007, attracting over 120 delegates. This qualification is designed to provide the knowledge and understanding necessary for individuals to participate in the development, evaluation and operation of emergency plans and to enable their employers to comply with the Civil Contingencies Act (2004) legislation. The qualification concentrates on the need for emergency management, the design, construction and operation of emergency plans.

Emergo-Train system

The training team at the Centre for Emergency Preparedness and Response is now offering the latest version of the Emergo-Train system. This one-day exercise is for emergency department staff and those from other hospital departments to train using emergency plans for dealing with major incidents. It is used as a training tool for decision making in complex emergencies and enables assessment of how different outcomes could have been achieved (for example, in terms of lives saved and quality of treatment) if different decisions had been made.

The 'real time' events are run within acute trusts, modelled against the specific hospital's services profile. The system looks at operational response, casualty management and hospital management, and includes other aspects such as environmental pollution, staff welfare and short and long-term hospital needs. The Civil Contingencies Secretariat has noted that Emergo training is a suitable vehicle for a 'live exercise' providing the organisation takes forward the lessons identified.

e-learning

The team has been creating e-learning modules for the past four years, using Doctors.net as a hosting platform. There is now a need to extend the provision of these modules to a wider audience within the healthcare profession, including nurses, paramedics and other professions allied to medicine. Therefore a new portal has been recommended, positioning the Agency as the main provider of the materials and therefore removing any barriers that non-doctors may have in using the current materials.

While undertaking this activity, the Agency has also reviewed the quality of the e-learning resources available on the site, with a view

to increasing the flexibility of the design. The new platform will increase the awareness of chemical, biological, radiological and nuclear issues within the medical profession and increase the number of learners who undertake the modules.

Microbial risk assessment

The Agency's microbial risk assessment (MRA) team has continued through its research and development function to assist with identifying, modelling and assessing the risks posed to UK public health by newly emerging and emergency infectious disease threats, including bioterrorism. It also continues to develop and provide key technical support and assistance across the Agency and beyond in relation to preparedness for and responses to such emergencies.

The MRA team has continued to support the joint Human Animal Infections and Risk Surveillance (HAIRS) group and indirectly the Department of Health's National Expert Panel on New and Emerging Infections (NEPNEI) through horizon scanning and reporting on future potential longer-term threats. This has included a considerable amount of work on potential exotic zoonotic and vector-borne diseases, much of it published in peer-reviewed publications.

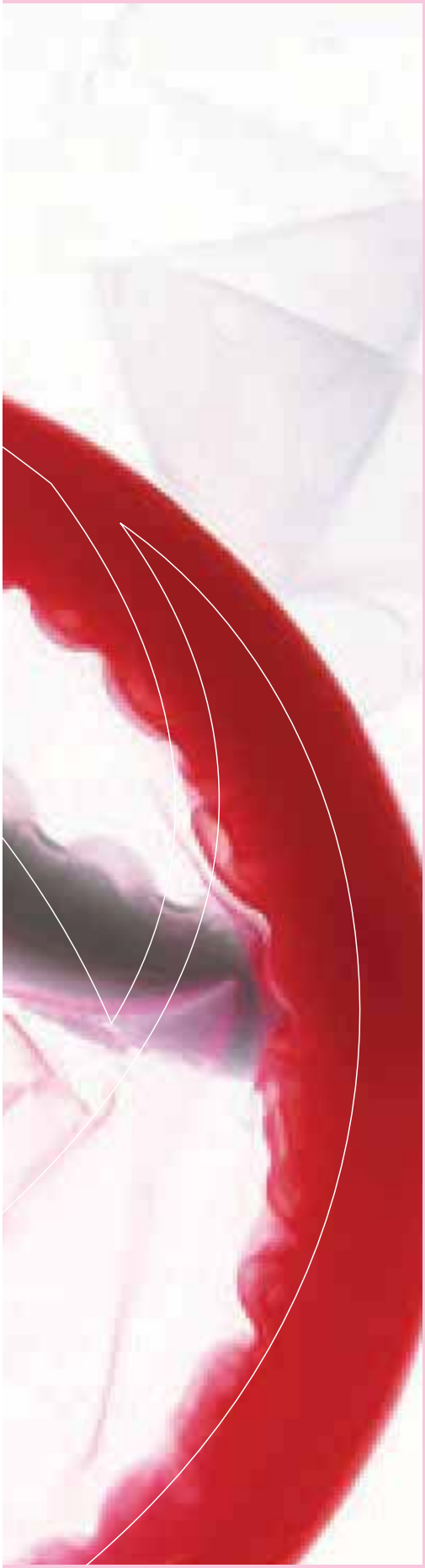
Some of the areas addressed through this horizon scanning and risk assessment have included eco-epidemiological analyses regarding imported and indigenous tick and mosquito disease vectors, West Nile vectors, dirofilaria, and the animal reservoir of Puumula hantavirus. As a result of this ongoing work the team has also recently assisted the ECDC by extending the team's work to cover the threats potentially posed by Asian tiger mosquitoes and chikungunya across Europe.

The team has also continued to contribute, through the pandemic influenza modelling lead at the Agency's Centre for Infections, its epidemic modelling capabilities to the work of the UK Scientific Pandemic Influenza Advisory Committee (SPI) and its subgroup on modelling in relation to UK preparedness and planning. Other modelling work on the potential bioterrorism threat has addressed both the UK dimension through Home Office and Department of Health funding, and also the wider European context through two major collaborative EU projects.

THE AGENCY CONDUCTS HORIZON-SCANNING FOR NEW THREATS

A key capability in support of much of this work has been developed through some recently completed projects under the Engineering and Physical Sciences Research Council (EPSRC) on the use of high performance computing to more efficiently solve complex mathematical models of disease transmission, which are now being supported by the Agency's own high performance cluster computers.

Key capabilities in modelling and geographical information systems (GIS) also continue to be routinely employed to assist colleagues in exercises and real emergencies. A further key activity is the rolling out of GIS technical support and data to the wider Agency to assist with the mapping, tracking and analysis of important geospatial data and features for situational awareness, including for example population demographics, vulnerable sites and airborne releases. The MRA team is also overseeing the technical management of extending the infrastructure that supports this GIS capability more widely across all Agency sites for increased functionality and resilience.



CHAPTER THREE

SPOTLIGHT ON INFECTIONS

Infectious disease is an ongoing focus for the Agency's work to protect the health of the public

Sexually transmitted infections

The control of HIV and sexually transmitted infections (STI) transmission is a major public health challenge.

Although there has been an increase in HIV testing, a marked reduction in waiting times at STI clinics and wider chlamydia testing for young adults, the total number of STI diagnoses continues to rise.

An estimated 73,000 adults are now living with HIV in the UK, with around one-third (21,600) being unaware of their HIV status. In 2006 7,093 people were newly diagnosed with HIV in the UK, but this figure is expected to rise to an estimated 7,800 when all reports are received.

In recent years there has been a steady increase in all STIs, including HIV, in men who have sex with men (MSM). Since 2003 the number of new HIV diagnoses reported annually has consistently increased and exceeded the annual number of diagnoses throughout the 1980s and 1990s.

Increased testing has contributed to these high numbers of HIV diagnoses, but there is no suggestion that the overall level of underlying HIV transmission in MSM has fallen.

MSM accounted for just over 2,700 new diagnoses of HIV infection in 2006.

Unprotected sex and high rates of partner change continue to facilitate HIV and STI transmission in this group.

With high rates of chlamydial infection and significant increases in genital herpes and genital warts diagnoses in 2006, the sexual health of young adults is also of concern.

The Agency recommends that all STI clinic attendees should be tested for HIV at every visit and that young, sexually active adults should be screened for chlamydia annually and after a partner change.

SPOTLIGHT ON INFECTIONS


Picture Nation

Hepatitis C in men who have sex with men

As part of a pilot surveillance programme conducted by the Agency, MSM attending HIV and genitourinary medicine (GUM) clinics in London and the South East will be tested to see if they have the hepatitis C virus (HCV).

HCV is a bloodborne virus that usually has no symptoms, but if left undiagnosed and untreated the infection can lead to chronic liver disease and in some cases cancer (hepatocellular carcinoma).

In the UK the main risk factor for HCV is injecting drug use, but there has been an increase in newly acquired HCV among MSM in London. Data from a joint survey the Agency conducted with the British Association for Sexual Health and HIV and the British HIV Association shows that from 2002 to 2006 there was a 20 per cent year-on-year increase in HCV incidence in HIV positive MSM.

The key objectives of the pilot are to find out how many MSM attending GUM and HIV clinics in London and the South East (Brighton, Hastings, Eastbourne, Oxford and Southampton) have HCV, to monitor trends in MSM with newly acquired HCV over time and within different geographical areas, and to monitor behavioural risk factors for acquiring HCV.

HPV vaccine

In October 2007 the Department of Health announced a national programme to immunise all girls aged 12-13 years with the human papillomavirus (HPV) vaccine from September 2008.

HPV has about 100 different strains, about

CHLAMYDIA REMAINS THE MOST COMMON BACTERIAL STI IN CLINICS

40 of which can infect the genitals. The vast majority of HPV infections cause no ill effects, but some strains such as HPV 6 and 11 can lead to genital warts. Other strains such as HPV 16 and 18 can cause cervical cancer in women. Studies have shown that HPV 16 and 18 cause around 70 per cent of cervical cancers.

It has been estimated that 70-80 per cent of sexually active women are exposed to one or more HPV infections in their lifetimes, with the highest risk of acquiring HPV being the first few years after becoming sexually active.

In September 2007 a study by the Agency published in the *British Journal of Cancer* estimated that at least 10 per cent of young women in England have been infected with one or more of the four HPV types studied (types 6, 11, 16 and 18) by the age of 16.

The study, the first of its kind in England, investigated the proportion of women aged 10-29 years who had antibodies indicating they had been infected with one of the four HPV types. Blood samples showed that from the age of 14 the risk of HPV infection increased sharply.

Researchers at the Agency also examined how cost effective the vaccine might be, given current knowledge about how long vaccine protection may last, the cost of the vaccine, the cost to the health service of treating people with conditions caused by HPV, and the effect that cervical cancer and genital warts have on quality of life.

The research suggested that immunisation of young girls is likely to be an effective use of healthcare resources if the vaccine protection lasts for at least 20 years. It is unlikely to be cost effective to immunise boys in addition to girls.

The government has yet to decide what HPV vaccine will be used but a decision is expected this year. The Agency plans to undertake a programme of work to monitor the impact of this immunisation programme. This will provide evidence for the effectiveness of the programme, and for any revision or modification of policy.

Chlamydia

Genital chlamydial infection remains the most commonly diagnosed bacterial STI in GUM clinics in England. In 2006 there were 113,585 new diagnoses, an increase of 3.8 per cent from 2005 (109,418) and a rise of 166.2 per cent from 1997 (42,668).

The National Chlamydia Screening Programme (NCSP) in England was launched in April 2003. Its goal is to control chlamydia through the early detection and treatment of asymptomatic infection to prevent the development of long-term health problems and to reduce onward transmission of the infection. The programme offers screening or tests to all sexually active people under 25 in a variety of healthcare and non-healthcare settings.

Local management of chlamydia screening is coordinated within programme areas. In 2003 there were 10 programme areas and a further 16 joined in April 2004, accounting for 25 per cent of all primary care trusts (PCTs) in England. A total of 86 programme areas now report data to the Agency, which covers 100 per cent of PCTs (152) in England.

Since the programme was launched in 2003

THE HPA SEXUAL HEALTH PROMOTION OFFICE WILL STRENGTHEN STI PREVENTION

to the end of 2007, the number of screens has increased year on year. Over 688,000 have been performed among those aged 13-24 years. The population screened was mostly of white ethnicity (83 per cent) and female (77 per cent). The proportion of screens in men has also increased year on year. In 2003/04 it was 7 per cent and in 2007/08 this had risen to 28 per cent.

Screening is occurring in an increasingly diverse range of settings, with the majority in community contraceptive services (33 per cent), youth settings (18 per cent) and general practice (13 per cent).

The number of young people under 25 who tested positive for chlamydia at non-GUM settings was 9.8 per cent in women and 8.7 per cent in men.

The Agency is supporting the government's strategy to improve sexual health by increasing chlamydia screening among those aged 15-24. A current target of 15 per cent of the total population screened is included in the NHS Local Delivery Plans of 2007/08.

The challenge now is to continue increasing the proportion of young people tested and raise awareness of chlamydia and its consequences among the target group of under-25s.

The work of the NCSP

The NCSP was launched in 2003 with the aim of increasing the number of screening tests for women and men aged under 25 years.

'Men too' is the name of the NCSP's strategy to support local chlamydia screening programmes in their efforts to increase screening uptake among men under 25 years of age.

Although the number and proportion of men accessing screening has increased every year since the NCSP was launched and is now at 28 per cent, the proportion of young men screened remains low in comparison to young women.

Good sexual health is not just a woman's responsibility and chlamydia is not just a women's issue. The prevalence of chlamydia in men is similar to that in women, with high rates of asymptomatic infection in both sexes.

Without treatment it can lead to pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy and infertility. If left untreated in men it can cause urethritis, epididymitis and Rieter's syndrome (chlamydia-associated arthritis), and there is now emerging evidence of adverse effects on male fertility.

The decision to offer screening to both men and women within the NCSP acknowledges the role of both sexes in the continued transmission of chlamydia. Screening men for chlamydia is an essential component in the prevention and control of genital chlamydial infection and in reducing associated complications in women.

Over the next year the NCSP will consult with key stakeholders to develop the actions proposed in the government's strategy, which includes producing a 'toolkit' of resources to support local NHS organisations to ensure gender equality in chlamydia screening.

The Sexual Health Promotion Office

In the light of the worsening sexual health of the nation, with increasing diagnoses of HIV and STIs, the Agency has established a Sexual Health Promotion Office. It will strengthen the Agency's role, both locally and nationally, in STI and HIV prevention so it can make a more effective contribution to improving the nation's sexual health.

Although based within the HIV and STI department at the Centre for Infections, it will operate across the Agency. The aim of the office will be to provide the Agency and external stakeholders with public health expertise in both primary prevention (such as promoting safer sex) and secondary prevention (such as promoting HIV testing) of STIs and HIV.

It will support the Agency in engaging with both national and local key stakeholders.

Nationally, the office will assist in a positive dialogue with government advisory groups such as the Sexual Health Independent Advisory Group (SHIAG) and the Expert Advisory Group on AIDS (EAGA) as well as voluntary and third sector organisations.

Locally, the office will support the active engagement of the Agency in ensuring adequate and appropriate sexual health promotion activities have been commissioned. This will be done by providing timely and appropriate surveillance data and disseminating evidence-based public health interventions for the control of STIs and HIV.

Finally, the office will act as a centre of excellence for the development of cutting edge research within the Agency regarding sexual health promotion and the barriers and incentives to behaviour change.

SURVEILLANCE BY THE AGENCY HAS IDENTIFIED CHANGES IN RESISTANCE

Invasive pneumococcal disease in children reduced

The number of cases of invasive pneumococcal disease (IPD) in children has fallen since the introduction of a new vaccine 18 months ago. Enhanced surveillance carried out by the Agency shows that cases of IPD caused by the seven major types of the pneumococcus bacteria, which the new pneumococcal conjugate vaccine (PCV) protects against, have gone down by almost 70 per cent in those children eligible for PCV.

Infections caused by the pneumococcus bacteria are a leading cause of serious illness such as meningitis and pneumonia in children in the UK, with approximately 5,000-6,000 cases of IPD being reported annually to the Agency. There are more than 90 known pneumococcal types and the PCV vaccine protects against the seven most common types that circulate in the UK.

Agency scientists followed up the 650 cases of IPD in children in England and Wales since the vaccine was introduced in September 2006 to monitor its impact. The team reviewed patient blood samples and worked closely with GPs and paediatricians to determine immunisation histories of patients.

The team estimates that around 470 cases and 28 deaths were prevented by the vaccine. The remaining cases it investigated were a mixture of those who were either not yet immunised, had not received a full course appropriate for their age group, or were infected with a type that was not in the vaccine.

In September 2006 the vaccine was introduced into the routine childhood immunisation programme at two, four and 13 months of age, with a catch-up campaign to two years of age to protect children from pneumococcal infection. The Agency was asked to measure its impact on reducing the infection in children and early evaluation of the vaccine shows that it provides good protection.

Infant botulism and first treatment using BabyBIG

Infant botulism is a rare disease caused by growth and toxin production of the bacterium *Clostridium botulinum* in the intestines of infants usually under 12 months of age. Only six cases were previously detected in the UK between 1978 and 2001. Until recently there was no specific treatment suitable for use in infants, with supportive care being the mainstay of treatment.

Treatment of wound and food botulism with equine or ovine antitoxin can be life-saving, but this is not recommended for use in infants because of the high risk of severe adverse reactions. Infant botulism is more common in the US where human antitoxin (BabyBIG) has been available for the treatment since October 2003. The efficacy and safety was demonstrated in a five-year trial in 122 subjects.

In October 2007 samples from two infants (aged four and eight months) with suspect botulus at different hospitals in London were received by the Food Safety Microbiology Laboratory at the Centre for Infections.

After a series of tests the diagnosis of infant botulism was confirmed. The cases were sporadic and apparently unrelated, with one found to be due to type A and the second to type B. Of the previous six cases detected

between 1978 and 2001, one was due to type A and the remaining five to type B.

The first case in 2007 due to type A was severely ill and given respiratory support. BabyBIG was obtained from the US and administered to the infant. The second case was less severely ill and treated with supportive care only.

There was no history of recent travel and no record of eating previously identified possible risk factors including honey. Food items collected from both infants' homes were negative for *C. botulinum*, although it was detected in vacuum cleaner dust.

The two unrelated cases in 2007 contribute to a series of eight confirmed infant botulism cases in the UK. These cases have provided valuable information and experience on the recognition, diagnosis, treatment and management of this rare condition for which treatment is now available.

Multiple-resistant Klebsiella pneumoniae

Antimicrobial resistance is a global problem and is not unique to the UK. International surveillance programmes in Europe, the Americas and Australasia also show significant problems with resistance in a range of bacteria that can cause disease.

The Agency's surveillance has identified many changes in resistance, including the rise of bloodstream infections caused by MRSA, and ciprofloxacin resistance in the STI gonorrhoea, with the loss of that antibiotic as a reliable treatment.

In the worst cases of multiple resistance, treatment choices are narrowed to antibiotics that are either not very suited to treating the infection or the older and rather toxic ones that have fallen from use. It is these awkward choices to which clinicians must increasingly return.

Globally, antibiotic resistance in the bacterium *Klebsiella pneumoniae* has been developing and now treatment options are often extremely narrow, increasingly depending on carbapenems, an important and powerful class of antibiotics that are used to treat life-threatening infection or those due to very resistant bacteria. The extensive use of antibiotics in hospitals has also led to increased carriage of multi-resistant klebsiella and an increased risk of infection of hard-to-treat strains.

Against this background, the Agency's Antibiotic Resistance Monitoring and Reference Laboratory (ARMRL) reported a disturbing development in *Klebsiella pneumoniae* – a new strain was discovered in a patient in Scotland that produced an enzyme called KPC which is already widespread (though not common) in the US, Colombia and Israel. This enzyme can destroy the carbapenems and so is resistant to them.

The patient had no history of foreign travel but was admitted and discharged from two hospitals, so it is difficult to know where the bacterium was acquired.

There was one case in 2003 where the same enzyme was found in a related bacterium called enterobacter. Another klebsiella with KPC enzyme was isolated early in 2008 from a patient in London, with a history of recent travel to Israel.

Klebsiella are opportunistic hospital bacteria that can pose a particular problem to people with weakened immunity to infection, such as those needing invasive hospital treatments because of underlying medical conditions.

To combat healthcare-associated infections it is essential that effective infection control measures are in place. Good hygiene by healthcare workers and visitors to hospital should be observed, the environment should be kept clean and dry, equipment should be cleaned and sterilised accordingly, and

SPOTLIGHT ON INFECTIONS

antibiotics should be used carefully and appropriately by hospitals.

The Agency continues to assist colleagues in the health service by identifying, investigating and monitoring healthcare-associated infections. Through ARMRL the Agency provides guidance for clinicians on suitable antibiotic treatment and reports the finding of new or rare resistances that may threaten infection control.

There is a widely held view among those monitoring antimicrobial resistance that the problem is likely to remain for the foreseeable future. The fight is not futile, but efforts to contain and control the problem will, of necessity, be continuous and complex.

DIPNET

The DIPNET network was launched in November 2006. This is a 38-month programme bringing together 25 EU partner countries (24 member states and Turkey) and collaborating countries beyond Europe in a global, dedicated surveillance network for diphtheria and related infections caused by *Corynebacterium diphtheriae* and *Corynebacterium ulcerans*.

Diphtheria became rare in the UK following the introduction of mass immunisation in 1942, when the average annual number of cases was about 60,000 with 4,000 deaths.

However, during the 1990s the largest outbreak of diphtheria occurred within the European region with more than 200,000 cases being reported, mainly from the former Soviet Union. The epidemic is now under control in most areas but cases are still being reported from some countries. The disease is still also present in other areas of the world such as South East Asia, South America and Africa.

Diphtheria is an acute, infectious respiratory disease caused by potentially toxigenic corynebacteria, which can affect people of all ages. It affects the throat and sometimes the skin. Potential risk factors for acquiring the infection include travel to areas where it is still present and close contact with cattle, farm animals and horses. However, recent European cases have been linked to domestic animals including cats and dogs. Human cases have also been associated with the consumption of raw dairy products.

The DIPNET network is coordinated by the Agency's Respiratory and Systemic Infection Laboratory in liaison with its Immunisation Department.

With epidemics still occurring in the European region, several basic questions need to be addressed. Are strains associated with the European epidemic different from all other strains circulating worldwide? What was it that enabled these strains to cause an epidemic of such proportions within the former Soviet Union? Are we dealing with new, more virulent, strains? And has the toxin changed in such a way that the current vaccine may be ineffective?

The project will focus upon strengthening surveillance activities and microbiological capabilities and awareness in Europe, particularly within the EU new member states and associated countries that are still classified as high risk areas.

It also aims to develop training materials for microbiologists, clinicians and public health

THE AGENCY SUPPORTS ITS ACTIVITIES THROUGH A NETWORK OF LABORATORIES

professionals, and guidelines for laboratory diagnosis, surveillance and control.

Another important aspect to investigate is the capacity of each participating country's system to detect and report cases and the readiness of the public health response (including case investigation and management, and antitoxin availability). Such information would be valuable in informing the development of updated World Health Organization laboratory guidelines and subsequently new European guidelines.

The expected achievements from this programme should also provide essential data for immunisation policies within Europe.

Developing a national network for microbiology services

Diseases from food and water continue to be a threat to public health. These threats take the form of high-profile incidents such as salmonella in eggs and chocolate, bovine spongiform encephalopathy (BSE) in cattle, listeria in soft cheese and hospital sandwiches and Legionnaires' disease from air conditioning systems.

These high-profile examples represent a small proportion of the total burden of food and waterborne disease. For example, it has been estimated that there are 70,000-94,000 cases of food poisoning in England and Wales each year. Annually this represents an estimated 20,800 hospitalisations and 480 deaths, and an estimated £1.7 billion in costs to the NHS, to the individual and loss of earnings.

Responsibility for food and water safety in England is shared by a number of different partners, including the Food Standards Agency, the Department for the Environment, Food and Rural Affairs, the Department of Health, local authorities, port health authorities, the Drinking Water Inspectorate and the Health Protection Agency.

Key roles for the HPA are to provide diagnoses, control incidents and outbreaks, and provide evidence to inform actions and control measures. The Agency supports these activities through a network of laboratories testing food, water and environmental samples.

The food, water and environmental laboratory network is delivered from 26 sites, some of which are wholly managed by the Agency while others are commissioned from NHS trusts. The Agency plans to consolidate the number of laboratories and bring them all under the management of the Agency, which will help deliver a more consistent and improved service to all parts of England.

The Agency will be investing in rapid molecular testing and a single IT system, which will provide better use of resources and improved resilience to deal with outbreak control and national emergencies. The network will also allow more centralised training and the development of a highly skilled and motivated work force.

These changes will provide a firm foundation for the Agency to meet future challenges affecting the safety of food and water, including changes in populations such as

THE AGENCY WILL MEET FUTURE CHALLENGES ON THE SAFETY OF FOOD AND WATER

an increase in the numbers of elderly and vulnerable groups, large events such as the 2012 London Olympics, and the emergence of new and varied pathogenic agents.

Clostridium difficile Ribotyping Network for England

Clostridium difficile infections have continued to rise in recent years with infection usually occurring after people have taken antibiotics to treat other illnesses. The patients most at risk are elderly patients with underlying diseases.

C. difficile infections cause diarrhoea, serious intestinal complications and sometimes death. Initiated by the Agency, a mandatory reporting programme has been in operation since 2004. The latest figures available show that from April 2007 to December 2007 NHS trusts reported 34,144 cases of *C. difficile* in people aged over 65.

In 2007 the Agency launched the *C. difficile* Ribotyping Network for England (CDRNE), working in conjunction with six regional microbiology laboratories in Leeds, Birmingham, London, Manchester, Newcastle and Southampton. The CDRNE service is provided to NHS trusts to assist with ongoing investigations of *C. difficile* outbreaks in their hospitals. Specifically, the service assists local infection control teams and microbiologists to investigate:

- Increased frequency of cases or high rates of *C. difficile* infection
- Increased severity/complications in cases of *C. difficile* infection
- Increased mortality associated with *C. difficile* infection.

C. difficile ribotyping is a technique of DNA fingerprinting that allows comparison of strains of the bacterium isolated from different patients, allowing for better outbreak management and thus helping to reduce the number of *C. difficile* infections in hospitals. The technique identifies genetic differences between bacteria and also allows for identification of the more serious strain type 027.

Further research is ongoing to develop more sophisticated typing techniques that will provide additional information on *C. difficile*.

The Agency's laboratories in action

The Agency's laboratories provide a range of public health virology services that are delivered in a standardised way across England to ensure equity of access and service provision.

The services they provide include testing specimens from humans for avian influenza and noroviruses using sensitive and specific molecular methods. In the last year the regional laboratories have also significantly improved their public health virology service by using polymerase chain reaction (PCR) to amplify DNA sequences. This has not only provided much more sensitive assays or laboratory tests, but also has reduced the time for obtaining a virological diagnosis from

approximately one week to less than 24 hours.

The Agency's laboratories have developed several accredited assays for detecting avian influenza viruses in human samples, which were installed in regional laboratories. Each laboratory now has the assays available 24 hours a day. There have been four avian influenza outbreaks in birds in the UK in the last two years and laboratories have provided a confirmed influenza virus result for human samples within four hours on each occasion. Regular teleconferences and an annual proficiency panel exercise ensure that all laboratories maintain competence.

All laboratories provide a regional service, employing PCR for diagnosing norovirus outbreaks in NHS trusts and in community settings. PCR is the most sensitive method available and laboratories aim to phone results promptly, which assists outbreak management. Noroviruses are viruses that frequently mutate so representative samples are sent to the Agency's Centre for Infections. This means that the rapidly changing profile of these viruses can be monitored regularly, which aids the understanding of norovirus epidemiology and the design of new tests.

Tuberculosis

Tuberculosis causes more deaths worldwide than any other infectious disease. Nearly nine million new cases of tuberculosis and nearly two million deaths are estimated to occur globally each year from this preventable and curable disease.

Tuberculosis rates in the UK remain higher than in most western European countries. Provisional data for 2007 suggests that the annual number of cases in the UK is still high, but has remained stable. There were 8,496 provisional cases reported in 2007, which represents a small decrease (0.7 per cent) from the 8,171 provisional cases in 2006.

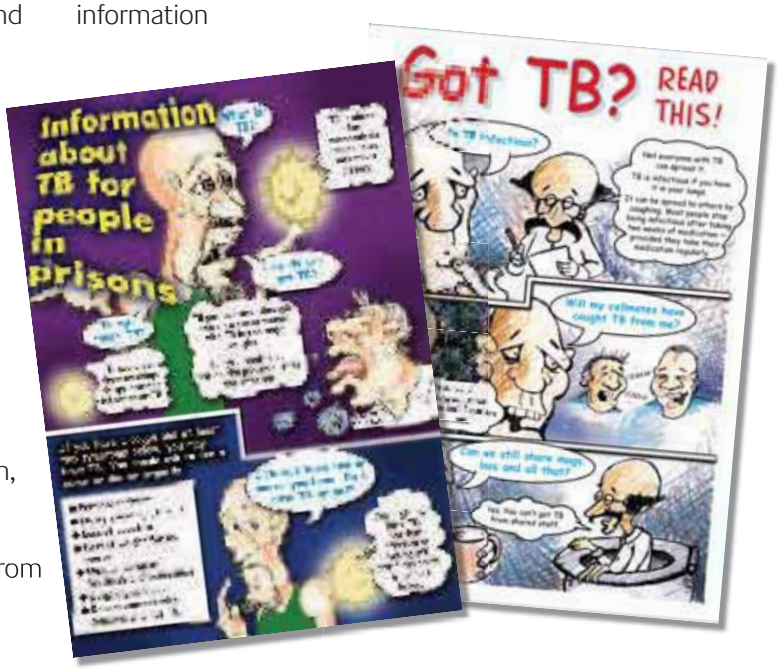
London, as usual, accounted for the highest proportion of cases (39 per cent), but did show a decrease of 3 per cent compared to 2006. The lowest proportion was reported in Northern Ireland (1 per cent).

The Agency is involved in a number of initiatives aimed at reducing the burden of tuberculosis locally, regionally and nationally. The Agency contributes to research dedicated to vaccine development and evaluation, and implements measures to improve and maintain surveillance, while also providing reference microbiological services to the NHS.

Effective information targeting

Raising awareness is a key component of early diagnosis. The Agency, working together with the NHS and various voluntary organisations such as TB Alert and Homeless Link, is addressing this through the National Knowledge Service Tuberculosis Pilot. This aims to educate professionals and patient groups to ensure early diagnosis.

With the homeless, drug users and prisoners accounting for a significant proportion of cases, developing appropriate information



SPOTLIGHT ON INFECTIONS

resources for these groups is vital. Two leaflets have been produced for prisoners, which feature a simple layout and cartoon characters because half of the prisoners in England and Wales have serious reading difficulties. Information has also been produced for homeless people, asylum seekers, carers who work with children, and pregnant women.

TB and substance misuse has also recently been published in collaboration with the National Treatment Agency and Adfam (a national organisation working with and for families affected by drugs and alcohol) as a resource for users, their families and providers of substance (drug and alcohol) misuse services.

A national database

Effective tuberculosis prevention and control is underpinned by an understanding of its epidemiology. The Agency's National Tuberculosis Database allows the most common tuberculosis strains in the UK to be studied and provides a better understanding of how strains are developing and changing.

The database provides rapid 'real time' information on strains, so that cases or outbreaks can be identified more quickly and the spread of tuberculosis can be controlled more effectively by local health protection teams.

The database currently contains 18,385 isolates from five laboratories in London, Birmingham, Newcastle, Scotland and Wales. It is a tool for a broad range of staff involved in tuberculosis detection and control to enable the monitoring of local and national trends.

Standards for tuberculosis services

In England the Agency's Local and Regional Services (LaRS) play an important role in the prevention and control of tuberculosis. LaRS is undertaking a project to develop and implement service standards to ensure that all areas of the country have the same high quality service provision.

When the Agency was established in 2004 the specialist expertise and resources available at local level varied considerably, often dependent on whether or not tuberculosis was a local health issue. As the nature and extent of the burden of tuberculosis in England changes, districts that hardly ever saw cases are experiencing complex public health problems that require expert interventions.

In response LaRS has developed a set of standards for all aspects of its tuberculosis specialist services. A group of experts from both the Agency and the NHS worked to refine the standards and a document was produced and consulted on. This was converted into a self-assessment tool so that each health protection unit (HPU) can measure how well they are complying.

The self-assessment tool will identify areas where practice is good or satisfactory (green

light) and areas where units assess themselves as amber or red. This will help local units to identify service elements that require further development. Training packages will be developed and delivered to meet identified needs. The self-assessment will be repeated later in the year and any HPU that still does not comply will be supported further until the standards are met.

Meeting the needs of hard-to-reach groups

A study conducted by the Agency in collaboration with London tuberculosis nurses showed that while the highest proportion of tuberculosis cases occur in foreign-born patients, transmission among groups such as homeless people, hard drug users and prisoners presents a major challenge to tuberculosis control in London.

In the capital these groups collectively account for 17 per cent of cases. A small minority of homeless and hard-to-treat tuberculosis patients are extremely difficult to engage and these experience poor access to health and social services.

In 2001 the Department of Health funded a two-year pilot to screen such patients in London using a pioneering scheme developed in Holland involving a mobile digital screening van. This tests up to 300 people a day and X-rays can then diagnose if a patient has tuberculosis 30 seconds after they have been screened. The pilot was evaluated by the Agency and showed that there were benefits in using a mobile screening van to reach hard-to-reach groups.

Tuberculosis in a school: outbreak control

In the spring of 2007 the entire student and teacher population of a junior school in Luton was screened following the discovery of an infectious case of tuberculosis.

As many household contacts of the case were infected, the Bedfordshire and Hertfordshire HPU, together with Luton Primary Care Trust, decided to screen classroom contacts of the index case.

PARENTS WERE REASSURED DURING THE SCHOOL TB OUTBREAK

Seven children were in the early stages of infection and a further 23 children were found to have latent tuberculosis. Given the unusually high level of transmission the whole school was screened – 190 children and 108 adults.

Understandably there was anxiety within the school community. The HPU reassured parents by providing regular updates and opportunities to talk to doctors and nurses from the HPU. In addition the HPU director spoke to the media to explain the situation.

To reduce distress and disruption the screening was carried out at the school using a mobile X-ray unit. Children were tested, results were analysed and those affected were seen in hospital and started on their treatment within three days.

Due to the high media interest a press briefing gave the results of the screening and reinforced the key public health messages. In this outbreak the Agency added value to the control of disease by organising and leading an appropriate public health response to prevent further cases.

Picture Nation

CHAPTER FOUR

TACKLING ENVIRONMENTAL THREATS TO HEALTH

The Agency is taking action on the present and future threats that are posed by the environment

Global warming is likely to pose a significant challenge to the nation's health during the rest of the century, a joint report by the Agency and Department of Health revealed in February.

The *Health effects of climate change in the UK* report found that if no action is taken to reduce the impact of climate change there will be a 1 in 40 per year chance by 2012 of the UK suffering a heatwave claiming 3,000 immediate lives.

People's habits are likely to change due to the warmer climate and this could have an effect on the nation's health. One example is that tick-borne diseases such as Lyme disease are likely to become more common as people spend more time in woodland areas. Another example is that increased exposure to sunlight is likely to lead to more skin cancer.

There is even a small chance that malaria will return to the UK, although outbreaks are likely to remain small and easily controlled. The number of people at a high risk from flooding is also set to rise from 1.5 million to 3.5 million by 2100.

The report, which was an updated version of a study published in 2002, predicts that the UK climate will rise by 2.5-3°C by the end of the century. This would increase the number of food poisoning cases by up to 14.8 per cent.

However, the report says that global warming is not all bad news for the people of Britain and Northern Ireland. Winter deaths are likely to continue to decline as the climate warms. The number of heat-related summer deaths also fell from 1970-2003, suggesting that people have acclimatised well to the 1°C temperature rise experienced since 1960.

The report was written to advise the decision-making process of the UK Government. It also formed the basis of the Agency's response to a recent request for information from the Royal Commission on Environmental Pollution, to

AGENCIES NOW WORK CLOSELY TOGETHER IN CHEMICAL INCIDENTS

help scope their new study on adapting the UK to climate change.

London early alerting system – improving multi-agency working

The Agency has been a major contributor to establishing an enhanced communication system for chemical incidents in London. The early alerting system was developed to improve partnership working and communication between the emergency services and public health organisations. By working closer together all the agencies are able to provide better information to the public much earlier following an incident.

The London early alerting system was initiated and developed by the Chemicals, Hazards and Poisons Division (CHaPD) London and is coordinated from the London region of the Agency. It was introduced after a review of chemical incidents in 2004 revealed that information sharing between the agencies was not always timely and consistent.

The early alerting system involves working with a number of partners, including the London Ambulance Service, London Fire Brigade, Environment Agency, Drinking Water Inspectorate and Guy's and St Thomas' Poisons Unit.

With these agencies working more closely together and sharing information at an early stage in a chemical incident, there is increased opportunity for CHaPD and others in the Agency to provide prompt and timely information to prevent and minimise any potential health effects from the chemicals or other hazards arising due to the incident.

A review in November 2006 showed a significant increase in the reporting of potential chemical incidents to the Agency.

Smoking clinics spot carbon monoxide poisoning

Smoking cessation clinics can be used to detect carbon monoxide (CO) poisoning from faulty gas boilers and other household appliances, the Agency discovered this year.

Breath tests used by clinics to track falling levels of CO in ex-smokers can reveal if people are suffering from long term, low level poisoning from the gas.

Smokers exhale higher than average levels of CO but their breath should return to normal after they quit. So when a smoking cessation clinic in Surrey found that a patient was suffering from raised levels of CO despite quitting the habit an investigation was launched. This discovered that the patient had been exposed to CO in their home from a faulty gas appliance.

When a smoking cessation clinic patient is found to have higher than expected levels of CO in their breath, the Agency suggests they should be told the result may be caused by a faulty or badly ventilated device that burns fossil fuels. These include gas cookers, fires, boilers, water heaters as well as coke or oil fired boilers.

Exposure to high levels of CO can be lethal and causes an average of 50 accidental deaths a year. At lower levels it may produce symptoms similar to influenza or food poisoning.

If the patient is showing symptoms of CO poisoning, the healthcare professional should

urge them to contact a suitably qualified engineer to check the devices. The patient should also be referred to their local accident and emergency department.

Blaze destroys adhesives factory

Phosgene, a chemical weapon used by Germany to kill thousands during the First World War, was thought to have been among a mixture of substances released during a blaze at a glue factory in Corby, Northamptonshire, in May 2007.

Three thousand people from 20 firms were evacuated as 65 firefighters from Northamptonshire and Leicestershire Fire and Rescue Services tackled the blaze at Caswell Adhesives.

Local radio stations repeatedly sent out a message advising people to 'go inside, stay inside, close windows and tune in' after the blaze started at around 8am.

Initially it was known that the solvents acetone and toluene were in the factory. But it later became clear that some 2,000 litres of dichloromethane were also part of the blaze, sparking fears that phosgene may have been produced as a byproduct of combustion.

The Agency sent factsheets on all the chemicals that may have been produced by the blaze to fire and rescue services. No environmental sampling had been taken to test for these substances.

Twenty-six firefighters were taken, as a precaution, to four emergency departments in Kettering, Leicester, Northampton and Peterborough, and discharged.

It was feared that ten firefighters who had been wearing breathing apparatus intermittently during the morning shift may have been exposed to phosgene. These firefighters were admitted to hospital and observed for 24 hours before being discharged without symptoms.

There were similar concerns about four more firefighters who worked the evening shift. They, too, were later discharged without symptoms.

Although fire investigators later discovered the cause of the blaze to be static electricity, the Agency was concerned about the different treatment the firefighters involved in the incident had received – some were admitted to hospital and observed for 24 hours while others were discharged. To address this the Agency forged closer relationships with the local fire service's occupational health department. As a result the Agency was invited to speak at a conference for occupational health nurses.

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CHAPTER FIVE

RADIATION AND HEALTH

Radiation health issues are a high-profile area of activity and research for the Agency

WiFi in schools

During recent years there has been a significant increase in the use of wireless local area networks (WLANs) for computers in offices and schools. These devices are particularly useful in school classrooms because there is no need for cabling to connect computers to a network.

However, the exposure of children to radio waves in school classrooms has raised concerns among some people, particularly in relation to health, and is an issue that has received wide coverage in the news media.

The Agency has previously measured exposure in schools and confirmed that the wireless systems have very low power transmitters. Exposures to children from the routers (masts) and the transmitters used by laptop computers were found to be very low compared to international guidelines and much less than the exposures children may get from using a mobile phone.

Nevertheless the rapid increase in the use of such systems (the most popular is WiFi) in schools has prompted the need for a new in-depth study. The Agency launched a study this year with the first priority being a thorough examination of the various wireless systems used in schools and the potential exposures to children in a variety of operational modes.

The research will be published on the Agency's website and submitted for publication in the peer-reviewed scientific literature. The results of the study, and of other studies on radio signals and health, will be used as the basis for a wider health risk review.

Nanoparticles

Nanotechnology originates from the Greek word meaning 'dwarf', and when a new generation of microscopes were invented in the 1980s nanoparticles could be seen, produced and managed. While nanoparticles are not new in the environment, there has been a significant increase in industrial application of nanotechnology in recent

RADIATION AND HEALTH

years to make products lighter, stronger, cleaner and cheaper to produce.

Nanoparticles are an area of new technology that the Agency is examining more closely. The Agency's Centre for Radiation, Chemical and Environmental Hazards is setting up major collaborations with universities in the UK and in Europe to develop a research programme to study their effects.

One of the projects will make use of facilities originally used at the centre for research on the inhalation of radioactive particles. These facilities will be developed to make bespoke nanoparticles and to characterise ones acquired from elsewhere. The research project will examine the potential for human exposure at all stages during a lifecycle of the manufacture of nanoparticles, during their use and their disposal, including any movement or dispersion in the environment.

Nanoparticles are tiny, dust-like fragments defined as having a diameter less than 100 nanometres (100 x 10^{-9}m), which is 80,000 times smaller than the diameter of a human hair. We are all routinely exposed to nanoparticles, particularly from the increased use of diesel-powered vehicles, and more occasionally from smoke in the environment. They are also used in many products, from sunscreens to paints to sticking plasters.

Most of the chemicals used in nanotechnology pose no known risk to humans, but there are concerns that nanoparticles may be different because they are known to be able to enter the body more easily than larger particulates that humans are exposed to every day. Hence there is a need for a research programme and the Agency will make a significant contribution to the research effort.

Radon

Exposure to radon gas, a radioactive element produced by the decay of naturally occurring uranium, is the major source of radiation exposure to the general population in the UK and many other countries.

It seeps into buildings from the ground and from the building materials themselves. Exposures depend on the characteristics of the building itself, for example, the foundations and its ventilation, plus the habits of the people living or working there.

Since 1990 there has been an extensive measurement programme in the UK to identify and remediate homes with high radon concentrations. The results of this programme enabled scientists to identify radon-affected areas and the authorities have been able to concentrate their efforts in these areas to reduce exposure.

For example, areas have been identified where new homes have protection measures to avoid the build up of radon gas inside, based on methods developed by the Buildings Research Establishment. Over the years this measurement and research effort has established a highly reliable database of radon levels in homes.

Given that the primary source of the gas is the geology underneath houses, research has been carried out to produce a radon map of the UK by combining the Agency's measurement results with geological expertise at the British Geological Survey (BGS).

The Agency and the BGS have developed a joint geological/grid square mapping method and this year the *Indicative Atlas of Radon in England and Wales* was published jointly by the Agency and BGS.

This provides accurate predictions of radon levels in homes via postcodes. The prediction is based on detailed geological knowledge and on information from nearly half a million measurements of radon in homes.

Nuclear issues

There have been significant developments regarding nuclear energy this year after the government announced that it would facilitate a programme to build new nuclear power stations in its future energy plans. The Agency is impartial on this issue – it is neither for nor against nuclear power. However, given the Agency's responsibility for advising government on radiation protection, it has a significant contribution to make to decisions about this important issue.

This year the Agency's Advisory Group on Ionising Radiation (AGIR) looked at the radiation risks from tritium, a radioactive isotope produced primarily by the nuclear industry. In November 2007 the Agency published the group's detailed advice on how the risks from tritium should be assessed. The report recommended that an international collaborative study of tritium in exposed populations should be considered.

The issue of radioactive waste also featured when the Agency issued a consultation document on proposals to update its advice on solid radioactive waste disposal. The advice is intended for use by local planners doing detailed risk assessments of solid radioactive waste disposal facilities.

Given the long half-life of some radioactive waste, an important principle underpinning the proposed advice is that people in the future should have the same level of protection as we have today.

The Agency is consulting stakeholders on the criteria and methods for assessing the radiation risks resulting from natural processes and events (such as earthquake or landslide) that could affect waste disposal facilities in the future. It is also asking for opinions on the criteria for assessing the radiation risks to people intruding into such a facility, either by accident or when they are aware of its purpose.

The various measures used to assess future impacts, which combine the likelihood of an event happening with the radiation dose and risk that could result from it, are also being considered for consultation.

CHAPTER SIX

WORKING WITH INDUSTRY

The Agency has formed important commercial partnerships that will benefit the health of the population

The Agency's aim is to exploit its assets for the development of new evidence-based healthcare interventions, in partnership with industry, and in line with government policy on wider markets.

This goal is achieved by a variety of routes, including collaborative research and development, licences to commercialise Agency intellectual property, formation of spinout companies, and provision of a variety of products and services on a commercial basis. This chapter summarises some of the key achievements during the year.

InterAct partnership – commercialising public sector technology

The InterAct project is a three-year collaboration between the Agency, the Veterinary Laboratories Agency, the Department of Environment Food and Rural Affairs' Central Science Laboratories and the Defence Science and Technology Laboratories to identify industrial opportunities to apply public sector research. This is now nearing completion.

The project has been funded by the Department for Industry, Universities and Skills, and supported by the consulting firm IP Pragmatics. It has resulted in external investment in spinout companies and a broad range of new licences and contracts in areas as diverse as diagnostics, vaccines, microencapsulation systems, proficiency testing services, laboratory reagents and early detection systems.

Building on the relationship with EUSA Pharma, a specialty pharmaceutical company, the Agency has provided specialist biological manufacturing under current Good Manufacturing Practice for the leukaemia drug Erwinase® (crisantaspase), which is used for the treatment of acute lymphoblastic leukaemia, particularly in children.

EUSA Pharma has successfully filed for marketing authorisations in several new territories around the world,

THE AGENCY HAS A LARGE PORTFOLIO OF PATENTS

and the Agency has increased manufacturing volume accordingly.

Specialist services for the vaccine industry

The Agency has continued to collaborate with Emergent Biosolutions on research and manufacturing work on toxoid and recombinant vaccines to prevent botulism. The Agency also offers services such as specialist serology to major vaccine companies, government bodies and charitable foundations.

Following the clinical trial of a novel vaccine candidate against meningococcal B disease, discussions are under way with a number of vaccine companies, since the Agency will require an industry partner to support the product through further clinical development.

Managing our assets

The Agency has a portfolio of almost 40 patents and patent applications, and actively maintains these through a Patent Review Committee.

Given the success over the past few years in assigning or licensing these patents to companies for development of new healthcare products, a major effort has been made to identify new and patentable technologies, particularly in parts of the Agency that have had less experience with intellectual property. As a result, five new patent cases have been opened during the last year.

Opportunity Assessment Groups now operate across much of the Agency, providing rapid management review of opportunities and feedback to potential customers.

Syntaxin – rapid growth of our spinout company

Syntaxin, the spinout company formed in 2005 to develop the Agency's technology for developing novel biologic drugs that control cell secretion to address unmet clinical needs in the treatment of pain, nervous system, respiratory and metabolic disorders, successfully raised £16m.

TSO3 – testing of decontamination equipment

The Agency offers specialist testing of equipment used in the field of public health, such as systems used for decontamination. The Agency tested the Ozone Sterilizer from the Canadian company TSO3 for the ability to deactivate prions associated with transmissible spongiform encephalopathy, demonstrating the potential of the equipment to decontaminate surgical instruments for which vapour sterilisation is currently the favoured option. Further work is expected to continue until 2009.

External quality assurance schemes

In addition to its non-commercial clinical microbiological proficiency testing schemes the Agency offers a range of products and services to ensure the quality of microbiological testing.

During the past year the Agency has sought to expand its standard services, particularly for the food and environmental sector, and also offered bespoke food and water microbiology schemes for major companies. A DVD has been produced, outlining the benefits of the service, and promoted at a series of industry events.

Cell culture services and controlled reagents

Agency culture collections, including the European Collection of Cell Cultures (ECACC)

business, provide a range of cultures and cell-culture-derived reagents to the NHS as well as a range of academic and industrial laboratories.

Due to the size and complexity of the collections and services, convenient web access is critical.

A programme to develop a new, dedicated and integrated website with enhanced bioinformatics capability is nearing completion and is due to be launched in summer 2008. New marketing partners were secured to extend the geographical reach of our products and services.

Radiation Protection Adviser services

The Agency's Radiation Protection Division provides expert consultancy on compliance with the complex legislation covering work with radiation. The Radiation Protection Adviser service is now provided to over 1,000 organisations across the country.

A good example of the close relationships being forged is the Agency's work with a number of airport operators and power generating companies.

The Agency provides valuable technical advice and equipment assessments to ensure safe working practices continue to be implemented as new types of equipment are put into the workplace. The Agency also liaises closely with its clients to ensure appropriate training is provided.

Personal dosimetry service

The Agency's Radiation Protection Division offers a personal dosimetry service based on its expertise in radiological protection and backed up by continual research and development.

Very significant investment into the service over the last few years has led to an improved technical offering and a better experience for customers. Presently about 20 per cent of the service's £1.8m annual income comes from the supply of 75,000 dosemeters to hundreds of different employers in general industry.

Communicating with our customers

Over the past year the Agency has expanded its marketing programme, participating in a range of events in relevant industry sectors, including BIO2007 – where the science minister visited our trade stand – BioPartnering Europe, World Vaccine Congress, Genesis, the Emergency Planning Society annual conference, and the Phacilitate World Vaccine Forum.

In addition the Agency has used the full range of media to communicate with existing and potential clients: brochures, newsletters, visits to customers, web pages and hosting visits to facilities.

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CHAPTER SEVEN

RESEARCH AND DEVELOPMENT

An extensive research programme is central to the Agency's ongoing remit of protecting the public

The Agency engages in a substantial programme of research to support its strategic aims. This year the total value of new external grants awarded to the Agency was over £5m. Much of the research is funded by the Department of Health and other UK research funders, and carried out by the Agency's own staff.

In recent years the Agency's research programme has expanded to involve many other organisations both in the UK and overseas. Collaborations with other research organisations and academic institutions, joint research programmes funded by overseas agencies and industrial partnerships now form a substantial part of the Agency's research portfolio.

Collaborative research programmes

Nanotechnology

The Agency's Radiation Protection Division and Chemical Hazards and Poisons Division have collaborated in setting up the National Nano-toxicology Inhalation Research Centre. A research consortium has been established that involves five UK Russell Group universities, the Medical Research Council Toxicology Unit and a leading German research institute. The project will devote 2008 to setting up the facility and developing techniques for dispersing nanoaerosols and monitoring nanoparticles.

Medical toxicology

The Agency and Newcastle University have established a joint Medical Toxicology Research Centre on the campus of the University. This initiative aims to improve population and individual health protection by focused research on monitoring exposure to environmental chemicals, identifying the toxic mechanisms involved and developing evidence-based clinical management options and preventative measures.

The Agency's research programme will address three priority areas in toxicology research identified in the Agency's strategic

PROJECTS HAVE FOCUSED ON DEVELOPING A TUBERCULOSIS VACCINE

plan: biomarkers of exposure and uptake, susceptibility factors and chronic toxicological effects.

Novel vaccines against meningitis

The first phase of a safety and immunogenicity clinical trial for meningitis using a *Neisseria lactamica*-based vaccine has been completed. The vaccine showed a good safety profile, produced large rises in antibodies and showed rises in bactericidal activity.

An experimental model of *N. lactamica* colonisation has been developed in collaboration with the University of Sheffield, and discussions continue with the Serum Institute of India regarding an extension of their licence for the vaccine.

Behavioural sciences

The Behavioural Sciences Research team at the Centre for Emergency Preparedness and Response has been collaborating with King's College London on a project funded by the Home Office investigating public responses to chemical, biological, radiological and nuclear (CBRN) incidents. This research informs the development of communication strategies aimed at promoting positive responses from the general public during CBRN emergencies. In 2008/09 the project partners will work with the University of Stuttgart to extend this research into Europe. In parallel the team has been contributing to the evaluation of emergency preparedness exercises run by the Agency's Emergency Response Department, and has been working alongside the Agency's Microbial Risk Assessment team to use survey data to quantify the behavioural responses of the public most likely to impact upon public health outcomes and disease control during an infectious disease emergency.

Transmissible spongiform encephalopathy research

A multidisciplinary programme of research into the transmission of variant Creutzfeldt-Jakob disease (vCJD) and the decontamination of surgical instruments continues in conjunction with St Bartholomew's Hospital in London, Edinburgh University and Glasgow University.

Data on the effectiveness of prion cleaning and decontamination methods has been presented to both the Department of Health's Engineering & Scientific Advisory Committee and its Decontamination Research Working Group, to enable it to update its vCJD dental risk assessment. The transmissible spongiform encephalopathy group's work has resulted in new guidance to dentists from the Chief Dental Officer reinforcing the message that dental files and reamers must be considered single-use instruments.

Strengthening local and regional research

The Agency's Local and Regional Services (LaRS) research and development strategy was developed and finalised in September 2007, and included detailed research priorities. The first health protection intervention research workshop took place in October 2007, with several research consortia being formed with the Centre for Infections, the NHS and several universities.

After successful development in the North West Region, the web-based LaRS research project database was piloted in other regions and rolled out to all English regions in February 2008. This database records research and development activity in each region and

is accessible by research partners in the NHS and universities.

International funding

Accidental misuse of chemicals

The European Chemical Industry Council (CEFIC) has funded a project entitled 'Description of the Nature of the Accidental Misuse of Chemicals and Chemical Products' (DeNaMiC). The Agency's Chemical Hazards and Poisons Division is responsible for managing this international research project, which includes European poisons information centres in Lille (France), Göttingen (Germany) and Prague (Czech Republic), and the Federal Institute for Risk Assessment Berlin (Germany).

The DeNaMiC project aims to identify what data is available on injuries from chemicals in household consumer products within Europe and to find out what useful conclusions can be drawn from the data. The project will also explore the feasibility of using poison centres to collect more detailed information about the circumstances of accidental poisonings, to identify problems associated with risk management measures and to analyse why accidental poisonings with household chemical products occur.

Supporting the US National Institute of Allergy and Infectious Diseases

The Agency's Centre for Emergency Preparedness and Response undertakes a significant number of projects to support the goals of the US National Institute of Allergy and Infectious Diseases in developing a ready capacity to screen and test potential countermeasures for efficacy against emerging infections.

Tuberculosis vaccine development

The evaluation of ten novel tuberculosis vaccine formulations has been made for the EU-funded consortia TB-VAC and Mucosal Vaccines against Poverty Related Diseases (MUVAPRED), and for the Department for Environment, Food and Rural Affairs in aerosol infection models.

The TB-VAC project is focused on the design and testing of new candidate vaccines against tuberculosis and has a large element dedicated to the identification of novel candidates. In contrast MUVAPRED focuses on existing candidates but is investigating whether immunity can be obtained from vaccines using needle-free delivery.

Industrial partnerships

Anthrax vaccines

A joint bid with two commercial partners has been submitted to a joint call involving the US organisations the National Institute of Allergy and Infectious Diseases, the National Institutes of Health and the Biomedical Advanced Research and Development Authority.

The work focuses on the development and supply of a third generation anthrax vaccine and aims to fund organisations with vaccine

THE AGENCY HAS ESTABLISHED A NEW RESEARCH AND DEVELOPMENT DIVISION

product development experience to produce a candidate third generation anthrax vaccine.

Immunoassays

The Immunoassay Group won a major contract with Sanofi Pasteur (US) to provide serology in support of its Hib vaccine serology, following an extensive series of concordance studies in an international competition.

A three-year WHO study of routine vaccine 'take' with a new anti-malarial treatment for infants has also been completed; the study was coordinated by the Immunoassay Group with support from Agency laboratories at the Centre for Infections and in Southampton, and from colleagues in the Novel and Dangerous Pathogens Group.

Botulinum toxin

Substantial progress has been made in the generation of a recombinant, trivalent botulinum vaccine with Emergent BioSolutions and two new patent applications have been filed.

Department of Health review of HPA research

In 2006 the Department of Health commissioned an independent review of the Agency's research and development activities. The review team included independent experts from the UK and overseas. A copy of the report, along with a letter describing how the Department of Health wished the Agency to respond, was sent by the Minister for Public Health in 2007. The review asked the Agency to address six areas:

- Establishment of a ring-fenced fund for research and development support
- Development of clear mechanisms for setting research priorities
- Establishment of a mechanism for independent expert review of internally funded research
- Increasing external research collaborations
- Increasing levels of external funding
- Establishing a Research and Development Division and strengthening the Research and Development Office.

The Research and Development Division, headed by a new Director of Research and Development, was established in October 2007. A strategy for putting the review's recommendations into place will be developed during 2008.

Creating the workforce of the future

New technology and research depends on making sure the workforce has the necessary skills and experience. Research and development training is essential for the continued growth of the Agency and its staff. The Research and Development Office's involvement in training ranges from provision of guidance through to a PhD scheme that offers six studentships each year to Agency staff.

The Agency's Pump Priming and Small Initiatives Fund made 11 awards and in September 2007 12 awards were made from the newly established R&D Development Fund.


Health
Protection
Agency

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CHAPTER EIGHT

WORKING INTERNATIONALLY

The Agency plays an important role in protecting the health of people throughout the world

International activities

Health protection requires close cooperation and the prompt exchange of information both locally and internationally. The Agency's international activities contribute to improving global public health and also fulfil a humanitarian responsibility to share public health skills on a global basis. In addition, the contacts and information gained through international links can improve the Agency's effectiveness and efficiency in dealing with UK health protection priorities.

The Agency contributes to improving global public health through offering a wide range of expertise and experience on the effects of infections, chemicals, poisons and radiation hazards on human health.

International activities are undertaken within work streams (including EU-funded work), as international centres of expertise (such as WHO collaborating centres), through representation at international meetings, conferences and seminars, training, hosting visits and international collaboration. In addition, many professional links and contacts are undertaken by staff on an individual basis.

The Agency has three key areas of expertise most widely sought internationally: advice and consultancy, research and development, and training and teaching.

Preparing for the London 2012 Olympics

Since the announcement that London would host the Olympic and Paralympic Games in 2012, the Agency has been considering how to prepare for its role in helping to deliver a safe and successful games.

The Agency was involved in preparing the successful London bid to host the games and built on experience from the Commonwealth Games in Manchester in 2002 to identify the key health issues, and what needed to be done.

An Agency-wide Olympics Coordinating Group is now

WORKING INTERNATIONALLY

looking at the work that has to be delivered to ensure readiness for 2012. The key roles the Agency will be expected to play are being defined in partnership with the London Organising Committee of the Olympic Games (LOCOG), the five local authorities involved, the NHS, the Metropolitan Police and others.

The focus of Agency work for 2012 will be the North East and North Central London Health Protection Unit (HPU). As the frontline of the Agency, the delivery of health protections services for the games will be through the HPU and the challenge for the Agency is to ensure that all our specialist centres and services are lined up and ready to support the HPU.

An event as large, as complex and as international as the Olympics will inevitably draw on all the Agency's varied resources.

Important areas for the Agency will be surveillance, preparedness, response and terrorism.

Surveillance

Effective surveillance will obviously be central to the Agency's role. This will allow the detection of any unusual public health incident associated with the games and a quick and appropriate response. The Agency will be looking to:

- Coordinate all current surveillance systems
- Move to 'real time' surveillance
- Provide a common pathway to provide the HPU with surveillance data from all sources (including the Agency's Centre for Infections and NHS), which the HPU can then assess and action
- Enhance current systems - visitors will not have access to their local GPs so information on potential health protection incidents will be obtained from hospital Accident and Emergency departments. Also, information will need to be collected from private providers of health care such as hotels because many visitors and Olympic officials will only access primary care through this route.

Preparedness

In order to ensure the Agency is ready for anything that might happen during the games it will need to:

- Develop major exercises to run alongside the Olympic test events
- Review our plans and standardised operating procedures in an Olympic context
- Work with partners on our response model and capacity
- Work with partners on food/water safety and guidelines.

Response

One of the most significant aspects for the Agency in the context of the games will be the need to respond very rapidly to any possible incident or unusual finding – possibly much more rapidly than we would normally consider necessary.

There will need to be joint planning with environmental health officers to produce a response model for incidents detected by surveillance. In practice this will mean investigating outbreaks associated with, for example, a food outlet at the games.

Terrorism

The main focus of the Agency's work for the Olympics will be on the usual range of health protection risks. However, the possibility of a deliberate attack on the games, or during this time, needs to be considered. To prepare for this the Agency will need to:

- Review the threat assessment with security services

- Review response plans in the context of the Olympics
- Review capacity and systems in the context of the Olympics in terms of intelligence, detection analysis and response.

Work has now begun to agree what needs to be done in each of these areas and when it has to be done. Although the London games are four years away, the plan is to have everything in place at least one year before the start to allow all systems to be thoroughly tested and improved.

Emergency preparedness – joint work with China

The Agency has been working with colleagues in China to support emergency preparedness for public health incidents.

This work began after the announcement that London would host the 2012 Olympic and Paralympic Games, following on from the 2008 Games in Beijing. It has since been incorporated within a joint UK and China government partnership on health issues. This is known as the Partners in Health Innovation (PiHI) initiative and is led in the UK by the Department of Health.

Agency staff have visited Beijing and Shanghai to present seminars based on the Agency's experience in preparing for, and responding to, significant public health threats ranging from food and water borne infections to possible deliberate releases of harmful substances.

The work builds on the Agency's reputation for good science and the effective delivery of public health advice. It uses the extensive expertise built up across the Agency over many years and puts this in the context of the lessons learned from the response to recent major incidents such as the Buncefield fire and the polonium-210 incident in London.

The work will support colleagues in China both in the hosting of the Olympics this year and in forthcoming major events in China such as the Shanghai World Expo in 2010. It is hoped that this will also lead to further collaborations with the partnership.

WHO workshop in Minsk, Belarus

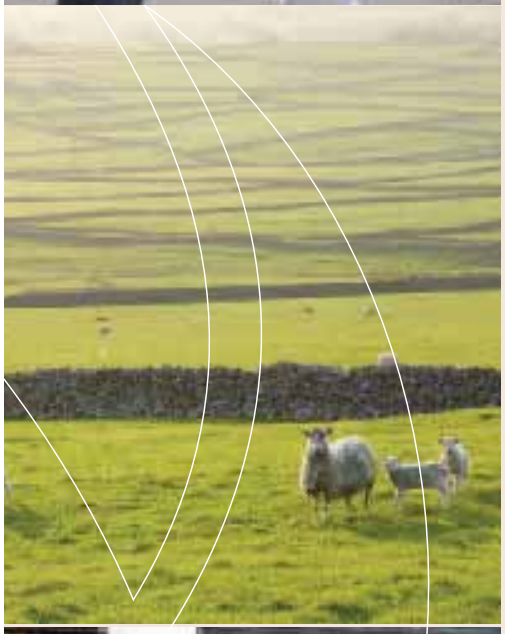
Two scientists from the Agency's Chemical Hazards and Poisons Division recently attended a three-day WHO workshop in Minsk, Belarus, which focused on the role of health systems in chemical safety for Eastern European, Caucasus and central Asian (EECCA) countries.

The meeting included representatives from Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Serbia, Tajikistan, Turkey, Ukraine and Uzbekistan. International speakers included representatives from the Agency, Guy's and St Thomas' Medical Toxicology Unit, the Canadian Centre for Occupational Health and Safety, the German Ministry of Economic Affairs, the German State Agency for Nature, the UN Institute for Training and Research and WHO.

The objective of the meeting was to review the capacity of health systems of EECCA countries in the field of chemical safety and to identify the needs for international support for national and sub-regional priority actions to strengthen the health system role, especially in preparedness for and response to chemical emergencies.

A paper was presented describing the work of the Agency in emergency planning, preparedness, response and surveillance of chemical incidents in the UK. The Agency led a wide-ranging debate on the need to implement similar systems across EECCA countries and also gave a media interview to Belarusian state television on managing chemical incidents.

Science Photo Library / HPA Manchester / Bat Conservation Trust / Suffolk County Council / Shutterstock / Ross Parry Syndication



CHAPTER NINE

REGIONAL ROUND-UP

Local and regional Agency staff work on a wide range of issues at the frontline of health protection

The Agency's Local and Regional Services (LaRS) provide support and expertise during outbreaks and incidents that threaten the health of the local communities. LaRS is based in nine regional offices around England (covering the same areas as regional government offices) and each region is divided into a number of health protection units.

LaRS staff work collaboratively with colleagues in the NHS, local authorities and many other organisations. They are also involved in innovative research projects and provide training and work closely with the Agency's national specialists. This chapter demonstrates some of the wide range of issues LaRS staff are called to deal with.

South East: Listeria incident in Kent

The Agency was involved in a major alert to consumers across the South East and London about sandwiches contaminated with listeria.

The sandwiches were supplied by a Kent-based catering company to schools, hospitals, commercial outlets and local authorities in Kent, Sussex, Essex, Middlesex, Surrey and Greater London before the problem became known. The problem was identified by local authority environmental health officers during routine sampling. The Kent Health Protection Unit was called in, the Food Standards Agency alerted and the factory voluntarily ceased production.

Listeria poses little threat to normally healthy people but this is increased in people whose immune systems are impaired as a result of illness or chemotherapy, in the very young or very old and pregnant women.

Months of heightened surveillance of all reported cases of listeriosis followed the incident to try and track whether any had resulted from the strain of listeria associated with the incident. Only one case was ever identified, which was probably linked to consumption of a sandwich produced by this factory.

REGIONAL ROUND-UP

The best estimate is that 19,000 possibly contaminated sandwiches were distributed, 40 per cent of which were distributed to hospitals in the South East and London. Almost certainly some were consumed by vulnerable individuals. Clinicians were alerted and active surveillance of all cases of listeriosis undertaken. The lack of significant numbers of resulting listeriosis cases indicates that the risk of disease, even in vulnerable individuals exposed to the levels of listeria found in the affected sandwiches, was low.

London Region: measles increase

HPUs across London responded to an increase in measles during 2007/08. London has historically had a low uptake of the measles, mumps and rubella (MMR) vaccine, leaving significant numbers of children susceptible to illness.

During 2007 doctors notified 1,216 cases of measles in London, of which 419 were laboratory confirmed at the Centre for Infections. During 2006 a total of 867 cases were notified and 274 laboratory confirmed.


Science Photo Library

The majority of cases have been in children and are entirely preventable with MMR vaccine. Work has been carried out in the region to raise awareness among parents to ensure their children have two doses of the vaccine. HPUs have worked with primary care trusts across London to deliver additional vaccination sessions to the communities who have been most affected.

Although all areas in London have seen an increase in cases the majority have been in the north east of London. One method used to tackle measles in the area included holding a meeting with parents at a school affected by an outbreak to provide them with information and the opportunity to ask questions, followed by a vaccination session. Giving parents direct access to information in this personal way was very successful and uptake significantly increased.

Recognising that low MMR uptake and the consequent risk of further outbreaks is a problem in all areas of London has made immunisation one of the top priorities of chief executives of children's trusts in London for the coming year. A workshop on London immunisation is planned to explore how systems can be improved to ensure maximum uptake of MMR and other childhood immunisations in the capital.

North East Region: Meningitis Matters

Meningitis Matters – that was the message and title of a DVD produced by the Northumberland, Tyne and Wear Health Protection Team in partnership with Newcastle University as part of a campus-wide campaign to raise awareness among students about the signs and symptoms of meningococcal disease.

The campaign, which ran during the first week of the new term in January 2008, was the result of a year-long joint venture between the

A CAMPAIGN SOUGHT TO RAISE AWARENESS OF MENINGITIS AMONG STUDENTS

Agency in the North East Region, Newcastle University and the North East Ambulance Service. It grew out of a determination to act against this often devastating illness after the university saw three cases in the first three months of 2007, including the tragic death of a 20-year-old student.

The DVD features Newcastle University students Tom Newman and Kate Buckingham. Tom contracted meningitis in February 2007 but thanks to Kate, who called 999 as soon as she realised how ill he was, the paramedics reached him in time to administer live-saving antibiotics. Tom subsequently made a full recovery.

The six-minute film, which also features a consultant in communicable disease control from the North East HPU, explains the importance of spotting symptoms early and acting on them. The film was shown on screens throughout the university. Volunteers from the Meningitis Trust and the Meningitis Foundation completed the team effort by giving out leaflets and advice to students during the week.

The DVD is now being offered to other universities to boost the already considerable efforts being made to tackle meningococcal disease within the student population.

North West Region: E. coli VTEC O157

In July 2007 a microbiologist from Stockport alerted Greater Manchester HPU to two geographically unrelated cases of Vero cytotoxin-producing *E. coli* (VTEC) O157. Environmental health officers investigated and found that both patients had eaten chicken wraps purchased from branches of a supermarket chain. The supermarket withdrew the wraps from sale the following day.

An outbreak control group was set up and chaired by the director in the North West Region. The Centre for Infections, the Food Standards Agency, the National Public Health Service for Wales (NPHS) and environmental health departments in Stockport, Preston and Milton Keynes supported the investigations.

Epidemiological data was gathered from HPUs in England, the NPHS, Health Protection Scotland and Health Protection Agency Northern Ireland, and a further 10 cases were discovered. All had eaten chicken wraps from branches of the supermarket and all were found to have indistinguishable strains of VTEC O157.

Eleven of the 12 cases resided in five English regions and one lived in Wales. The only link between the cases was that all had eaten the wraps in late June 2007.

Extensive testing of unsold wraps, ingredients, environmental samples from within the food manufacturing plant that produced the wraps and samples from staff in the manufacturing plant all produced negative results. However, a case-control study implicated the wraps as the likely source of infection.

The outbreak control group concluded that salad ingredients in the consumed wraps may have been the source of infection and that decontamination measures should be robust enough to prevent such produce from

THE AGENCY MANAGED OUTBREAKS OF AVIAN INFLUENZA

becoming contaminated in fields and during harvesting. A review of decontamination procedures for ready-to-eat salad and herb products was recommended.

East of England Region: avian influenza

There have been three outbreaks of avian influenza in the East of England. One of these, in April 2006, was the very first avian influenza incident in the UK.

The Norfolk, Suffolk and Cambridgeshire HPU was well prepared for the discovery of H5 avian influenza at a poultry farm in Suffolk, the second such incident in the region in just nine months.

In November 2007 the Department for Environment, Food and Regional Affairs (Defra), confirmed preliminary tests were positive for the H5 strain and that they were investigating an outbreak in turkeys.

The farm was put under restriction and Defra began the cull of 6,500 poultry on the infected premises. The Agency became the health lead for the event with support from the NHS. Working with the Suffolk Primary Care Trust and the strategic health authority, a clinic was opened at a local hospital and the Suffolk HPU organised prophylaxis for those people who were potentially exposed.

Twenty-three people were offered Oseltamivir (Tamiflu), used to prevent avian influenza in people exposed to the virus or to protect people who might become exposed during disease control activities. These people were also offered the seasonal influenza vaccination as a precautionary measure.

Defra began to investigate the source of the outbreak and the possibility of any links to nearby farms. By this stage over 28,000 birds had been culled.

Throughout the incident, Suffolk HPU staff worked hard to identify any additional individuals who were potentially exposed and to offer them preventative medicine. In total 176 people were offered prophylaxis.

South West Region: Q fever

In the summer of 2007 Agency staff in the South West Region led a major investigation into a large outbreak of the rare infection Q fever, which can in some cases cause pneumonia-like illness and other complications.

Q fever is usually caught from direct or indirect contact with farm animals that carry the organism *Coxiella burnetii*, or from a contaminated environment. In this outbreak, few if any of the cases had had any contact with animals, and most lived in an urban setting in Cheltenham.

Following the notification of five initial cases, an outbreak control team was drawn together and included the Veterinary Laboratory Agency, Cheltenham Borough Council, Gloucestershire NHS Hospitals Foundation Trusts and Gloucestershire NHS Primary Care Trust.

The investigations included prospective and retrospective case finding and environmental investigations in collaboration with the Met Office, the Animal Health agency and local veterinary surgeons.

In total 31 human cases of Q fever were identified. Of these 15 were identified

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retrospectively by reviewing cases of unspecified pneumonia admitted to hospital in Cheltenham during the period of April to June 2007.

Given the scale of the outbreak and likely local interest, HPA South West went public with the investigation via a press release and briefing in September. The regional epidemiologist stressed that from all available evidence the period of most risk for local people had passed three months previously – the end of April and beginning of May.

The source remains unknown, but the outbreak control team agreed that the most likely cause was airborne transmission of the organism from a local farm source. Warm, dry weather conditions combined with springtime lambing and calving may have led to this long-surviving organism being carried on the wind across Cheltenham.

HPA South West continues to work with veterinary colleagues to prevent recurrence of this outbreak in the future by raising awareness of risk factors among local farmers.

East Midlands Region: landslide in a Peak District village

Following a prolonged period of adverse weather in January 2007 there was a sudden unforeseen breach in a disused lagoon containing waste from a mineral quarry,

REGIONAL ROUND-UP

Hugh Clark, Bat Conservation Trust

resulting in approximately four million gallons of contaminated water and silt descending into the nearby village of Stoney Middleton in Derbyshire.

The risk to health of the local population and the responding emergency services from the potentially contaminated landslide needed to be assessed urgently. Early indications suggested that the material contained high levels of heavy metals as this is a lead and fluorspar mining area.

Working in partnership with the responding agencies and emergency services, information was quickly gathered on the most likely chemical contaminant (lead). Rapid risk assessment enabled timely health advice to be disseminated to the local community and operational staff involved in the clear-up operation. This allayed local residents' fears about exposure to toxic substances.

Environmental samples were collected by the Environment Agency and local authority. The HPA was asked to report on the findings and potential health effects. Difficulties arose interpreting the results as information was limited, with no appropriate baselines to which results could be compared.

A number of key factors were identified as crucial to the successful management of the incident, and local geographical knowledge was one of the factors identified as being essential.

West Midlands Region: biting bats and ancient castles

A member of the public visiting the 13th century Stokesay Castle in Shropshire in August 2007 was bitten by a Daubenton's bat he found on the floor. The bat was taken to an animal rescue centre, where it also bit a member of staff and later died. On the Agency's advice the member of the public was given protective treatment and the wildlife worker, who had been previously immunised with the rabies vaccine, received further doses.

Tests revealed the dead bat was positive for a strain of bat rabies. The only other known UK case happened in Scotland in 2002 when a bat handler was bitten but did not seek treatment and died six months later. Other fatal cases have been reported from Europe.

West Midlands HPU carried out a risk assessment on the dangers to the public and the castle staff. Staff worked with Defra, English Heritage, Natural England, the Bat Conservation Society and colleagues from the Agency's Centre for Infections, to decide on the best control measures.

Excluding bats from the castle without substantially altering the character of the building was almost impossible. Castle staff were informed about the potential risk and the protective measures to take. A member of staff now checks for any dead or injured bats daily before the tower is open to the public.

A sign was put on the first floor tower advising the public not to touch or pick up any bats as they can carry the rabies virus. This important message is still there but general information on the types of bats in the tower has also been added.

So now the bats, far from being a deterrent, are an added tourist attraction.

Yorkshire and the Humber Region: Giardia

Giardia is relatively rare in the UK, but worldwide it is one of the most common causes of travellers' diarrhoea.

Bradford has an ethnically diverse population with a large community originating from South Asia. Sporadic cases of giardia are usually associated with travel among the diverse ethnic population.

In the late summer of 2007 an increase in cases of *Giardia lamblia* infection was noted in Ilkley, a town on the edge of the Bradford district with a largely white indigenous population.

AGENCY STAFF CONDUCTED ASSESSMENTS OF RABIES RISK TO THE PUBLIC

West Yorkshire HPU was first alerted because the initial cases did not have any history of foreign travel. In 2006 there were eight reported cases with an Ilkley postcode, but in June 2007 Bradford Council's environmental health department was receiving several notifications a week.

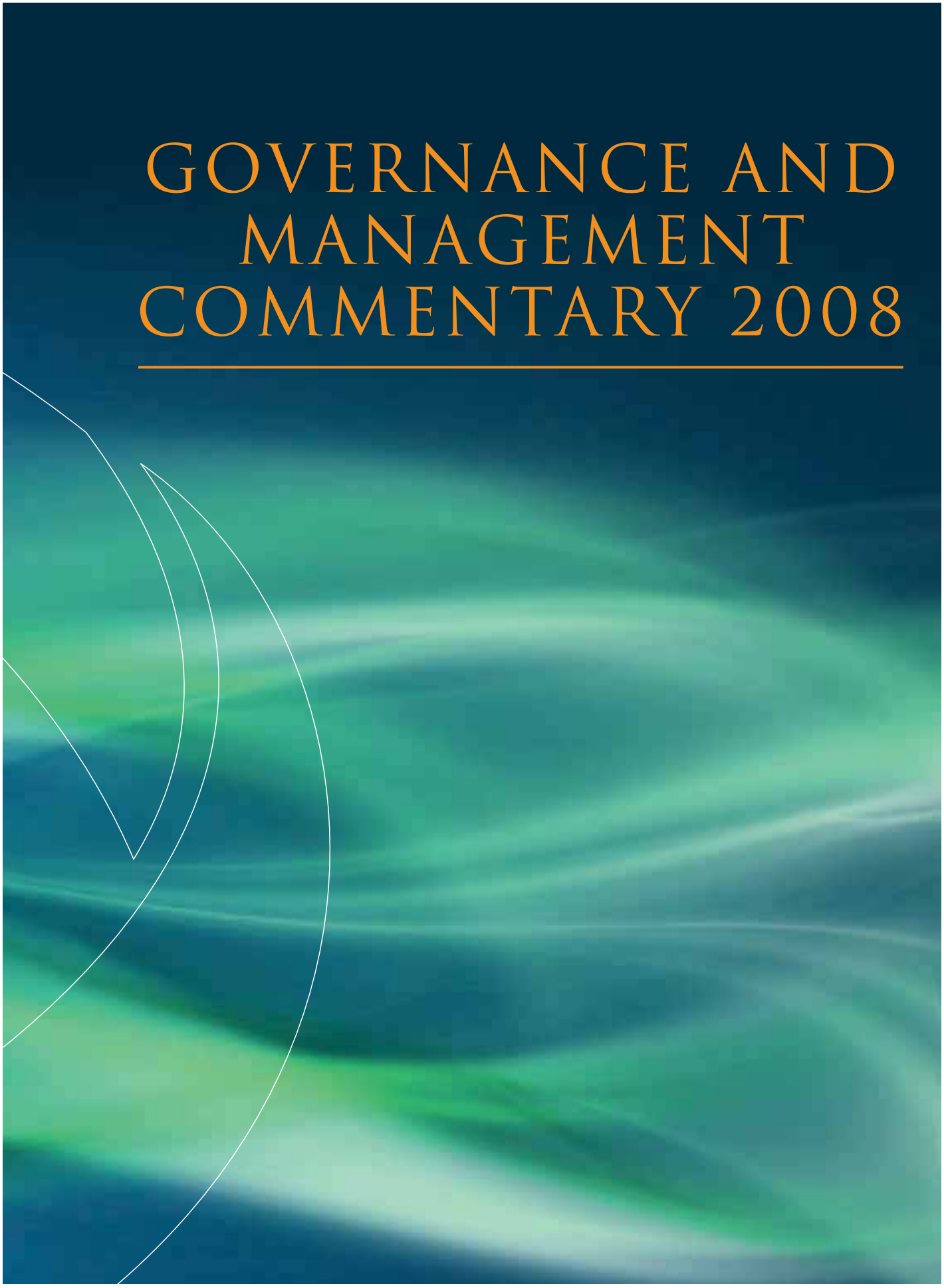
As giardia is predominantly a water-borne parasite, Yorkshire Water was contacted and the reservoirs that supplied the area affected were tested but no signs of it were found.

All positive cases were interviewed and a common link was eating at a particular Indian-style restaurant in Ilkley. Giardia outbreaks on this scale in this country are unusual and it is even more unusual to find an association with food premises.

All food handlers at the restaurant were tested. Two were found to be positive for giardia and excluded from work. No positive cases have occurred in people who ate at the restaurant after this date.

Giardia can have extreme incubation periods, which meant the outbreak had to be investigated over a prolonged period of time from July to November 2007, with 64 cases involved.

GOVERNANCE AND MANAGEMENT COMMENTARY 2008



[2.1] THE BOARD AND THE EXECUTIVE GROUP

The Health Protection Agency is committed to the highest standards of corporate governance and complies with the best practice provisions of the *Code of Good Practice on Corporate Governance in Central Government Departments* issued by HM Treasury. The Board is led by the Chairman, and the executive management of the Agency is led by the Chief Executive. The roles of Chairman and Chief Executive are separate and clearly defined within the division of responsibilities set out in the Health Protection Agency Act 2004.

Role of the Board

The role of the Board is to determine the Agency's long-term direction, business objectives and strategy; to ensure that it has adequate resources to meet its objectives and to ensure that it operates an effective risk management system; to monitor its performance and ensure that it acts ethically and meets its responsibilities to stakeholders. Responsibility for delivering the Agency's objectives and running the business on a day-to-day basis lies with the Chief Executive and the Executive Group.

The Board has delegated some of its governance activities to standing Board Committees and Sub-Committees, with clearly defined terms of reference set by the Board. The Standing Committees are: the Audit Committee, the Finance Committee, the Human Resources Committee and the Remuneration and Terms of Service Committee. The Sub-Committees oversee Life Sciences, Local and Regional Services, Radiation, Chemical and Environmental Hazards and Global Health.

The Board met on eight occasions in 2007/08. Minutes and papers of public meetings are published on the Agency's website at www.hpa.org.uk/board. Non-executive Board members meet formally without their executive colleagues twice a year.

Board membership

During the financial year under review the membership of the Board comprised: 11 non-executive members (including the Chairman), three Board advisers, the Chief Executive, the Director of Finance and Resources, the Director of the Centre for Infections, the Director of the Centre for Radiation, Chemical and Environmental Hazards and the Director of Local and Regional Services from May 2007.

The non-executive members of the Board are drawn from diverse backgrounds, bringing a broad range of views and experience to Board deliberations.

Board Committee structure

The Board Committee structure is shown on page 67.

Board members' induction and development

On appointment, Board members are provided with written terms of appointment including details of how their performance will be appraised.

Board members also receive a full induction programme comprising briefings by senior management, a briefing from the Board Secretary on the Board's responsibilities and procedures and visits to Health Protection Agency centres and divisions.

The Board regularly reviews the information it needs to fulfil its responsibilities, and Board members update their knowledge and develop their understanding of the Agency through site visits, in-depth presentations on topical issues and meetings with key stakeholders.

Visits and presentations also give non-executive Board members the chance to meet staff below Board level.

The Board may, if it wishes, take independent professional advice and all non-executive Board members have access to the advice and services of the Board Secretary.

Board appointments

Non-executive Board members are appointed through a rigorous process of open competition against an agreed specification of the roles and capabilities required. Non-executive Board members are eligible to be considered for reappointment at the end of their term of office, normally every four years.

Board members are required to notify and register with the Board secretary any issues on which they might have a conflict of interest. Declarations of interest are invited at every board meeting and the Board as a whole considers how it should discuss the matter(s) on which the member may have a conflict.

Non-executive members - during the year ended 31 March 2008 were:

Sir William Stewart PhD DSc, FRS, FRSE , DSc (Hon), DUniv (Hon), LLD (Hon), FFPH(Hon), **Chairman**

Professor Charles Easmon CBE, MD, PhD, MRCP, FRCPath, FMedSci, **Deputy Chairman**

Dr Barbara Bannister† MB, BS, MSc, FRCP

Michael Beaumont CBE, FCA

James T Brown

Ian Cranston FCA

Dr Paul Darragh TD, MD, PhD, MSc, FRCP(UK & Irel), FFPH(UK), FFPHM(Irel)

Professor William Gelletly† OBE, PhD, CPhys, FInstP

Professor Rod Griffiths† CBE (until 23 May 2007)

Professor Andrew Hall MB BS, MSc, PhD, FRCP, FFPH, FMed Sci

Professor Alan Maryon-Davis† MSc, FFPH, FRCP

Dr Vanessa Mayatt BSc, PhD, DipOHS, FRSH, CFIOSH

Professor Sandy Primrose PhD

Dr Geoffrey Schild CBE, PhD, DSc, FRCPath, FRCP, FMed Sci

John Wyn Owen CB

† denotes persons who are not formal Board members but attend Board meetings as advisers

Executive members - during the year ended 31 March 2008 were:

Professor Pat Troop CBE, FFPH, FRCP, DSc, **Chief Executive**

Professor Peter Borriello PhD, FRCPath, FFPH, Director of Centre for Infections

Dr Roger Cox PhD, FMed Sci, Director of the Centre for Radiation, Chemical and Environmental Hazards

Professor Stephen Palmer MA, FRCP, FFPH, Director of Local and Regional Services

Dr Tony Sannia PhD, FCA, Director of Finance and Resources

Board Secretary
Michael Harker, IHM

Changes to the Board membership that have occurred since 1 April 2007:

Dr Barbara Bannister ceased to be an advisor to the Board on 31 March 2008, and became a full non-executive Board member from 1 April 2008, for three years

Michael Beaumont was reappointed for a further three years from 28 March 2008

Ian Cranston was reappointed for a further year from 28 March 2008

Professor Charles Easmon was reappointed as Deputy Chairman for two years from 28 March 2008.

Professor Andrew Hall was reappointed for a further three years from 28 March 2008

Dr Rosemary Leonard was appointed from 1 April 2008 for three years

Professor Alan Maryon-Davis was appointed from 11 July 2007 as a Board Adviser

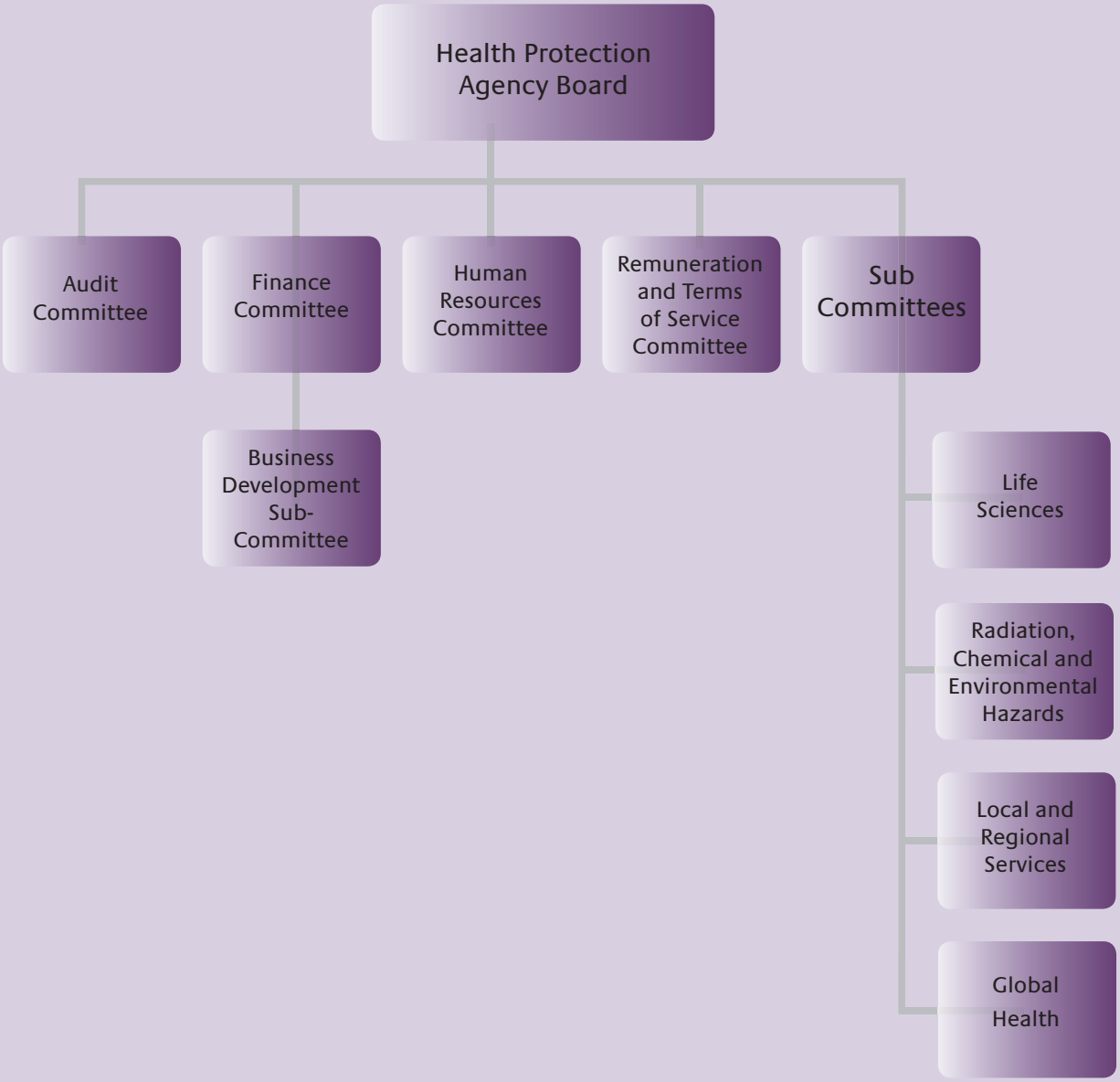
Following the retirement of **Professor Pat Troop** on 6 April 2008, **Justin McCracken** joined the Board as Chief Executive on 7 April 2008

Professor Debby Reynolds was appointed from 1 April 2008 for three years

Dr Geoffrey Schild retired from the Board on 31 March 2008

BOARD COMMITTEES

Board Committee structure



The Audit Committee

The Audit Committee operates under written terms of reference and comprises non-executive Board members and non-executive advisers to the Board. The Committee met five times during the year (including a joint meeting with the Agency's Finance Committee) and provides support and assurance to the Chief Executive as Accounting Officer and to the Board in its responsibilities relating to issues of risk, control and governance. The Audit Committee also reviews the Agency's annual report and accounts, and reports its views to the Board to assist it in its approval of them. In addition, the Committee reviews the statement on internal control made by the Accounting Officer on the design and operation of internal controls. The Committee also meets with the Head of Internal Audit and the external auditors without the presence of management in order to identify any areas of concern. The Committee Chairman presents the minutes of each meeting at the following Board meeting.

The Audit Committee has oversight of the Integrated Governance Group (IGG), which reviews governance arrangements across the Agency and identifies any actions necessary for improvement, compliance with best practice and legal and Board requirements. The IGG reports regularly to the Executive Group and the Audit Committee.

During the year, the Audit Committee monitored and reviewed:

- The standards of risk management and internal control, including the processes and procedures for ensuring that material risks (including risks relating to IT security, fraud and related matters) are properly identified and managed

- The effectiveness of internal control, financial reporting, accounting policies and procedures

- The Agency's internal audit function and its relationship with the external auditors, including internal audit's plans and performance

- The arrangements for dealing, in confidence, if there are any complaints, from employees and others, about accounting, or financial management impropriety, fraud, poor business practices and other matters, ensuring that arrangements are in place for the proportionate and independent investigation and appropriate follow-up action if necessary

- The nature and scope of the planned work of the external auditors

- The findings of audit reports and investigations and management's response

- Other matters the Board has requested, including management's action plan following the Corporate Services Review

- Its own performance and contribution to the corporate governance, by a process of self-evaluation, which resulted in minor changes to the remit of the committee and its planned agendas but confirmed that the committee corporately owns appropriate skills mix to allow it to carry out its overall function

- The effectiveness of its communication with the Board, the Head of Internal Audit, the external auditor and other stakeholders.

Members	
Michael Beaumont *	Chairman
Dr Parvaiz Ali	
Dr Barbara Bannister †	
Dr Vanessa Mayatt *	
In attendance	
Dr Roger Cox	Director, Centre for Radiation, Chemical and Environmental Hazards (to 26 June 2007)
Michael Harker	Secretary
Dr Christine McCartney	Director, Regional Microbiology Network (from 26 June 2007)
Justin McCracken	Chief Executive from 7 April 2008
Helen Morris	Head of Internal Audit
Dr Tony Sannia	Director of Finance and Resources
Professor Pat Troop	Chief Executive to 6 April 2008
Representatives from the National Audit Office	External Auditors

* denotes a non-executive member of the Board

† denotes persons who are not formal Board members but attend Board meetings as advisers

The Finance Committee

The Finance Committee reviews and recommends the annual budget to the Board. It reviews performance against the corporate plan, the business plan and the budget, and considers forecasts. Through its Business Development Sub-Committee, it also considers proposals to maximise external income using the Agency's resources and assets. The Finance Committee is chaired by Ian Cranston.

The Business Development Sub-Committee is chaired by Professor Sandy Primrose.

Members	
Ian Cranston *	Chairman
James Brown *	
Martin Hindle	from 12 December 2007
Justin McCracken	Chief Executive from 7 April 2008
Professor Sandy Primrose *	
Dr Tony Sannia	Director of Finance and Resources
Professor Pat Troop	Chief Executive to 6 April 2008
In attendance	
Michael Harker	Secretary

The Human Resources Committee

The Human Resources Committee receives reports on items of relevance to the effective management of human resources and promotion of best employment practice in the Agency. It is responsible for providing guidance on these issues and for reporting on them to the Board. The Committee also reviews the overall framework for employment and remuneration of staff throughout the Agency, and has oversight of the training and development programme.

Members	
Ian Cranston *	Chairman
Dr Barbara Bannister †	
Dr Paul Darragh *	
Professor Charles Easmon *	
Justin McCracken	Chief Executive from 7 April 2008
John Phipps	Director of Human Resources to 2 April 2008
Professor Pat Troop	Chief Executive to 6 April 2008
Tony Vickers	Director of Human Resources from 3 April 2008
John Wyn Owen *	
In attendance	
Stephen Daniel	Secretary

* denotes a non-executive member of the Board

† denotes persons who are not formal Board members but attend Board meetings as advisers

The Remuneration and Terms of Service Committee

The Remuneration and Terms of Service Committee determines the policy for the appointment and remuneration of the executive directors and senior level executive posts directly accountable to the Chief Executive. The Committee also reviews the appraisal process for directors and senior executives.

Members	
Sir William Stewart *	Chairman
Michael Beaumont *	
Ian Cranston *	
Professor Charles Easmon *	
In Attendance	
Michael Harker	Board Secretary
Justin McCracken	Chief Executive from 7 April 2008
John Phipps	Director of Human Resources to 2 April 2008
Professor Pat Troop	Chief Executive to 6 April 2008
Tony Vickers	Director of Human Resources from 3 April 2008

* denotes a non-executive member of the Board

Board Sub-Committees

The Board Sub-Committees are responsible for considering issues relating to their area which require careful specialist and professional in-depth strategic analysis and to make recommendations in a timely manner to the Board.

Life Sciences Sub-Committee
Professor Andrew Hall* (Chairman)
Dr Barbara Bannister†
Professor Mike Barer‡
Dr Claire Bithell‡ (from August 2007)
Professor Peter Borriello
Dr Steve Chatfield (from September 2007)
Professor Geoff Garnett‡
Professor Harold Jaffe‡
Dr Nigel Kerby‡ (from August 2007)
Frances Knight (Secretary)
Dr Philip Minor‡
Professor Jenny Roberts‡

Global Health Sub-Committee
The Global Health Sub-Committee met for the first time in September 2007.
John Wynn Owen* (Chairman)
Dr Steve Chatfield
Professor Gary Coleman
Sir Andrew Haines‡
Richard Horton‡
Caroline Hyde-Price (Secretary)
Dr Stephen Inglis‡
Dr Graham Lister‡
Professor Sandy Primrose*
Professor Pat Troop

Radiation, Chemical and Environmental Hazards
Professor William Gelletly† (Chairman)
Dr Parvaiz Ali†
Professor Peter Blain‡
Professor Alan Boobis‡
Professor Gary Coleman
Dr John Cooper
Dr Roger Cox
Professor Sarah Darby‡
Dr Paul Darragh*
Professor Paul Elliot‡
Dr Elaine Farmery (Secretary)
Professor Alan Lehman‡ (to December 2007)
Professor Malcolm Mason (from January 2008)
Dr Jill Meara
Richard Paynter (Secretary) (from January 2008)
Dr John Stather (to April 2007)
Observers
Dr Hilary Walker (Department of Health)
Dr Arthur Johnston (Scottish Executive)
Dr Ken Ledgerwood (Northern Ireland, the Department of Health, Social Services and Public Safety) (to April 2007)
Nigel McMahon (Northern Ireland, the Department of Health, Social Services and Public Safety) (From January 2008)
Dr Lynne Ridler-Wall (Food Standards Agency)
Dr Owen Crawley (National Assembly for Wales)
Giles Denham (Health & Safety Executive)
Dr David Copplestone (Environment Agency)

Local and Regional Services Sub-Committee
Professor Charles Easmon*(Chairman)
Dr Bob Adak (to September 2007)
Michael Beaumont*
Valerie Bevan (to September 2007)
Professor Mike Catchpole (from September 2007)
Dr Paul Cosford‡
John Croft (to September 2007)
Tim Everett‡
Dr Robert George (from September 2007)
Professor Stephen Gillespie‡
Dr Diana Grice
Peter Hammond (Secretary)
Dr Sue Ibbotson
Dr Graham Lloyd (from September 2007)
Dr Christine McCartney
Dr Jill Meara
Professor Stephen Palmer
Dr Mike Painter‡ (to April 2007)
Professor Julius Weinberg‡
Professor Richard Wise† (to April 2007)

* denotes a non-executive member of the Board

† denotes persons who are not formal Board members but attend Board meetings as advisers

‡ denotes an independent external adviser

The Executive Group

The Health Protection Agency Executive Group consists of executive directors and is chaired by the Chief Executive. It is responsible for the strategic and operational management of the organisation and for implementing the policies and strategies agreed by the Board. The Chief Executive is also the Accounting Officer for the Agency, and has responsibility to Government for the management of the organisation. The Executive Group meets monthly. Members who served on the Executive Group since 1 April 2007 are listed below:

Professor Pat Troop CBE, FFPH, FRCP, DSc, **Chief Executive** until she retired on 6 April 2008

Justin McCracken MA (Oxon), **Chief Executive** from 7 April 2008

Lis Birrane MCIPR, **Director of Communications**

Professor Peter Borriello PhD, FRCPath, FFPH, **Director of Centre for Infections**

Dr Steve Chatfield PhD, CNAA, **Director of the Centre for Emergency Preparedness and Response** from 1 September 2007

Dr Roger Cox PhD, FMed Sci, **Director of the Centre for Radiation, Chemical and Environmental Hazards**

Dr Roger Gilmour PhD, FIFST **Director of the Centre for Emergency Preparedness and Response** until he retired on 30 June 2007

Mr Michael Harker IHM, **Director of Corporate Affairs and Secretary to the Board**

Dr Christine McCartney OBE, PhD, FRC Path, **Director of the Regional Microbiology Network**

Professor Stephen Palmer MA, FRCP, FFPH, **Director of Local and Regional Services**

John Phipps, Director of Human Resources until he retired on 2 April 2008

Dr John Stephenson BSc, PhD, CBiol, FIBiol, **Director of Research and Development** from 1 October 2007

Dr Tony Sannia PhD, FCA, **Director of Finance and Resources**

Tony Vickers BA, MA, PGCE, FCIPD, **Director of Human Resources** from 3 April 2008

[2.2] THE REMUNERATION REPORT

This Remuneration Report has been prepared in consultation with the Agency's Remuneration and Terms of Service Committee, and is based upon the provisions contained within the Government's *Financial Reporting Manual 2007/08*.

Committee Membership

The Remuneration and Terms of Service Committee consists of four non-executive Board members. The current members are:

Sir William Stewart Chairman of the Agency's Board
Professor Charles Easmon Deputy Chairman of the Agency's Board
Michael Beaumont Chairman, Audit Committee
Ian Cranston Chairman, Finance Committee

The Chief Executive, the Director of Human Resources and the Board Secretary attend committee meetings as appropriate.

Terms of Reference

As a committee of the Agency's Board, the Remuneration and Terms of Service Committee is accountable to the Board. The current terms of reference require the Committee to consider and make recommendations to the Board on the following issues:

1. The overall framework for determining the remuneration and terms of service arrangements for all staff employed by the Agency.

2. The remuneration and terms of service of senior executives, including the Chief Executive and other members of the Executive Group who report to the Chief Executive.

3. The contractual arrangements for senior executives, including the calculation and scrutiny of termination payments, ensuring that such payments are appropriate and take account of national guidance.

4. The mechanism for monitoring the performance of the senior executives and their individual objectives for the forthcoming year.

5. The approval of all severance packages with a total capitalised cost of £100k or more.

6. The approval of any premature retirement applications on the grounds of 'the interests of the efficiency of the service'.

Remuneration policy

Non-executive Board members

The remuneration of the non-executive and advisory Board members is not performance related. It is determined by the Secretary of State for Health or the ministers of the devolved administrations, and is subject to an annual review by the relevant authority. Non-executive Board members' performance is assessed by

the Chairman of the Board through an annual appraisal process.

Members of the Executive Group

The remuneration package of the members of the Executive Group consists of a salary and pension provisions. There are no performance-related bonuses payable to members of the Executive Group. In determining the package, the Remuneration and Terms of Service Committee has regard to pay and employment policies elsewhere within the Agency as well as the need to recruit, retain and motivate suitably able and qualified people to exercise their different responsibilities.

The salaries of the members of the Executive Group are reviewed annually, having regard to the remuneration policy which takes into account the NHS Very Senior Managers Pay Framework. For the 2007/08 financial year, members of the Executive Group received cost of living increases amounting to an annualised 2 per cent.

The cost of living increase for other employees within the Agency was an annualised 2 per cent (2005/06 to 2006/07: 1.5 per cent) for medical consultants and 2.5 per cent (2005/06 to 2006/07: 2.5 per cent) for all other staff.

Appointment of Board members and senior managers

Non-Executive Board members

All non-executive and advisory Board members are appointed by the Secretary of State for Health, or by the ministers of the devolved administrations, as advised by the Appointments Commission, for a defined term.

Members of the Executive Group

The Remuneration and Terms of Service Committee determines the policy for the appointment of the executive directors that report directly to the Chief Executive. The committee also reviews and assesses the annual appraisal process for those directors and senior executives, which is undertaken by the Chief Executive.

The members of the Executive Group hold employment contracts which are open-ended until they reach the normal retirement age of 65. Early termination by the Agency, other than for misconduct, would result in the individual receiving compensation in accordance with NHS terms and conditions or, in the case of Dr Roger Cox, in accordance with the terms of the United Kingdom Atomic Energy Authority Combined Pension Scheme.

Remuneration of the non-executive Board members

The total remuneration of the persons who served as non-executive members of the Agency Board during the year ended 31 March 2008 is set out in the table below:

	Date commenced, reappointed or extended	Length of term	Year ended 31 March 2008 Total salary, fees and allowances	Year ended 31 March 2007 Total salary, fees and allowances
			£'000	£'000
Sir William Stewart	1 April 2007	4 years	60 – 65	60 – 65
Dr Barbara Bannister	1 April 2007	1 year	5 – 10	5 – 10
Michael Beaumont	1 April 2003	5 years	10 – 15	10 – 15
James Brown	1 October 2005	3 years	5 – 10	5 – 10
Ian Cranston	1 April 2006	2 years	5 – 10	10 – 15
Dr Paul Darragh	1 April 2003	5 years	5 – 10	5 – 10
Professor Charles Easmon	1 April 2003	5 years	5 – 10	5 – 10
Professor William Gelletly	1 April 2005	Open	5 – 10	5 – 10
Professor Rod Griffiths[1]	1 April 2005	3 years	0 – 5	5 – 10
Professor Andrew Hall	1 April 2003	5 years	5 – 10	5 – 10
Professor Alan Maryon-Davis	1 June 2007	3 years	5 – 10	5 – 10
Dr Vanessa Mayatt	1 April 2007	4 years	10 – 15	15 – 20
John Wyn Owen	1 February 2006	5 years	5 – 10	5 – 10
Dr Sandy Primrose	1 April 2006	3 years	5 – 10	5 – 10
Dr Geoffrey Schild	1 April 2006	2 years	5 – 10	5 – 10

[1] Professor Rod Griffiths retired from the Board on 23 May 2007.

The date the term of appointment commenced or extended and the length of the term in the table above are as at 1 April 2007. Changes in the terms of appointment during the year ended 31 March 2008 are shown in the Governance section.

Remuneration of the members of the Executive Group

The total remuneration of the persons who served as members of the Executive Group during the year ended 31 March 2008 is set out in the table below.

Professor Stephen Palmer was a member of the Executive Group for the whole year ended 31 March 2008. He is an employee of Cardiff University. The non-pensionable amount paid by the Agency to the university to cover his salary and employer on-costs for the year totalled £188,000 (2007: £219,000). The total amount paid to the university included a Clinical Excellence Award that is funded by the Department of Health.

The National Institute of Biological Standards and Control (NIBSC) is planned to merge with the Agency, subject to legislation. As Chief Executive of NIBSC, Dr Stephen Inglis participated as an Executive Group member throughout the year ended 31 March 2008. No remuneration costs were borne by the Agency.

No former member of the Executive Group received any compensation payment during the year ended 31 March 2008.

	Year ended 31 March 2008 Total salary, fees and allowances	Year ended 31 March 2007 Total salary, fees and allowances
	£'000	£'000
Chief Executive		
Professor Pat Troop[1]	180 – 185	175 – 180
Executive Directors		
Lis Birrane	95 – 100	75 – 80
Professor Peter Borriello[1]	140 – 145	140 – 145
Dr Stephen Chatfield [2]	80 – 85	-
Dr Roger Cox[1]	125 – 130	125 – 130
Dr Roger Gilmour[3]	50 – 55	160 – 165
Michael Harker	105 – 110	110 – 115
Dr Christine McCartney[4]	125 – 130	65 – 70
John Phipps	105 – 110	105 – 110
Dr Tony Sannia[1]	135 – 140	115 – 120
Dr John Stephenson[5]	55 – 60	-

[1] Denotes members of the Health Protection Agency Board.
[2] Dr Chatfield was appointed on 1 September 2007.
[3] Dr Gilmour retired on 29 June 2007.
[4] Dr McCartney was appointed on 1 September 2006.
[5] Dr Stephenson was appointed on 1 October 2007.

Pension entitlements of members of the Executive Group

Non-executive and advisory Board member remuneration is not pensionable.

The members of the Executive Group (with the exception of Dr Cox) are members of the NHS Pension Scheme. Dr Cox transferred to the Agency from the National Radiological Protection Board on 1 April 2005 and retained his membership of the United Kingdom Atomic Energy Authority Combined Pension Scheme, which offers very similar benefits to the NHS Scheme. Details of both pension schemes, including benefits payable, are included in the notes to the financial statements.

The pension entitlements of the persons who served as members of the Executive Group during the year ended 31 March 2008 are as follows:

	Real annual increase in accrued pension	Real annual increase In lump sum	Value of accrued pension as at 31 March 2008	Lump sum value as at 31 March 2008	CETV as at 31 March 2007	CETV as at 31 March 2008	Real annual increase in CETV
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Chief Executive							
Professor Pat Troop	2.5 – 5.0	7.5 – 10.0	80.0 – 85.0	240.0 – 245.0	1,410	1,512	47
Executive Directors							
Lis Birrane	0.0 – 2.5	5.0 – 7.5	5.0 – 10.0	15.0 – 20.0	49	86	25
Professor Pete Borriello	0.0 – 2.5	0.0 – 2.5	45.0 – 50.0	140.0 – 145.0	725	752	6
Dr Stephen Chatfield[1]	0.0 – 2.5	0.0 – 2.5	0.0 – 5.0	0.0 – 5.0	-	13	-
Dr Roger Cox	2.5 – 5.0	7.5 – 10.0	50.0 – 55.0	155.0 – 160.0	868	976	38
Dr Roger Gilmour[3]	0.0 – 2.5	0.0 – 2.5	10.0 – 15.0	40.0 – 45.0	-	-	-
Mike Harker[3]	5.0 – 7.5	17.5 – 20.0	50.0 – 55.0	160.0 – 165.0	-	-	-
Dr Christine McCartney[3]	7.5 - 10.0	20.0 – 22.5	55.0 – 60.0	175.0 – 180.0	-	-	-
John Phipps[3]	0.0 – 2.5	2.5 – 5.0	15.0 – 20.0	55.0 – 60.0	-	-	-
Dr Tony Sannia	0.0 – 2.5	5.0 – 7.5	15.0 – 20.0	55.0 – 60.0	260	304	26
Dr John Stephenson[2]	-	-	35.0 – 40.0	110.0 – 115.0	-	699	-

[1] No CETV is available for Dr Chatfield as at 31 March 2007, as he joined the pension scheme in September 2007.

[2] The real annual increase in the accrued pension and lump sum and the CETV for Dr Stephenson are not available as he joined the scheme in October 2007 and he transferred previous benefits into the scheme.

[3] There is no cash equivalent transfer value for those members of the NHS Pension Scheme who were aged over 60 on 31 March 2008.

Cash Equivalent Transfer Values

The Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a scheme member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme.

A CETV is a payment made by a pension scheme or arrangement to secure pension benefits in another pension scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in their former scheme.

The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies.

The CETV figures include the value of any pension benefit in another scheme or arrangement which the individual has transferred to the NHS Pension Scheme (or in the case of Dr Roger Cox, to the United Kingdom Atomic Energy Authority Combined Pension Scheme).

They also include any additional pension benefit accrued to the member as a result of their purchasing additional years of pension service in the scheme at their own cost. CETVs are calculated within the guidelines and framework prescribed by the Institute and Faculty of Actuaries.

The real increase in the value of the CETV reflects the increase in CETV effectively funded by the employer. It takes account of the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement) and uses common market valuation factors for the start and end of the period.

Auditable and non-auditable elements of this report

The law requires the Agency's auditors to audit certain of the disclosures provided within the Remuneration Report. Audited sections of this report include the following:

- Remuneration of the non-executive Board members
- Remuneration and pension entitlements of the members of the Executive Group
- Details, if any, of any element of the remuneration package that is not cash
- Details, if any, of compensation payable to former senior managers
- Details of any amounts payable to third parties for services of a senior manager.

The auditor's opinion is included within the Auditor's Report on Page 120.

Justin McCracken
Accounting Officer
19 June 2008

[2.3] MANAGEMENT COMMENTARY

About the Health Protection Agency

Brief history

The Health Protection Agency was established as a Special Health Authority in April 2003 in advance of the 2004 Health Protection Agency Act.

This Act brought together the Health Protection Agency Special Health Authority and the National Radiological Protection Board to become the Health Protection Agency; an Executive Non-Departmental Public Body.

Our role

As an independent specialist organisation dedicated to protecting the health of the population of the UK, we provide impartial advice and authoritative information on health protection issues to the public, to health professionals and to government.

Everything we do is based on expert skills and knowledge applied to strong frontline services. We work at international, national, regional and local levels to identify new threats to health, to prepare for them, prevent them where possible, and should they arrive, to reduce their impact on public health.

We combine public health, scientific and health protection expertise, research, and emergency planning within one organisation.

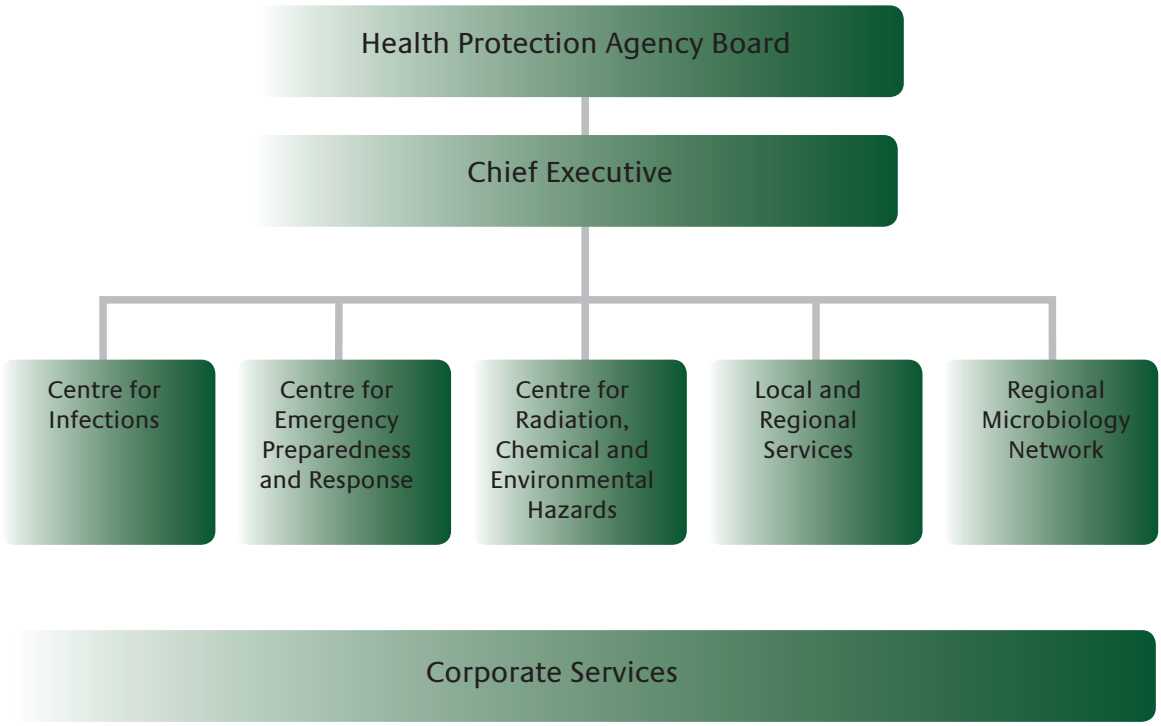
We provide an integrated approach to protecting UK public health through the provision of support and advice to the NHS, local authorities, emergency services, other Arms Length Bodies, the Department of Health and the devolved administrations.

Staff

During 2007/08 the Agency employed 3,394 staff. They are based in three centres (Colindale in North London, Chilton in Oxfordshire and Porton Down in Wiltshire) and in locations across England, Wales, Scotland and Northern Ireland. The Agency's headquarters is in London.

Agency staff include doctors and nurses, scientific and technical staff from many specialist disciplines, administrative staff and emergency planners. They work with colleagues in corporate services.

Organisational structure



Centre for Infections

The Centre for Infections, based at Colindale in north London, is responsible for a number of essential frontline national services including:

- Infectious disease surveillance
- Providing specialist and reference microbiology and microbial epidemiology
- Coordinating the investigation of national and cross-regional outbreaks
- Helping advise government on the risks posed by various infections and issuing and responding to international health alerts.

It monitors disease outbreak activity, and carries out typing and fingerprinting of infectious agents. This is done by working closely with partner organisations in the UK such as the Veterinary Laboratories Agency for infections transmitted from animals, and international bodies such as the World Health Organization and the European Communicable Disease Centre, as well as other parts of the HPA.

At the local level the centre provides expert support to colleagues in Local and Regional Services and the Regional Microbiology Network as well as directly supporting customers. Expert staff are on call 24 hours a day for normal business and to ensure an immediate response to national emergencies. The centre also provides commercial services, expert disease modelling, quality assurance schemes, training, and has an active research programme

Centre for Emergency Preparedness and Response

The Centre for Emergency Preparedness and Response (CEPR) manages the Agency's site at Porton Down, Wiltshire. The centre coordinates emergency preparedness across the Agency and it works closely with the NHS, local authorities and the emergency services, identifying and strengthening countermeasures. Exercises to test responses are conducted across the country with UK and EU partners, further improving emergency planning and preparedness. A major training programme is conducted for health professionals in chemical, biological, radiological and nuclear scenarios and casualty management.

The centre models disease, particularly for agents considered a bioterrorism threat. It has high-containment laboratories for diagnosis of imported dangerous pathogens like ebola or agents that could be used in a deliberate release. It conducts research on diseases such as tuberculosis, meningitis and on prions. Anthrax vaccine is manufactured for the UK government and defence vaccine research is carried out for the UK and US governments. The Phase 1 safety and immunogenicity clinical trial of *Neisseria lactamica* vaccine is ongoing and interim analysis of the data is underway.

The centre possesses a combination of research, developmental production and licensed bio-pharmaceutical manufacturing capabilities. This means that it is ideally placed to undertake translational research, being able to take potential healthcare products from concept, through scale-up to proof of concept and into manufacture for clinical trials. By partnering with industry, academia and government the centre is able to provide a lever to assist the UK and wider research base develop new and important healthcare products.

Centre for Radiation, Chemical and Environmental Hazards

The Centre for Radiation, Chemical and Environmental Hazards is based in Chilton, Oxfordshire, with offices and laboratories in Birmingham, Cardiff, Leeds, London, Newcastle

and Glasgow serving regional needs. The centre has two divisions: Radiation Protection and Chemical Hazards and Poisons. They cover a diverse range of issues associated with the risks to public health resulting from exposure to chemicals and poisons, and to ionising/non-ionising radiations.

In respect of radiation hazards, the key functions are to give advice, to conduct research and to provide services. The scope covers both ionising and non-ionising radiations including ultrasound and infrasound. Specific areas of work include: the assessment of exposures and the consequent risks to health; advising UK government, other bodies and the public on these risks; providing an input to emergency preparedness and response; providing training and other commercial services and working in partnership on health protection issues within the Agency and with other national and international bodies. The centre has a well-developed environmental monitoring and individual dose assessment capability. It also provides advice and support within the Agency, particularly to staff in Local and Regional Services who, with primary care trusts, respond to local incidents and public concerns.

In respect of chemical hazards and poisons, the key functions include: advice to UK government departments and agencies on the impact to human health from chemicals in water, soil and waste as well as information and support to the NHS and health professionals on toxicology. These functions are of particular importance in emergency situations. The centre is undertaking research to improve our understanding of long-term consequences of low level, chronic exposure to chemicals and poisons especially in relation to reproductive health, asthma and cancers. The centre also advises doctors and nurses on the best way to manage patients who have been poisoned by commissioning the National Poisons Information Service (NPIS).

The centre is working to establish a National Nanotoxicology Inhalation Research Centre and develop a research programme to address the potential toxicity of nanoparticles.

Local and Regional Services

Local and Regional Services (LaRS) has responsibility for working with key stakeholders at local and regional levels to provide specialist health protection advice and operational support, directly to all primary care trusts, strategic health authorities, regional directors of public health and all local authorities in England. Support to Northern Ireland is also provided and there is a close working relationship with many other government agencies in England. LaRS works to ensure health protection security and to reduce the burden of disease. It does this by responding to and controlling some 2,500-3,000 infection and environmental outbreaks and emergencies each year, assisting in tackling the range of incidents from infections such as MRSA, tuberculosis and sexually transmitted infections to health threats from flooding to the deliberate release of biological and/or chemical agents. It is heavily involved in developing training both internally and externally, aiming to improve practice, overall capacity and leadership in health protection.

These services are provided through nine regional offices (which correspond to the Government Offices of the Regions). There are 26 health protection units (HPUs), each covering an area with a population of about two million. Each unit has a director, health protection consultants and other staff with specialist health protection skills. They have access to further expert input from the other centres and divisions in the Agency.

Functions include disease surveillance, incident alerting, investigation and management of the

full range of health protection emergencies and outbreaks, and ensuring delivery of the Agency's programmes to improve the health of communities.

Regional Microbiology Network

The Regional Microbiology Network (RMN) comprises eight Regional Microbiology Laboratories and 36 collaborating laboratories. These laboratories provide frontline diagnostic and public health microbiology services to NHS trusts and the Agency's HPUs. There are 26 food, water and environmental (FW&E) laboratories, of which nine are directly managed by the HPA and 17 are located in collaborating laboratories in NHS trusts. We are reconfiguring these services to create a national network of Agency-managed FW&E laboratories consolidated on a reduced number of sites. The Regional Microbiology Network has extensive links with the Centre for Infections, the Centre for Emergency Preparedness and Response and the National Institute for Biological Standards and Control (NIBSC) to facilitate the coordination of microbiology services within the Agency.

Corporate Services

The three centres, LaRS and the Regional Microbiology Network are supported by four divisions within the corporate services function:

Finance and Resources

The Finance and Resources division includes the departments of finance; estates and facilities; information systems; online services and internal audit. The division provides the Agency with efficient, effective and economic financial and resource management services to enable the Agency to achieve its strategic goals.

During the year ended 31 March 2008, the division has made significant progress in all areas including upgrading the financial systems, redesigning the Agency's website and intranet including moving to a new content management system, rationalising our property portfolio by reducing to 86 properties and achieving the Agency's efficiency targets. This work will continue in order to further streamline our processes and achieve further efficiency savings.

Corporate Affairs

The Corporate Affairs division supports the Board and the Executive Group on secretariat matters and takes the corporate lead on a number of Agency activities including business planning and risk management, governance, health and safety, quality and environmental policy, security, legislation and non-commercial legal issues. The division manages the International Office and the Knowledge Management Programme. It plays a central role in preparing the annual declaration to the Healthcare Commission on compliance with the Department of Health 'Standards for Better Health'. The Expert Advice Support Office provides the scientific secretariat service to a number of Department of Health Advisory Committees and in support of the Agency's programmes.

Communications

Specialists in publications, design, branding, media relations, stakeholder engagement, public involvement and internal communications provide comprehensive support for the Agency's work at all levels, from local and regional to national and international. The division strives to ensure that the entire Agency's communications activities, whether advice, information, publications or stakeholder communications, fully support, enhance and take forward its strategic goals and priorities and contribute to their successful delivery.

Press office teams provide a nationwide round-the clock service to the Agency, its stakeholders and the media, ensuring that advice and information is timely, authoritative, consistent, accurate and clear. The Communications

division deals with hundreds of press enquires each month, leading to between 500 and 800 mentions in the print media and facilitates an average of 100 to 150 broadcast and print interviews each month.

Human Resources

The Human Resources division provides operational support to all parts of the Agency. The division has led the implementation of the Agenda for Change programme with the welcome and widespread support of trade union colleagues.

Remedial action has continued on the improvements identified through the Employee Opinion Survey and planning for the next survey has started.

The division has continued to conduct development centres for the identification of executive potential thus addressing the issue of succession planning across the Agency. Also as a consequence, a senior management development programme has been implemented.

Additional corporate information

Human Resources policies and process development communication – The Agency continues to develop and review a wide range of policies and processes in partnership with staff representatives, designed to improve the employment experience of Agency staff and to assist the organisation in meeting its objectives.

However, activity is increasingly focusing on policy briefing and training. There is a considerable amount of training activity taking place that has links to Agency policies. This training and induction information has been supplemented by good quality briefing to ensure that large numbers of staff are provided with relevant information about policies and procedures more speedily.

Employee relations – We promote positive employment relations with staff and their representatives, and a recognition and procedure agreement has been entered into with the relevant trade unions. The quarterly meetings of the National Joint Staff Committee, which is made up of management and staff-side representatives, provide a valuable mechanism for ongoing constructive consultation on the Agency's wide range of issues and developments. Proposals for the introduction of additional local consultative committees for all divisions and centres have been developed and are in the process of being implemented.

These new committees will supplement a number of existing well-established committees and will ensure comprehensive coverage across the whole organisation.

Communications with employees – The Agency is working to a new internal communications strategy. It currently communicates to employees through newsletters, emailed briefs, the Agency's intranet and face-to-face meetings. We are now working with employees to make our communication more targeted and appealing to all staff. In particular we want to improve our two-way communications so that individuals and teams feel that their voice is heard by the executive and their colleagues across the Agency.

Equality and diversity – The Agency undertakes to promote equality and diversity and not to discriminate between employees or job applicants in respect of age, sex, sexual orientation, marital status, race, colour, ethnic or national origin, disability, religion, gender reassignment, HIV status or trade union membership. The Equality and Diversity Group continues to oversee the handling of all equality and diversity issues at the HPA.

The group is currently working on a number of issues including the development of a robust system for equality impact assessments. Also the Agency is engaged in a data cleansing exercise that will improve the quality of equality and diversity monitoring information. This will enable future policy initiatives to be more focused.

People with disabilities – The Agency has published a disability equality scheme in accordance with the requirements of the Disability Discrimination Act 1995. Relevant principles and practices are incorporated into training programmes for staff involved in recruitment and selection procedures.

Pensions – The majority of the Agency's employees are covered by two pension schemes; the NHS Pension Scheme and the Combined Pension Scheme. A few employees have retained their individual membership of The Principal Civil Service Pension Scheme, or have exercised other options available as a result of the Social Security Act 1986. The three schemes available to Agency employees are defined benefit schemes, all of which prepare separate scheme statements, which are readily available to the public. Details of the major pension schemes are provided in the notes to the financial statements.

Health and safety – The Agency continues to maintain its health and safety management strategy in order to comply with health and safety legislation and best practice requirements. Responsibilities for the local implementation of the policies and achievement of improvement in health and safety performance rests with the centres/ divisions and is taken forward via their health and safety plans.

A significant number of additional corporate health and safety policies have been introduced this year to supplement those already in place and to assist in developing a consistent approach across the Agency.

Comprehensive programmes of audits, inspections, risk assessments and training have continued to be undertaken. In line with its Healthy Workplace policies the Agency is committed to ensuring safe and healthy working conditions for employees, contract staff and visitors. A Healthy Workplace project team meets regularly to agree initiatives and actions that promote a healthy lifestyle. For example there have been promotions run on stopping smoking, healthy hearts, cycling to work, increasing sports availability for staff, alcohol awareness, blood pressure, cholesterol and sugar at our major sites during the year.

Health and safety reports to the Board have noted an increase in incidents reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations, 1995 (RIDDOR). The overall number of RIDDOR reports in 2007/08 was 23, compared with 12 in 2006/07. Steps have already been taken to analyse the root causes of these incidents and to take actions to prevent them in future. This work is continuing and the Agency's Health and Safety Action Plan for 2008/09 includes actions to take this work further.

The Health and Safety Executive has continued to investigate a RIDDOR reportable incident that occurred in June 2005 and its analysis of the evidence is still awaited. In the meantime the lessons learned from the incident have been promulgated to staff and managers. HSE is also reviewing two other reported RIDDORs.

Environmental management strategy and sustainable development – The Agency is fully supportive of the UK government commitment to sustainable development and is in the process of implementing a sustainable development action plan as a key element of the 2008/09 business plan. This will be

integrated with the Agency's strategy to deliver on the commitments within its environmental policy. The Environmental Strategy Group (ESG) leads on this process on behalf of the Executive Group and the Agency Board, and progress has been made in several areas, for example:

- The Agency will continue to contribute to the pan-government fund set up to offset carbon dioxide emissions from air travel for the 2008/09 financial year

- Energy reduction programmes, in line with the Government's Sustainable Operations in Government targets, will be introduced across the Agency to reduce its impact on climate change

- An energy policy outlining a framework for achieving better use of natural resources across the organisation has been drafted and will be implemented in 2008/09

- An Agency-wide waste strategy and guidance document has been written and will be implemented in 2008/09

- The Executive Group has approved a sustainable development action plan for the Agency, which has been incorporated into the 2008/09 business plan.

In line with guidance from the Sustainable Development Commission, the Agency's sustainable development action plan sets out the organisations plan for future sustainable development strategies that includes clear actions in areas such as energy management, carbon footprint calculation and reduction, sustainable procurement and implementing the organisation's waste strategy.

Research and development – The Agency uses research and development expertise to underpin its authoritative evidence-based advice and, working in partnership with the commercial and public sectors, to deliver new procedures and information which benefit public health. During the year the Agency continued to increase its expenditure on research and development by attracting further external funding in its key priority areas. At the beginning of 2007 the Department of Health conducted a comprehensive review of the Agency's internal and external expenditure on research and development and assessed whether the work undertaken met its research priorities.

The review made 31 recommendations, which can be categorised as follows:

- Regular review of the Agency's strategy and research programmes

- Clarification of eligibility for external funding

- The establishment of a ring-fenced, Agency-wide research and development budget

- Formation of an Research and Development division with expanded responsibilities

- Strengthening of Agency research and development in our Local and Regional Services and Regional Microbiology Network

- Expansion of work in the chemical, biological, radiation and nuclear area, including better working relationships with the Defence Scientific and Technical Laboratory and its sponsoring departments

- Specific recommendations for improving work within the research themes

- Develop the behavioural sciences research theme.

The Research and Development division (RDD) was established in October 2007, following the appointment of a Director of Research and

Development (Dr John Stephenson). The new division incorporates the R&D Office, which will continue to provide information to the Agency's research community and oversee its current internal funding schemes. It is also envisaged that the R&D Office will manage any changes in the way the Agency's research is prioritised, funded and assessed. A paper has been presented to the Executive Group and the Board outlining plans to introduce more open and transparent mechanisms for prioritising research and subjecting it to peer review. The paper was accepted by both groups and it is intended that new mechanisms will be agreed by the end of 2009.

Register of Interests – The Agency's Register of Interests is subject to inspection by auditors, and is open to public inspection. The Register is maintained and held by the Board secretary at the central office in Holborn Gate, and may be viewed by appointment during office hours. Please call 020 7759 2710 to make an appointment.

Information access requests – During 2007/08 the Agency received 232* information access requests, including requests transferred to the Agency from other public authorities.

Most requestors cited the Freedom of Information Act but the figure also includes requests handled in part or exclusively under other information access legislation. Specifically, two requests were handled under the Environmental Information Regulations and 13 were subject access requests for personal information (made by the data subject or agents acting on their behalf) and were handled under the Data Protection Act.

*Additional information requests from an individual on the same subject were counted as part of the original request.

Parliamentary questions – A total of 259 parliamentary questions (PQs) were referred to the Agency during 2007/08.

The majority of PQs concerned infectious diseases and micro-organisms, with the commonest topics being healthcare-associated infections and antibiotic resistance, HIV/AIDS and sexually transmitted diseases. There were an increased number of PQs on tuberculosis and zoonotic infections compared with previous years, and a fall in PQs on hepatitis.

Complaints – Seven complaints were received from members of the public, patients and service users during the year and were handled in accordance with the Agency's complaints procedure, which can be viewed on our website. This is the same total as the previous year. At the time of preparation of this report, all seven complaints had been dealt with through the local resolution procedure.

Public and stakeholder involvement – Following the Board's approval of an initial public involvement strategy, a working group has been set up to oversee the development and delivery. The group commissioned Ipsos MORI to conduct a public opinion survey on health protection issues. The results of interviews with 1,500 members of the public across England went to the Board in September 2007.

From this survey group, 335 people volunteered to join a panel which would review the quality of the Agency's publications. In addition 100 of the people surveyed have agreed to take part in a series of focus groups to be run in May and June 2008.

The focus groups will ask participants to provide their feedback on healthcare-associated infections information materials as well as a range of leaflets drafted by the Agency on behalf of the European Centre for

Disease Prevention and Control. In addition the focus groups will be used to collect people's views on the best way to achieve effective public involvement.

In terms of stakeholder engagement, regional communications managers conducted 35 in-depth interviews with the Agency's stakeholders to identify their views and impressions of our services. The results and analysis were presented to the Agency Board in February 2008.

Reporting of personal data related incidents

From this year organisations are required to report on protected personal data* related incidents that have occurred in the reporting period and, for 2007/08 only, incidents that have occurred in prior years

*A definition of protected personal data is set out in Annex 1.1 to the Financial Reporting Manual 2007/08

There were no incidents in the report period (from 2004/05), which fall under the criteria for report to the Information Commissioner's office. The Agency records local incidents and in the report period (from 2004/05) there were five information losses in total as set out in the tables below, whose release could have put individuals at risk of harm or distress. These were all investigated and steps taken to prevent any recurrence.

Summary of protected personal data related incidents in 2007/08		
Category	Nature of Incident	Total
I	Loss of inadequately protected electronic equipment, devices or paper documents from secured premises	-
II	Loss of inadequately protected electronic equipment, devices of paper documents from outside secured premises	2
III	Insecure disposal of inadequately protected electronic equipment, devices or paper documents	-
IV	Unauthorised disclosure	-
V	Other	-

Year-on-year total numbers of protected personal data related incidents prior to 2007/08						
	I	II	III	IV	V	Total
2006/07	-	-	-	-	-	-
2005/06	-	2	-	-	-	2
2004/05	-	1	-	-	-	1

[2.4] OPERATING REVIEW

During the year, the Agency has been taking stock of its achievements over its first five years, assessing what still needs to be done and determining its priorities for the next five years. A new strategic plan has been developed detailing our revised goals, which sets out targets for measurable improvements. It recognises that the complexity of the challenges before us means we can only successfully achieve our goals by working with our colleagues in the Department of Health, the NHS and other partner organisations.

The Agency delivers its strategic goals through a series of programmes, which enables a coordinated way of working across the organisation providing the optimum use of resources to best effect in achieving our aims and objectives. Each programme is overseen by an executive director, supported by a programme manager. They are supported by a programme board comprising specialists from across the Agency assisted where necessary by external contributors.

The key achievements of the Agency's programmes during 2007/08 are detailed in the following sections that outline the breadth of work undertaken by the Agency.

1.1. Programme to reduce the incidence and consequences of healthcare-associated infections and antimicrobial resistance.

1.3. Programme to reduce the incidence and consequences of infection with hepatitis B and C.

1.4. Programme to reduce the incidence and consequences of HIV and sexually transmitted diseases.

1.5. Programme to reduce the incidence and consequences of infection with vaccine preventable diseases.

1.6. Programme to combat pandemic influenza.

1.7. Programme to reduce the incidence and consequences of tuberculosis.

2. Programme to protect against the adverse health effects of acute and chronic exposure to chemicals, poisons and other environmental hazards.

3. Programme to improve protection against the adverse effects of exposure to ionising and non-ionising radiation.

4/6. Programme to prepare and respond to emerging health threats and emergencies including those caused by deliberate release.

7. Programme to strengthen information and communications systems for identifying and tracking diseases and exposures to infection, chemical and radiological hazards.

8. Programme to build and improve the evidence base through a comprehensive programme of research and development.

9. Programme to develop a skilled and motivated workforce.

10. Programme to manage knowledge and sharing expertise.

11. Programme to build on and develop the intellectual assets of the organisation in partnership with industry and other customers, in order to better protect the public.

12. Programme to raise the understanding of health protection and involvement of the public and ensure they have access to authoritative, impartial and timely information and advice.

13. Programme to strengthen frontline services in the community.

14. Programme to contribute to UK international health objectives and to global health.

HPA Programme 1

Reducing the consequences of infection

Healthcare-associated infections and antimicrobial resistance

The Agency continues to work in partnership with the NHS to improve effective prevention and control of healthcare-associated infections (HCAIs). Our shared aims are to reduce HCAIs and to lessen the occurrence and consequences of antimicrobial resistance (AMR). Our role is to provide proactive advice and support to healthcare professionals, hospital management, primary care trusts (PCT), strategic health authorities (SHAs), the Department of Health and other partner agencies such as the National Patient Safety Agency and the Healthcare Commission. Regular liaison with these partner organisations has strengthened our lines of communication and has clarified our respective roles and responsibilities.

The local roles and responsibilities of the Agency with regard to HCAI in the acute sector have been agreed and shared with partners, including Department of Health and Healthcare Commission. Standards for health protection units (HPUs) have been drafted for inclusion in the final version of the LaRS Framework document. Following a consultation on this document it has been agreed that the Agency will work with Department of Health, NHS and other partners to clarify and agree a model for delivery of an infection control service in the community sector.

The Agency continues to deliver mandatory surveillance data and on 1 April 2007 the new *C. difficile* web-based enhanced surveillance system was implemented.

The HPA *Clostridium difficile* Ribotyping Network for England (CDRNE) was launched

in April 2007. *C. difficile* typing is now provided nationally from the Agency's regional laboratories.

Following the publication of the Healthcare Commission report on *Clostridium difficile* at Maidstone a package of information for acute trust Chief Executives, tailored to individual regions, was distributed by the Agency's Regional Director and Regional Microbiologist in each region. This package included a simple, rapid audit tool to assist CEOs, and infection control teams in highlighting areas where improvements could be made. A *Good Practice guide to control Clostridium difficile* was also included.

The Programme Board has agreed a standard package of data in graphical format that will be provided to each HPU for the trusts in its area on a monthly basis. In addition, every HPU has been given access to the online HCAI database. Consequently, the Agency will provide support and assistance through the HPUs to reduce HCAIs within the local health economy.

An induction training DVD on infection control for care homes has been produced and, in partnership with Department of Health, copies will be distributed to 18,000 care homes early in 2008/09.

The Agency has produced the following reports:

- *Clostridium difficile infection: how to deal with the Problem: A Board to ward approach*. This document is out for consultation with key stakeholders

- Annual report on mandatory surgical site infection surveillance in orthopaedic surgery

- The confidential study of deaths following MRSA infection, commissioned by the Department of Health and undertaken jointly with the Office for National Statistics

- The Joint HPA Centre for Infections/Office for National Statistics MRSA deaths

- Routine surveillance reports are being produced on schedule.

Hepatitis

Through the Hepatitis Programme, the Agency aims to minimise avoidable mortality and morbidity from viral hepatitis in UK residents, by influencing, involving and collaborating with many other stakeholders to achieve change. Hepatitis B and C remain significant sources of preventable chronic ill health in the UK. Acute infections with hepatitis B continue to circulate in adult risk groups and a large number of people are living with undiagnosed hepatitis C infection.

The third HPA hepatitis C annual report was published in December 2007. Media coverage of hepatitis C increased by over 60 per cent in 2006 and more people have offered themselves for testing. Much of the increase was in general practice, supported by the dissemination of a set of simple guidelines to the NHS on who to test. Because of this, the number of new diagnoses has risen by 10 per cent, so more people now benefit from effective treatment. In contrast, more people are suffering from or dying with the complication of chronic liver disease due to hepatitis C and this is set to rise further. The Agency has provided a template for primary care trusts to help improve the commissioning of National Institute of Clinical Excellence (NICE) recommended therapies.

The risk of hepatitis C and B infection remains high in current injectors. The number of people accessing specialist structured treatment for drug use continues to increase. A greater emphasis is being placed on harm reduction, particularly in prisons where disinfecting tablets

are now being provided. The Agency has worked with the British Liver Trust to produce prisoner information leaflets on bloodborne viruses. The leaflet is now being printed and distributed and that organisation is working on similar leaflets for female prisoners. Self-reported vaccine coverage in injecting drug users (IDUs) continued to improve in 2006, as did the number of IDUs reporting a diagnostic test for hepatitis C.

The network of hepatitis leads is working to improve the Agency's response to cases of hepatitis B and C. Problems still exist with the quality and completeness of information on acute hepatitis B, and with the data flows between local laboratories, local health protection units and the Centre for Infection. The Agency's Regional Microbiology Network is working on improving data quality, and standards for reporting quality are being monitored monthly.

The Agency continues to take the lead in the investigation of unusual incidents. We recently assisted the Ministry of Defence in contacting soldiers and, with the help of the National Blood Service, coordinated the testing of people who received blood in the field in Iraq and Afghanistan.

HIV and sexually transmitted diseases

The Sexual Health Programme oversees a range of issues concerned with the surveillance and epidemiology of sexually transmitted infections (STI). *Testing Times*, the fifth combined annual report of HIV and other sexually transmitted infections in the UK, was published in November 2007. The report described improvements in the delivery of sexual health services, especially in the uptake of HIV tests and sexual health screens, but also highlighted the disturbing rates of new HIV diagnoses and STIs in men who have sex with men (MSM). The report called for a review of current sexual health promotion for MSM.

Full NHS Information Standards Board approval was granted at the end of this financial year for anonymised disaggregated STI data to be collected from all genitourinary medicine (GUM) clinics in England, and will be known as the GUM clinic activity dataset (GUMCAD). GUMCAD will replace the existing statutory return (KC60) during 2008/09 and is the most significant change in collection of STI data for many years. For the first time it will be possible to analyse the data to provide diagnosis rates by PCT of patient's residence. STI surveillance in primary care settings also came a step closer to being introduced.

There were major developments for the National Chlamydia Screening Programme (NCSP) in 2007/08. The programme has been largely established at local level, reaching almost full roll-out across England. The Local Delivery Plans (LDP), since 1 April 2007, have galvanised the NHS into setting up care pathways in the community to allow for chlamydia testing. Screening volumes have doubled since 2006/07. The core standards have been updated and the first baseline quality assurance survey has been successfully completed. Initial analyses of social deprivation were conducted. A successful one-day conference was held in November 2007 that provided the opportunity to update on overall progress and to discuss the main issues. At this conference, the male equity policy 'Men too' was launched, and the National Chlamydia Screening Programme (NCSP) committed nationally and locally to implement this in the forthcoming year. A new website, with separate areas for the public and health professionals, was launched.

A national standard operating procedure for syphilis serology was issued. This is driving improvements to quality and timeliness of diagnostic testing for syphilis.

The joint British Association for Sexual Health and HIV (BASHH)/HPA waiting times survey was successfully transferred to a monthly electronic monitoring system (GUMAMM) run by the Department of Health.

A one-day symposium on STIs at the Agency's Health Protection 2007 conference at Warwick was organised by the Programme Board. The symposium included a good mix of external and internal plenary talks and shorter scientific presentations. The symposium was well attended, and received positive feedback on the range and quality of presentations.

A Sexual Health Network meeting was held in January 2007 to bring together Agency staff working across all regions of the country, in HPUs, regional offices, and the Centre for Infections. The event provided an opportunity for formal sharing of information and practice through presentations, interactive workshop sessions and informal networking.

Vaccine preventable diseases

The Agency works closely with the Department of Health to inform national policy on health, and provides support, evidence, guidance and recommendations to the statutory bodies responsible for control and prevention programmes.

The Agency supports the Department of Health in increasing vaccine uptake within the national immunisation programme for children, the elderly, international travellers and vulnerable groups. It now regularly produces immunisation coverage data based on new PCT boundaries, working with the NHS at local level and providing feedback to local providers.

The Agency is supporting improvements in MMR uptake in older cohorts undertaking a survey of PCTs on the school leaving MMR check. Some 80 per cent of those PCTs who responded reported checks were in place.

The Agency is advising on and contributing to the implementation of London Assembly recommendations to improve vaccine uptake in the capital. It has taken an active role in a recent NICE consultation process to review evidence for effective interventions to reduce inequalities in vaccine uptake.

In monitoring the effectiveness of the national immunisation programme, the Agency has reported the surveillance of the new Pneumococcal Conjugate Vaccination (PCV) programme including measuring uptake of routine and catch-up programmes to the Joint Committee on Vaccination and Immunisation (JCVI). The Agency also reported that the national uptake of PCV has been in excess of the 80 per cent target with the HPUs working actively with the PCTs to encourage uptake.

The Agency is finalising the evaluation of the pneumococcal vaccine (PPV) programme in those aged over 65, which will be delivered to a forthcoming JCVI meeting.

The Agency has advised on the need for new and revised immunisation programmes and assists in their implementation. Three clinical trials of candidate serogroup B meningococcal vaccine have been conducted and a programme of work on pandemic influenza vaccines will be initiated in the near future.

The Agency has reported to JCVI on 'clinical trials for the new childhood immunisation schedule' and contributed advice on the introduction of the new human papillomavirus (HPV) vaccine – in particular through the use of deterministic modelling, informing the recommendation by JCVI in 2007 that the vaccine be offered to teenage girls.

The National Vaccine Evaluation Consortium continues to run clinical trials to answer questions about new vaccines and new schedules particularly for the UK. A Phase I

Safety and Immunogenicity Clinical Trial of the HPA's candidate MenB vaccine (Lactamica OMV vaccine) has been completed.

The Agency continues to support polio containment and eradication and has been working with the HSE to maintain a national database as part of polio containment.

Pandemic influenza

The Agency has made a key contribution to the joint Department of Health/Cabinet Office publication *Pandemic flu: A national framework for responding to an influenza pandemic* released in November 2007 and provided expert, evidence based advice to associated pandemic influenza-focused infection control guidelines prepared for specific sectors including cleaning staff, schools and childcare facilities, fire and rescue services, funeral Directors, prisons and places of detention.

Implementation and training on the Avian Influenza Management System (AIMS) has been actioned through the UK-wide steering group arrangements and preparation is now underway for the testing of this system during 2008/09.

During the year the Agency delivered two regional desk top exercises in the Department of Health-funded programme, which took pandemic influenza as their scenario.

Exercise Phoenix, held in London in November 2007, explored the challenges the health and social care community in London would face in the latter stages of an influenza pandemic as they look towards recovery and a new 'normality'. In December 2007 in the West Midlands, Exercise New Day 5 explored the challenges facing the wider health community in responding to, and management of, business continuity issues arising from escalating events over a period of time with a particular focus on food and transport. The exercise focused on operating at the peak of the first wave of a pandemic influenza outbreak.

Exercise United Endeavour 2, a five-day exercise in January 2008, tested the processes for providing the daily health surveillance and NHS situation reporting elements of a pandemic influenza report to the Department of Health and the Civil Contingencies Secretariat (CCS) of the Cabinet Office, as would be required in the event of an influenza pandemic.

Exercise Chain Reaction, a bespoke exercise designed and delivered in collaboration with Mice Associates, was held in response to a call from the Pharmacy section of the Department of Health. The exercise, held in January 2008, explored the reliability of the medicines and healthcare consumables supply chain for primary and community care in the simulated event of an influenza pandemic.

Tuberculosis

The Agency's Tuberculosis Programme aims to support all the key elements of the chief medical officer's national action plan including, in particular, increasing awareness of tuberculosis, providing high quality surveillance and first class laboratory services, delivering effective disease control at the population level, carrying out leading edge research and contributing to international efforts in the control of tuberculosis globally.

Immediate priorities for the programme in 2007/08 included further strengthening of tuberculosis surveillance through implementation of a web-based case reporting system, and the deployment of molecular strain typing as a tool for tuberculosis control. Improving the monitoring of outcome of treatment in tuberculosis patients and the outcome of screening for infection in their contacts, have also been priorities. The development of potential strategies for the treatment of latent infection in high incidence

population subgroups is also being explored. Contribution to the development of a better vaccine against tuberculosis remains a long-term priority.

A standardised molecular strain typing service and a national database are now available across England. An implementation group has been formed to see through the application of the service into practice at local, regional and national levels. This activity is being coordinated with the final stages of the roll out of the new web-based case reporting system and the development of the module for collection of information on the outcome of screening in contacts of cases of tuberculosis. The reporting of information on the outcome of treatment on active cases has been strengthened so as to obtain data on more than 95 per cent of patients.

Modelling work continues to assess the current impact of tuberculosis in the population, and develop projections for potential future incidence under certain assumptions about the composition of the population and control interventions.

Evaluation of candidates for a novel tuberculosis vaccine continues as part of an international collaboration. Three lead in-house vaccine candidates have been re-formulated for further testing, including as a recombinant BCG, in a viral vector and as proteins in adjuvant.

An annual report, *Tuberculosis in the UK*, was published in November 2007. This included, for the first time, data on tuberculosis case reports from all the UK countries. In addition, two editions of the newsletter *Tuberculosis Update* were published and the tuberculosis pages of the Agency's website were maintained to provide a comprehensive picture of the occurrence of the disease in this country, its treatment and control and the services offered by the Agency.

HPA programme 2

To protect against the adverse health effects of acute and chronic exposure to chemicals, poisons and other environmental hazards

The Chemical Hazards and Poisons division (CHaPD) has successfully reorganised the chemical incident response service with the transfer of Local and Regional Services staff and recruitment of new staff. These developments have strengthened the Agency's frontline response to and management of chemical incidents across England.

A pilot project to look at the application and development of a set of children's environmental health indicators in collaboration with the Public Health Observatory, Regional Office and Department of Health has been successful. This work dovetails with many of the other initiatives within the Department of Health as well as with the European Environment and Health Action Plan 2004-2010.

The Agency has assisted the Department of Health in England in the development of guidance for health professionals on strategic environmental assessment. This document, which went out for national consultation, aims to improve the consideration of health issues in plans and policies such as transport plans.

The Agency continues to increase the amount of information available on the website on priority chemicals by adding to the established Compendia series.

HPA Programme 3

To improve protection against the adverse effects of exposure to ionising and non-ionising radiation

The Agency continued to be involved in the response to the polonium-210 incident at the start of the reporting period.

The International Commission on Radiological Protection (ICRP) has approved a new set of fundamental recommendations on the protection of man and the environment against ionising radiation with considerable input from senior Agency staff. These recommendations will replace the previous ICRP 1990 recommendations. A project team is preparing a draft Agency response to these recommendations.

An updated draft of the third analysis of the National Registry for Radiation Workers (NRRW), taking account of comments provided by the project management group (PMG) on an earlier draft, was sent to the PMG and the NRRW steering group in December 2007. Based on their comments and some final additions on follow-up information to the database, the report will then be finalised.

Three research papers describing studies on human radiosensitivity, including the range of human radiosensitivity, the contribution of genetics to this range and ways in which those who develop severe reactions to radiotherapy may be identified, have been submitted for publication.

The Agency and the British Geological Survey (BGS) have produced a new dataset of radon potential (the percentage of houses in an area estimated to be above the Action Level) for England and Wales, based on the results of measurements in over 450,000 homes and taking account of the local geology. An 'indicative' atlas gives an overview of radon affected areas by 1km squares of the national grid. The radon potential for any individual home in England and Wales can be obtained from a dedicated website (www.ukradon.org) for a small fee.

Following expert review and public consultation, the Agency will be developing advice and publishing a review of the scientific basis for protecting patients and volunteers undergoing MRI procedures.

HPA Programme 4/6

To prepare and respond to emerging health threats and emergencies including those caused by deliberate release

New or emerging infectious threats can arise from either within the UK or internationally and this programme is undertaking horizon-scanning activities to detect and assess these risks. Scientific support is provided to strategic groups within and outside the Agency, including the collation and monthly dissemination of information on potential emerging infectious disease and public health threats. Risk assessments and peer-reviewed papers continue to be published.

The diagnosis of clusters of undiagnosed illness and new infections is integral to the detection of possible new infections. The protocol for the investigation of microbiologically unexplained serious illness and death and the emergency clinical situations algorithm have been posted on the Agency's website, as have reports of

incidents that have been assessed. A report on this service has been published.

NHS trusts, strategic health authorities and PCTs are required to have plans in place to deal with incidents and emergencies. Through a cycle of exercises and training, these plans are tested for their robustness in dealing with health protection emergencies. The agreed training and exercise programme for 2007/08 has been delivered to the Department of Health/NHS.

The Agency aims to continually improve the speed and effectiveness of its response to incidents and threat situations to reduce their impact on public health in terms of morbidity and mortality. Over the past year and in line with the planned programme, the upgrades to the emergency operations centres (EOCs) at the Centre for Infections and at the Centre for Radiation, Chemicals and Environmental Hazards have been completed. The Agency's response plans have been tested in response to real incidents over the past year, most notably, to outbreaks of avian influenza and to the floods in July 2007. In light of these, the Agency's response plans have been reviewed and revised plans published.

The Centre for Emergency Preparedness and Response (CEPR) and Local and Regional Services (LaRS) have worked together with emergency preparedness governance leads and the Health Emergency Planning Advisors (HEPAs) to develop Agency standards for emergency preparedness and an Emergency Preparedness Governance (EPG) Support Network. These standards have been rolled out and used to inform the Agency's submission for Core Standard 24 to the Healthcare Commission for 2007/08.

The Agency is undertaking major studies on Creutzfeldt-Jakob disease (CJD) tissue infection risks including providing an archiving service for surgical instruments used or potentially used on patients with CJD, delivering an enzyme-based approach to prion decontamination, and exploring novel approaches to CJD prophylaxis and treatment. Data on the effectiveness of prion cleaning and decontamination methods has been given to both the Department of Health's Engineering and Scientific Advisory Committee and the Surgical Instrument Decontamination Working Group.

The Agency monitors variant Creutzfeldt-Jakob disease (vCJD) tissue infection risks including providing an archiving service for surgical instruments used or potentially used on patients with CJD, delivering an enzyme-based vCJD incidence trends and has established the National Anonymous Tonsil Archive (NATA), which continues to undertake studies of detectable abnormal prion protein (the agent believed to be responsible for infection with vCJD). The tonsils are collected from people of all ages during routine tonsillectomies and only tissue not required for patient care, which would normally be discarded, is used.

Results of vCJD-related studies have been presented to the Department of Health and considered by the Spongifrom Encephalopathies Advisory Committee (SEAC).

HPA Programme 7

Strengthening information and communications systems for identifying and tracking diseases and exposures to infectious, chemical and radiological hazards

The early detection of disease outbreaks, and chemical or radiological hazards, means that informed action can be taken to protect people's health. Good routine data and intelligence are also needed to prevent, control, and understand how infections and other hazards affect public health.

The Surveillance Strategy Development Programme Board has produced a draft surveillance strategy using gap analyses and surveillance evaluations that have been completed by most Agency programmes. An evaluation of existing Agency surveillance activities including stakeholder feedback and external review conducted within programme areas has enabled an assessment of the public health utility, efficiency and effectiveness of surveillance through an evaluation developed from work by Health Protection Scotland and the Centre for Health and Environmental Research Expertise (CHERE). This, along with the gap analysis, allows a determination of areas for future growth and development, examples of best practice and best of breed systems.

The Agency is building upon the agreement with the Department of Health and Connecting for Health (CfH) to build Agency surveillance requirements into systems delivered under the NHS National Programme for IT. A project to define these requirements from across the Agency has been completed and presented to CfH for them to assess delivering these data through their systems. High-priority areas to progress have been identified with CfH and work is underway for the governance arrangements required for the Agency to directly access CfH systems. The CfH work will continue with Agency programmes working to elaborate their requirements of CfH and define the nature and methods by which data can be received under the overview and coordination of the Surveillance Strategy Programme Development Board.

The next phases of the programme are to agree and publish the strategy and use this to inform a systems integration and development plan.

HPA Programme 8

To build and improve the evidence base through a comprehensive programme of research and development

In the autumn of 2006 the Department of Health commissioned an independent review of the Agency's research and development activities. The review team included independent experts from the UK and overseas and was chaired by Professor Ray Dixon (FRS) of the John Innes Centre in Norwich. A copy of the report, along a letter describing how the Department of Health wished the Agency to respond, was received from the Minister for Public Health in 2007. A subsequent letter, outlining future funding arrangements for the Agency's research and development, was received in January 2008. The Department of Health Review identified six areas which the Department of Health has asked the Agency to address:

- Establishment of a ring-fenced fund for research and development support
- Development of clear mechanisms for setting research priorities
- Establishment of a mechanism for independent expert review of internally funded research
- Increasing external research collaborations

- Increasing levels of external funding

- Establishing an R&D Division and strengthening the R&D Office.

The Research and Development division, headed by the new Director of Research and Development, Dr John Stephenson, was established in October 2007 and a strategy for putting into place the recommendations of the Department of Health review will be developed during 2008.

At the Board meeting in June 2007, the Chairman of the Agency Board announced the launch of the R&D Fund and its inaugural call for proposals. Approximately £1m was put aside for this fund in 2007/08. The first call for proposals opened in July 2007, with bids of £50K-£250K per annum invited for periods of one to three years focusing on high-priority translational research. The call was open to all subject areas which fell within the Agency's remit; 52 applications were subsequently received and a shortlisted for peer review by experts external to the Agency. The HPA R&D Committee met in September 2007 to make a final selection of 12 applications for funding. The successful applications came from across the Agency and many involved cross-centre/ divisional collaborations.

Over the year 14 awards from the Pump Priming and Small Initiatives Fund were announced. A total of 25 applications were received for the Agency's PhD studentships, with the review panel agreeing six for 2008. Four studentships were awarded to Centre for Infections, one to the Radiological Protection division and one to the Chemicals and Poisons division at Newcastle.

The Agency continues to attract substantial external research funding, with the total value of £5.7m during 2007/08.

HPA Programme 9

To develop a skilled and motivated workforce

Implementation of Agenda for Change (AfC) (excluding former NRPB staff employed at the Radiation Protection Division) was all but completed by the end of March 2008, in terms of job evaluation and assimilation to the new terms and conditions. This includes completion of the job evaluation review process.

Staff employed at the Radiation Protection Division were informed of their job evaluation outcomes in February 2008. Those employed on former NRPB terms and conditions were given until 17 March 2007 to accept of reject the offer to move to AfC terms and conditions. By the end of March 2008, 80 per cent of these staff have accepted AfC terms and conditions and this number may increase following completion of the job evaluation review process.

Appraisal is a key process for identifying the development needs of Agency staff and for providing direction and motivation. By the end of March approximately 90 per cent of staff had completed an annual appraisal and personal development plan (PDP). The Agency's Corporate Development Programme offers more than 20 skills development workshops and during 2007/08 was further supported by access to modules from the NHS Core Learning Unit.

Competency-based Leadership Development Centres were again offered to senior personnel during 2007/08, with a further 44 staff attending, bringing the total to 81 since the programme started in October 2006. A closely-linked programme of leadership development workshops was launched in October 2007. The first programme will conclude in May and, following review and evaluation, will be offered again during 2008/09.

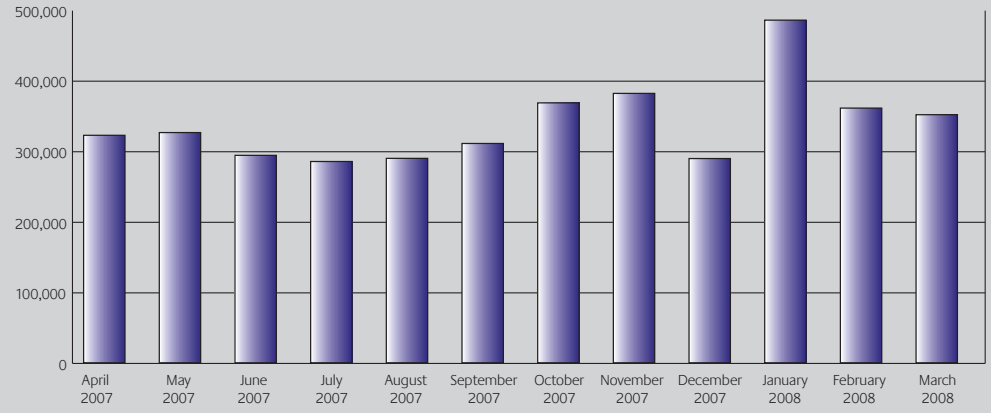
Programme 10

To manage knowledge and share expertise

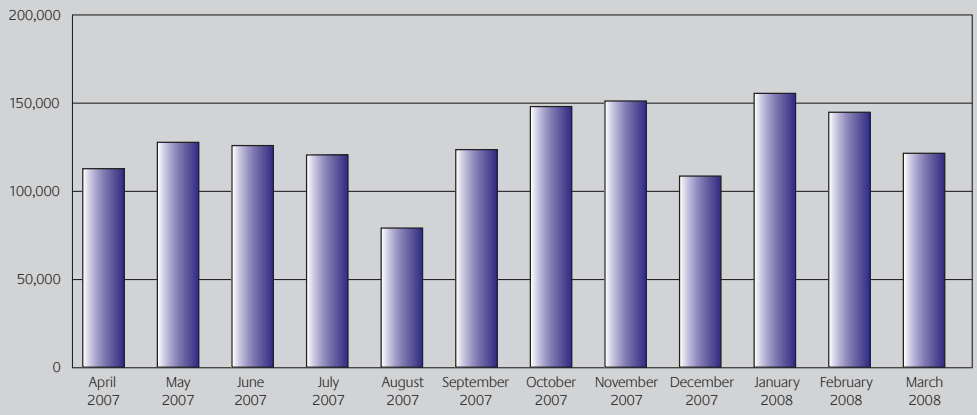
The programme aims to achieve the improved management of knowledge and the sharing of expertise within the Agency and between the Agency and its partners. This is to empower professionals to reduce harm and the burden of disease, by the provision of information, knowledge and expertise, through our publications, our website and our guidance and advice.

The Agency's online services have seen major redevelopment work in implementing a new content management system for its website and intranet. The newly designed intranet was launched in April 2007 with updated design, information architecture and content. The new Agency website was launched at the end of the financial year, which also included a major revamp of the design, content and

Website visits



Intranet visits



architecture. Both sites use the content management system that gives devolved ownership of content to authors and editors across the Agency. Both sites now carry multimedia content in the form of audio, video and interactive sections. Training is being rolled out in April 2008.

Work has progressed on a number of e-learning pilot projects across the Agency. The intention to take best practice from these to develop an e-learning strategy with the workforce development programme.

The number of full text scientific journals available to all Agency staff increased during the year to approximately 1,000. In addition, all Agency staff now have access to Scopus, the largest citation and abstract database of peer reviewed literature and quality websites in the world.

The National Knowledge Service (NKS) for tuberculosis aims to ensure that sources of information and knowledge on the disease are brought together for healthcare professionals, patients and their carers. In March the KNS and the National electronic Library of Infection (NeLI) hosted the National Knowledge week. The week coincided with World TB day and was commissioned to raise awareness and to ensure that decisions made by healthcare professionals and patients are supported by best current knowledge. The NeLI, provided jointly by City University, continues to provide the best available evidence in the field of infection. The service is accessed by professionals and public in the UK and overseas. As of 1 April 2008 the Agency will be responsible for the Specialist Library of Infection (SLI). The SLI will collaborate with NeLI to explore new ways of delivering information.

The Agency has initiated a project to produce in 2008/09 Health Protection Profiles – an easy-to-use set of indicators focusing on the health of local communities, drawing mainly from the surveillance data the Agency holds.

Following the success of the Welsh 'Pictures of Health' profiles, the Health Protection Profiles will be aimed at reaching a broad audience, including the public (in line with Agency Programme 12), local government and partner organisations, as well as those working within public health. A project board has been established for this project, including representatives from across the Agency, the NHS, local authorities and the Association of Public Health Observatories.

HPA Programme 11

To build on and develop the intellectual assets of the organisation in partnership with industry and other customers, in order to better protect the public

The Agency generates significant external income through services, research and development, and products. These external contracts are selected on the basis of contributing to Agency skills and capabilities that may be required to respond to national need. The programme aims to agree significant external contracts that build Agency capabilities or translate Agency knowledge into practical public health outcomes and have a financial, clinical or public health impact.

Significant external contracts that build Agency capabilities or translate Agency knowledge into practical public health outcomes were signed during the year. The Agency continued to win contracts in the area of training and

exercises for public health emergencies. This has included a number of successful proposals to win EU funding.

The Agency is a member of the InterAct partnership between the Agency, CSL, Dstl and VLA, focused on building value through enhancing commercial technology. Through this partnership, the Agency has reviewed and renewed its IP portfolio. New opportunities have been identified and contracts won in the areas of culture collections and diagnostic and quality assurance services.

HPA Programme 12

To raise the understanding of health protection and involvement of the public and ensure they have access to authoritative, impartial and timely information and advice

This year the Agency carried out its first reputation audit. Consequently there is now a benchmark against which its standing in relation to other national agencies can be measured. By using a combination of a public opinion survey and stakeholder interviews the Agency has begun to chart its reputation. Awareness among stakeholders and the public is largely positive. One in three people have heard of the Agency and three-quarters of stakeholders know the Agency and have a favourable opinion of what it does.

One of the Agency's goals is to become a source of reliable, independent expert health protection advice to the public and health professionals. It takes time to earn such a reputation and Ipsos MORI was commissioned to establish the public's attitudes to health protection issues and awareness of the Agency. In order to gain a better understanding of the views of its partner agencies, senior staff from the Agency's Communications division interviewed 37 stakeholders from seven categories of organisation: PCTs/NHS, local authorities, strategic health authorities, government departments, arms-length bodies, pharmaceutical companies and charities.

While the Agency has numerous examples of effective partnerships and joint working, until this year it has not had a strategic programme to consult and involve the public and its stakeholders. The Agency is required to demonstrate a planned approach to public and stakeholder engagement. The Healthcare Commission Review coupled with the statutory regulations of the Civil Contingencies Act 2004 makes it a requirement for the Agency to be open and transparent in the way it works.

There are good signs for partnership and engagement. A third of the public, when asked, want to get involved with the work of the Agency. They also want the Agency to inform them about HCAIs, environmental issues and infectious diseases. Stakeholders want the Agency to get better at explaining what it does, invite them to take part in the planning for the 'big picture' and want it to develop a stronger statutory role.

In order to continue the progress made the Board has approved the second phase of the engagement programme, which includes a series of focus groups. The participants will be asked to provide their feedback on HCAI information materials produced by the Agency. In addition the focus groups will be used to collect people's views on the best way to achieve effective public involvement.

The Agency is committed to building on the

perception expressed by stakeholders that it is 'the people's public health champion'. In order to make sure it is going in the right direction it will consult with stakeholders when setting its priorities.

HPA Programme 13

Strengthening frontline services in the community

Following a major internal review of HPU functions, a consultation on a future framework for provision of local and regional public health services was undertaken in 2007. The Health Protection Agency Act 2004 and the major changes in public health within the NHS led to an urgent need to clarify the roles and responsibilities of the Agency and partner agencies to ensure coherence in delivering health protection services for local populations and communities. Stakeholders were consulted on a new framework specification for Agency LaRS provision in 2007-2010 entitled 'Forward Thinking, Future Working'. This proposed a framework within which the Agency, drawing on all its centres and divisions, will deliver specified core services by and through its local and regional units, to consistent, national and international standards, in partnership with other local and regional organisations. It also described the support that the Agency may expect from local and regional partners in delivering its statutory responsibilities.

The framework proposed:

- The continuing Agency commitment to investigate and control outbreaks and incidents of infection in the community; and to provide specialist health protection risk assessment and management advice and information that local partners can use for decision making
- Increased clarity and consistency across English regions about the public health services to be provided by the Agency in respect of emergency preparedness and response, and national priority programmes which are shared responsibilities of both the Agency and the NHS
- The way in which the Agency will work locally; to national standards, usually in partnership, and always proactively, to protect population health.

The consultation prompted a good response. Almost 1,100 NHS and local authority stakeholders were directly consulted, and there were 225 responses, including a number submitted from multiple stakeholders. There was at least one response from over 50 per cent of PCTs, 50 per cent of the strategic health authorities and 20 per cent of local authorities in England.

Most respondents agreed with most of the proposals for Agency roles and it is apparent that the consultation covered the full range of critical service areas. A small number of PCTs disagreed with most of the proposals, and several raised specific questions and sought greater clarification in some areas. The greatest variation in responses concerned 'non-core' services, with 25 per cent of PCTs strongly agreeing and 25 per cent strongly disagreeing.

HPA Programme 14

To contribute to UK international health objectives and to global health

The key aims of the International Programme are to ensure that Agency international activities contribute to Agency health goals and that global health protection priorities are

supported by Agency international activities.

The Agency continues to be involved in a number of key WHO and other international public health networks, reflected through the Agency's seven WHO Collaborating Centres, six national reference laboratories and WHO global reference laboratory accredited within the Agency.

The Agency has submitted evidence on public health protection issues requiring intergovernmental cooperation and collaboration to the House of Lords Committee Inquiry into Intergovernmental Action to control the spread of communicable diseases.

Over the past year the Agency has led work to develop a UK-clearing house for surveillance data required by the European Centre for Disease Prevention and Control (ECDC). It was invited to join the UK steering group on the UK-China Partnerships in Health Initiative, which was launched in Shanghai in March 2008 and supported by the Foreign and Commonwealth Office and Department of Health.

The Agency is the UK's focal point for International Health Regulations that came into force in June 2007.

The Agency hosted an international workshop on the management of health protection at major international sporting events, with support from the International Association of National Public Health Institutes.

The Emergency Response division led on a successful pan-European bid to the European Commission to provide exercises and training in emergency preparedness at regional or pan-EC level from 2008-2011.

The 2007 HPA annual conference included an international health symposium in which speakers from WHO, UK government departments, the Wellcome Trust, the Medical Research Council and the ECDC explored options and examples of good practice in develop international public health capacity.

The Agency has been selected to participate in the WHO Laboratory Twinning Initiative with national public health laboratories in Uganda and Kazakhstan.

The Agency continues to work with the international division of the Department of Health to identify potential areas for external funding for health protection training and development.

The profile and reputation of the Agency nationally is strengthened by its growing international recognition as a centre of expertise. To inform the strategic decisions taken by the Agency Board, a Board sub-committee on global health was established in September 2007 with membership from the Agency Board, senior staff and external experts. The Board sub-committee will provide strategic advice to the Board on global health issues and priorities.

[2.5] FINANCIAL REVIEW

Overview

The first five years since the establishment of the Agency on 1 April 2003 have been financially challenging. As well as moulding together the various disparate units which included staff from over 80 different employers across the UK, the Agency had to maintain the day-to-day work to a high quality, shift resources to areas previously under-resourced such as emergency preparedness, the chemical functions and external communication and put in place Agency-wide systems to support the new Agency. All of this had to be carried out at a time when we started to experience severe cost pressures derived from factors outside our control such as the introduction of the consultants' contract, Agenda for Change and the rationalisation of the Department of Health's Arms Length Bodies.

The Agency is continuing to expand. The Agency assumed overall responsibility for Port Health with effect from 1 April 2007 and external income generating activity continues to grow. Following the Department of Health's "*Arms Length Bodies*" (ALB) review in 2004, the Secretary of State announced that the Agency should, by absorption, merge with the National Institute for Biological Standards and Control (NIBSC), subject to consultation and legislation. The proposed integration of NIBSC is contained within the Health and Social Care Bill 2007/08, which is proceeding through the UK Parliament. We are already working in close partnership and integration is expected to be completed by April 2009. NIBSC had gross expenditure in 2006/07 of £24m, of which UK Government grants funded £13m, and employed around 300 people.

Result for the year

The Agency's operations continue to grow, exerting significant pressure on the available financial resources, while the internal organisation is being progressively developed in order to support frontline services.

We were successful in achieving a break-even position and we completed the year ended 31 March 2008 with net operating costs £0.2m below the total revenue government grant in aid relating to the net operating costs for the financial year.

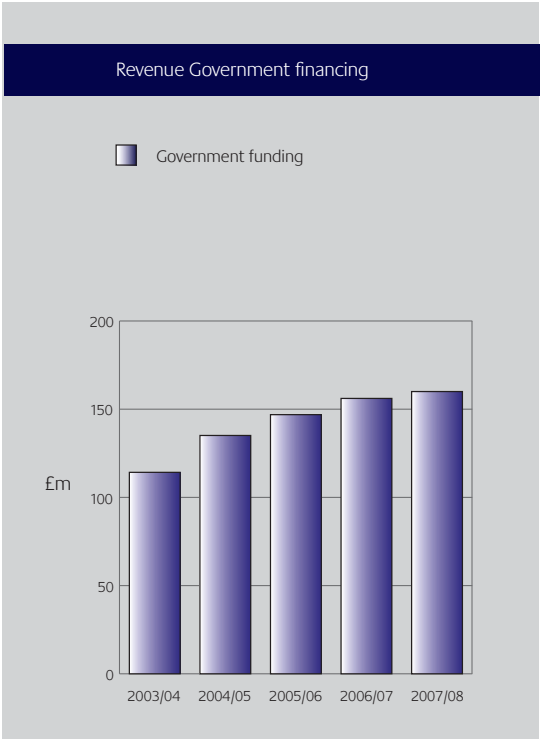
Under the Government Financial Reporting Manual (FReM), from the 2006/07 financial year, Non-Departmental Public Bodies should regard Government grants and grant in aid received for revenue purposes as a financing flow and no longer as income. Therefore, our accounts include an Operating Cost Statement in place of the Income and Expenditure Account.

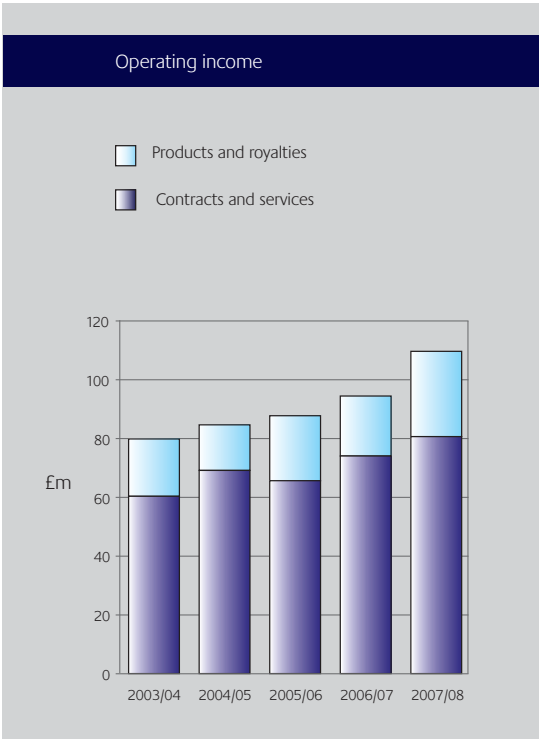
Revenue Government financing

The Agency's total revenue Government grant in aid relating to the net operating costs for the financial year from the Department of Health and Devolved Administrations has increased to £160.2m compared to £156.1m in 2006/07, which represents an overall increase in funding of 2.6 per cent. The revenue grant in aid and its comparison with previous years may be illustrated as follows:

Operating income

The Agency's total operating income has increased by 16.3 per cent from £93.9m in 2006/07 to £109.2m this year. This represents 40.5 per cent of the Agency's total revenue and provides a substantial contribution to our overheads and to the staff and facilities available for core public health purposes. The component parts of the operating income of £109.2m and its comparison with previous years may be illustrated as follows:





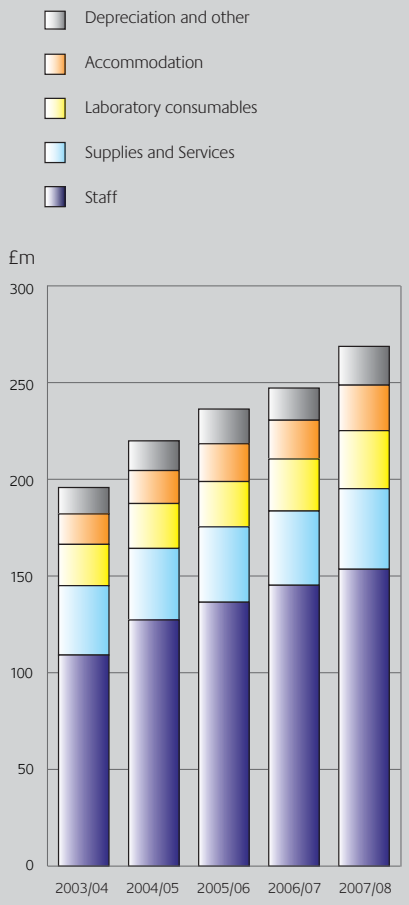
Revenue expenditure

Total gross operating costs for the year have increased from £248.0m in 2006/07 to £269.6m this year. This represents an 8.7 per cent increase, which mostly reflects the increased activity levels and the cost pressures which have been mitigated by our continuing savings programme. The component parts of the total gross operating costs of £269.6m and its comparison with previous years may be illustrated as follows:

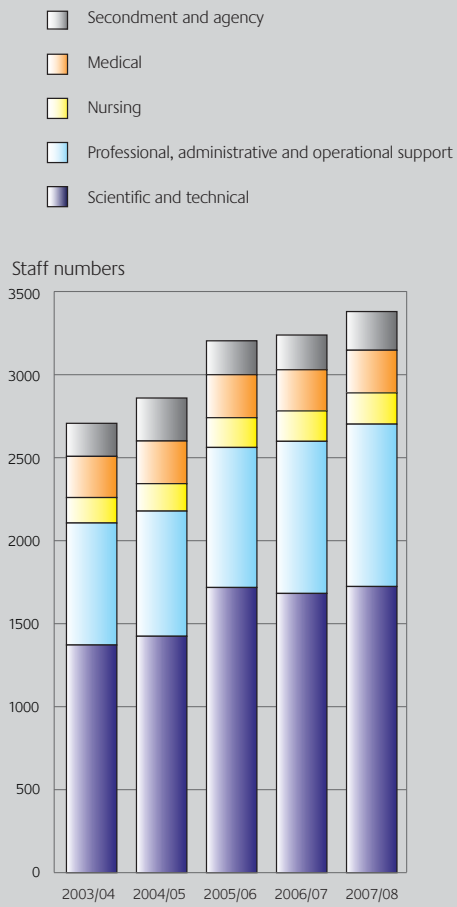
Staff numbers

Total average staff numbers for the year, including secondments and agency staff, have increased from 3,252 staff in 2006/07 to 3,394 staff in 2007/08. This represents a 4.4 per cent increase and reflects the increased levels of activity being covered by the Agency. The component parts of the 3,394 staff and the comparison with previous years may be illustrated as follows:

Revenue expenditure



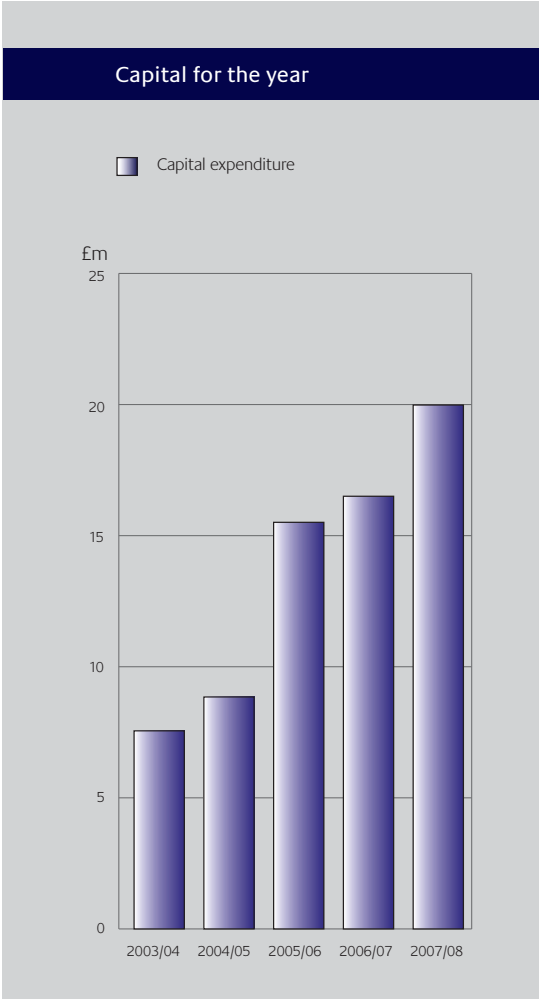
Staff numbers



Capital for the year

The Agency incurred capital expenditure of £20.1m (2007: £16.6m), mostly to upgrade its laboratory facilities, accommodation and infrastructure. The total capital Government grant in aid relating to the capital expenditure for the financial year has increased to £21.0m from £16.7m in 2006/07. In addition the Agency received other capital grants of £2.0m (2007: £1.2m).

Capital expenditure and its comparison with previous years may be illustrated as follows:



Financial plans

The primary financial strategy for the Agency over the next 2008-13 five-year strategic plan period is to maximise the financial resources available to enable the Agency to carry out more of the work required to deliver its function of protecting communities against infectious disease and other dangers to health.

We will do this by:

1. Protecting our base Government funding by demonstrating value for money and ensuring the Government and the public are aware of the importance of the outputs delivered by the Agency.

2. Seeking further Government funding to carry out additional work as priorities change.

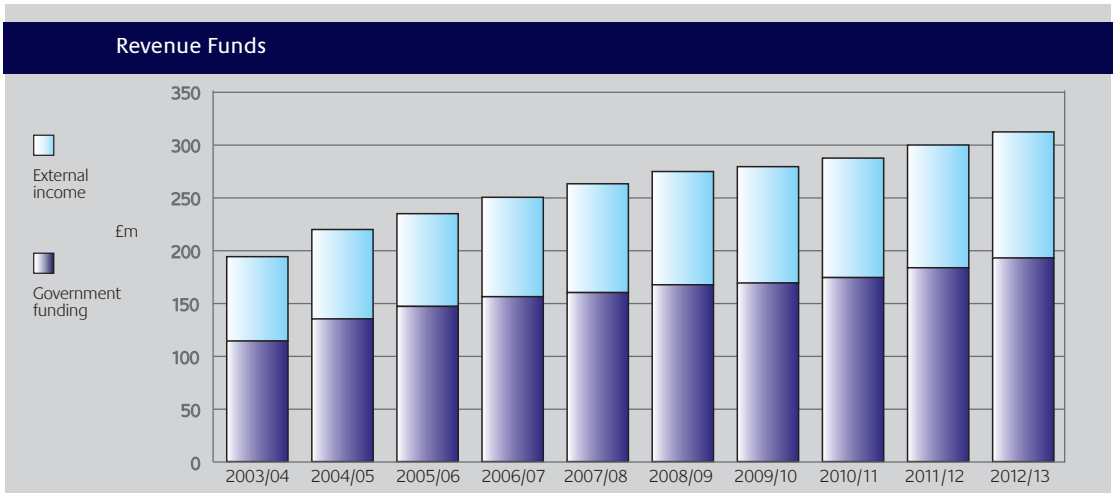
3. Continuing to broaden our funding base outside of Government so that our work can benefit from economies of scale and participating in partnership projects.

4. Creating as much flexibility as possible in the use of our financial resources to enable the transfer of funds to priority areas as these emerge.

5. Constantly reviewing our systems and the way we work to ensure that we maximise the value from every pound we spend.

Over the next five years we plan to increase our available revenue funds to £313m per annum.

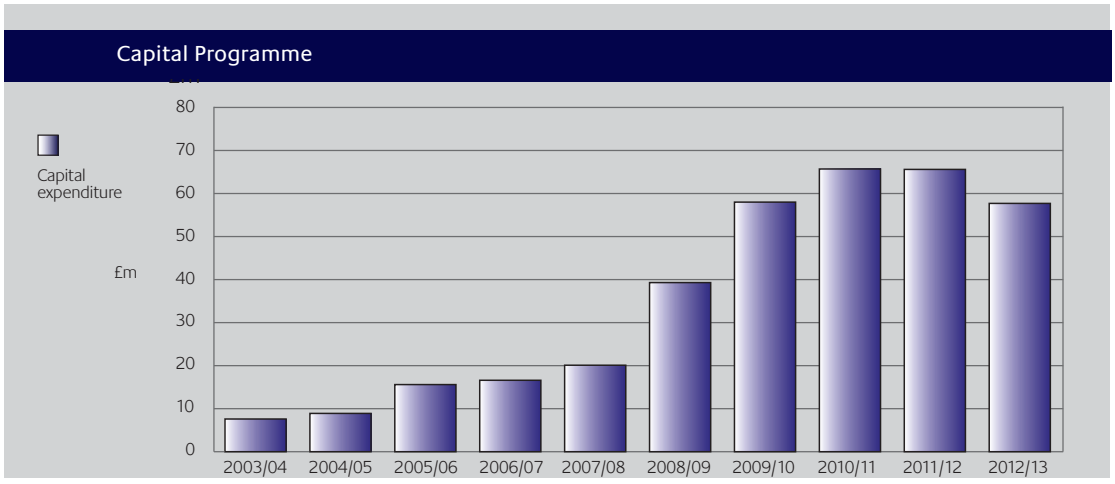
This increase, set against the past five years, can be illustrated as follows:



These revenue plans assume that the base Government funding remains at least the same in real terms and that the non-Government income increases by 5 per cent in 2008/09 from our income in 2007/08 and then keeps up with inflation for the remainder of the strategic plan period. We plan to keep our expenditure in line with the funding and hence delivering balanced budgets on a cumulative basis year on year.

The Agency's inherited property portfolio and equipment required significant upgrading.

Over the past five years we have made significant strides in modernising this important asset. However, we now need to make a step change, especially in redeveloping our specialist laboratory facilities at Porton Down and we are working with the Department of Health on the options for financing a ten-year redevelopment programme. Our preliminary estimates for our capital programme over the five-year strategic plan period, set against the past five years may be illustrated as follows:



We expect that the proposed merger with the National Institute for Biological Standards and Control on 1 April 2009 will add £7.4m of capital funding in 2009/10, £9.3m in 2010/11 and £3.9m in 2011/12 and 2012/13.

Financial position

The Agency has no authority to borrow or to invest without the prior approval of the Department of Health and the Treasury. Financial assets and liabilities are generated by day-to day operational activities and are not held to change the risks facing the Agency in undertaking its activities. The Agency has no borrowings and relies primarily on funding from the Department of Health for its own cash requirements.

Accounting policies

The accounts are prepared under UK generally accepted accounting principles (GAAP) using appropriate accounting policies consistent with those used in the 2006/07 accounts. Further details of the accounting policies are set out in the notes to the financial statements.

Going concern

The Agency has considered the results for the year, the amounts owed by the Agency, its financial position at the end of the year, the continuing support of the Government and the Health Protection Agency Act 2004. Taking all of these factors into consideration, the Agency believes that it is appropriate for the accounts to be prepared on a going concern basis.

Statement of payment practices

It is the Agency's policy to pay suppliers in accordance with the Better Payments Practice Code. For the year ended 31 March 2008, 91 per cent (2007: 93 per cent) of invoices, which amounted to 92 per cent (2007: 94 per cent) of the total value of payments, were paid within 30 days of the invoice being registered. Measures to continue the improvement of the Agency's payment performance are in place and will be facilitated by the ongoing implementation of the new Agency-wide financial system.

Post balance sheet events

The financial statements were authorised to be issued on 24 June 2008 by Mr Justin McCracken, Accounting Officer of the Agency since his appointment as Chief Executive on 7 April 2008. There are no other post balance sheet events that would require reporting under Financial Reporting Standard 21.

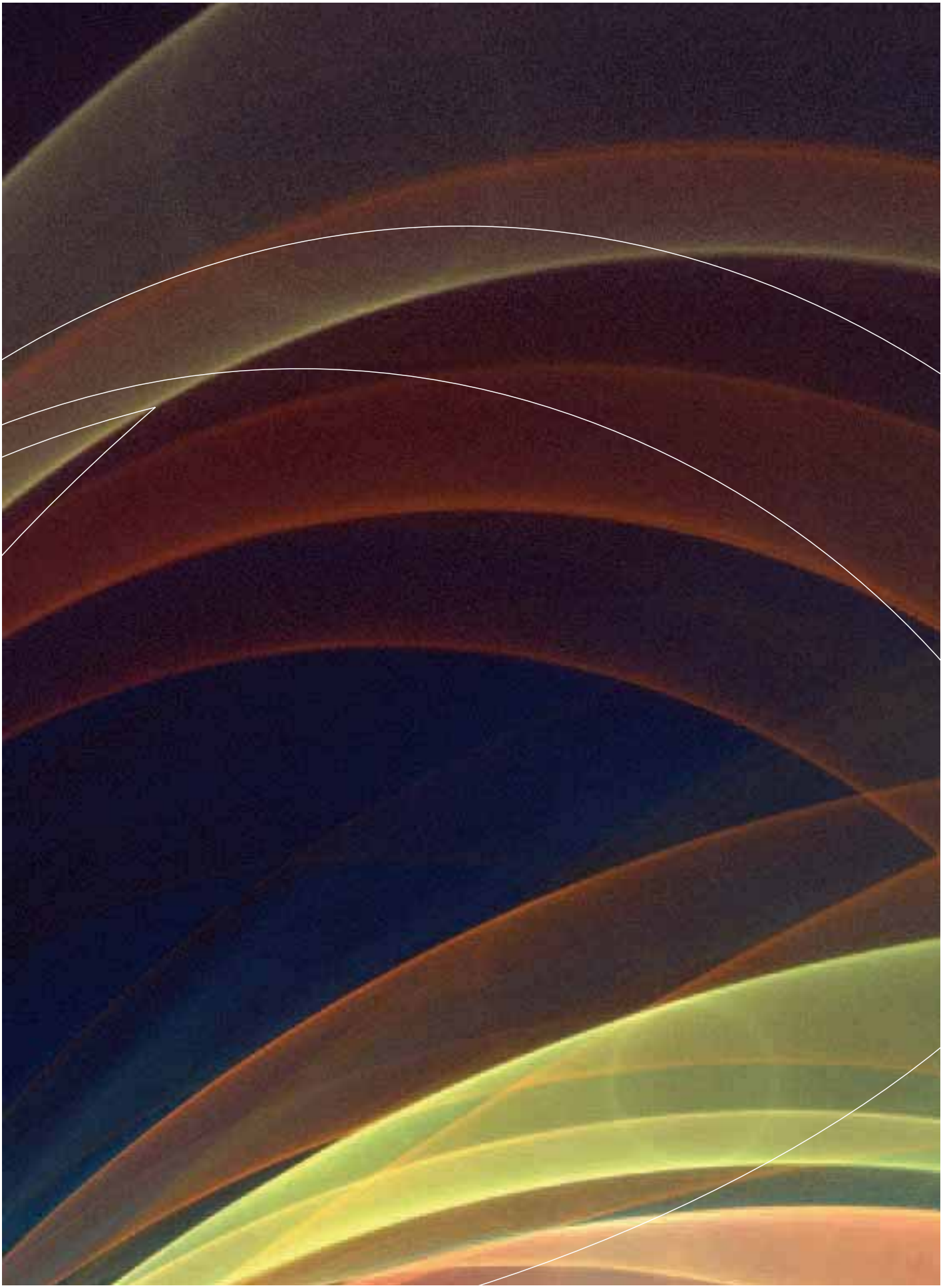
Audit

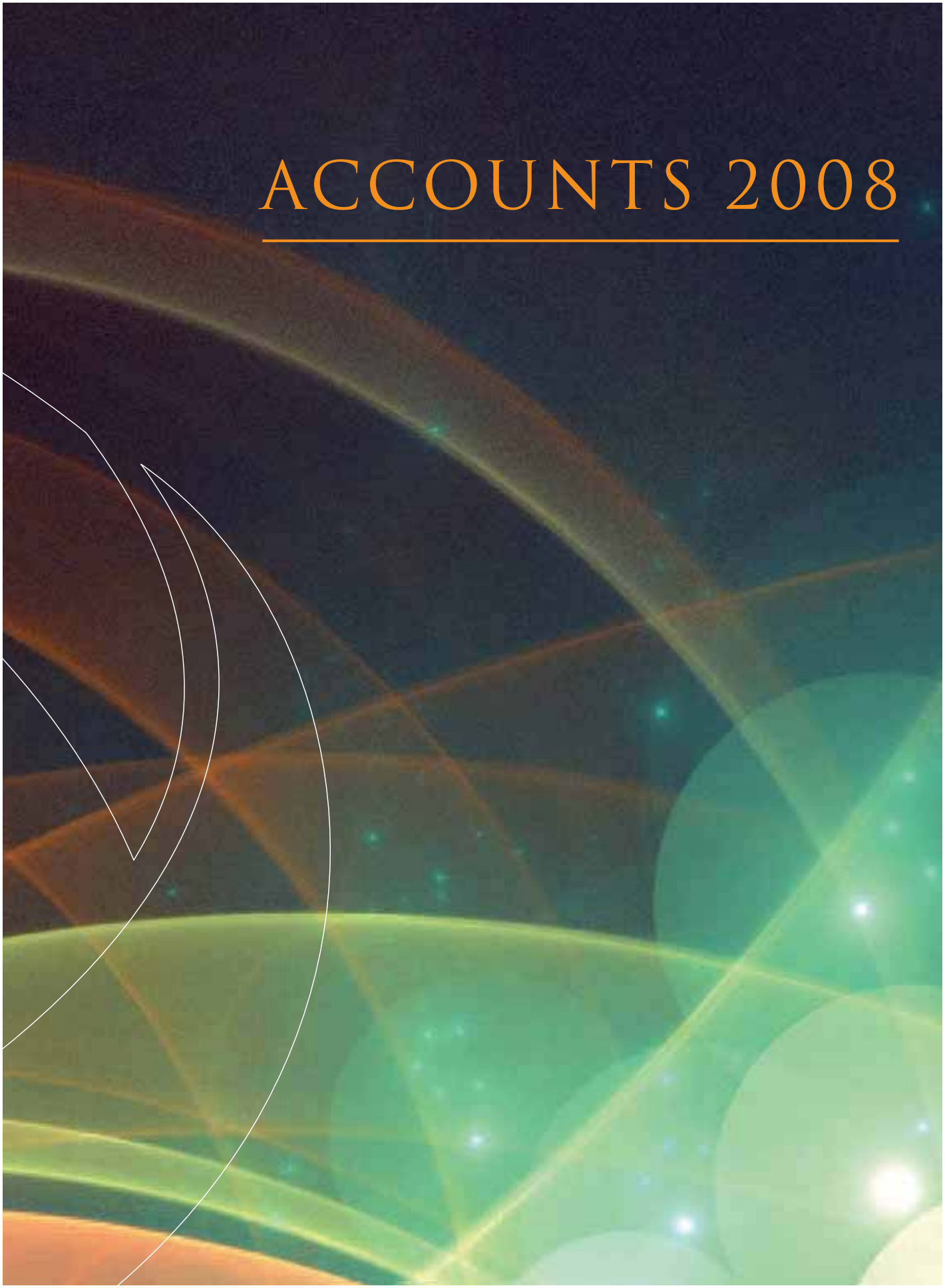
The Agency's auditor is the Comptroller and Auditor General. In line with National Audit Office (NAO) strategy, the detailed audit work was carried out by a third party audit firm KPMG, and overseen by the NAO. Details of the audit fee for the year are disclosed in the notes to the financial statements.

Other than the statutory audit of the financial statements, the Comptroller and Auditor General has not provided any other services to the Agency during the year ended 31 March 2008.

During the audit of these financial statements my staff and I have cooperated fully with KPMG and the Comptroller and Auditor General. I have taken all feasible steps to ensure that I am fully aware of all information pertinent to the audit and to ensure that this information is notified and made available to our auditors. Consequently, as far as I am aware, there is no relevant audit information which has not been available to our auditors.

Mr Justin McCracken
Chief Executive
19 June 2008




ACCOUNTS 2008

Statement of Accounting Officer's responsibilities

Under The Health Protection Agency Act 2004, the Secretary of State (with the consent of HM Treasury) has directed that the Agency prepares, for each financial year, a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of the Agency and of its net operating cost, recognised gains and losses and cash flows for the financial year.

In preparing the accounts, the Accounting Officer is required to comply with the requirements of the *Government Financial Reporting Manual* and in particular to:

- Observe the Accounts Direction issued by the Secretary of State and approved by HM Treasury, including the relevant accounting and disclosure requirements
- Apply suitable accounting policies on a consistent basis
- Make judgements and estimates on a reasonable basis
- State whether applicable accounting standards as set out in the *Government Financial Reporting Manual* have been followed, and disclose and explain any material departures in the financial statements
- Prepare the financial statements on a going concern basis.

The Accounting Officer for the Department of Health has appointed the Chief Executive as the Accounting Officer for the Health Protection Agency. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding the Health Protection Agency's assets, are set out in the *Accounting Officers' Memorandum* issued by the Department of Health.

Statement on internal control

SCOPE OF RESPONSIBILITY

I was appointed as Accounting Officer on 7 April 2008 on the retirement of my predecessor, Professor Pat Troop. As Accounting Officer, I have responsibility for maintaining a sound system of internal control that supports the achievement of the Board's policies, aims and objectives, while safeguarding the public funds and Agency's assets for which I am personally responsible, in accordance with the responsibilities assigned to me in *Managing Public Money*.

The relationship between the Health Protection Agency and its sponsoring department, the Department of Health and the Devolved Administrations, is specified in the Management Statement. The Agency's business plan, objectives and associated risks are discussed at the annual accountability meeting, and at the quarterly review meetings with the Department of Health and the Devolved Administrations.

Accountability within the Agency is exercised through:

- The Board and the Audit Committee. The Agency's Board has established an Audit Committee, under the chairmanship of a non-executive Board member, to support its corporate governance role and me in my responsibility for risk, controls and associated assurance

- An Executive Group comprising all centre and divisional directors and with myself as the Accounting Officer. Executive directors are personally accountable for the management of the risks within their centres and divisions.

THE PURPOSE OF THE SYSTEM OF INTERNAL CONTROL

The system of internal control is designed to manage risk to a reasonable level, rather than to eliminate all risk of failure to achieve policies, aims and objectives; it can therefore only provide reasonable, and not absolute, assurance of effectiveness. The system of internal control is based on an ongoing process designed to identify and prioritise the risks to the achievement of the Board's policies, aims and objectives, to evaluate the likelihood of those risks being realised and the impact should they be realised, and to manage them efficiently, effectively and economically. The system of internal control has been in place in the Agency for the year ended 31 March 2008 and up to the date of approval of the Annual Report and Accounts, and accords with Treasury guidance.

CAPACITY TO HANDLE RISK

The Agency aims to minimise adverse outcomes such as harm, loss or damage to the organisation, its people or property, or those who receive its services, through adequate supervision and training, appropriate delegation, continuous review of processes and the environment, and the sharing of lessons learned and best practice. This is achieved, primarily, through setting standards for professional practice and service delivery. The Integrated

Statement on internal control Continued

Governance Information system is used to manage adverse incidents, with lessons learned being promulgated through the Agency's intranet.

The Agency's risk management policy and procedure set out responsibilities at all levels including senior-level leadership for the risk management process. In addition, risk management is included as part of all centre directors, divisional directors and senior staff performance criteria. Responsibility for risk management is included in job descriptions and person specifications where appropriate, and is part of the staff appraisal process.

Executive directors and management staff have attended risk management workshops to equip them in assessing risks, and to demonstrate methods of promoting risk management. A new programme of risk management training has been developed for all levels of management, and guidance is provided to staff through the Agency's intranet.

THE RISK AND CONTROL FRAMEWORK

A Strategic Risk Register is maintained by the Executive Group and reviewed periodically by the Board. A bottom-up approach is also in place where risks are reported via risk registers, verbally during staff and management meetings, or through written reports. These mechanisms help ensure that the appropriate filtering and delegation of risk management is in place. The risks identified at a centre level are updated quarterly and are fed into the strategic risk register where appropriate. All centre and divisional business plans and major business cases include risk assessments. Development of risk registers for all of the Agency's programmes and projects is being progressed.

Assessment of the adequacy of controls is a vital part of our systematic approach that attempts to limit risk to an acceptable residual level, rather than obviate the risk altogether. Staff are encouraged to balance cost with control to help ensure that value for money is achieved. The risk appetite of a complex organisation is difficult to assess. A broad framework based on a risk matrix is used to help staff assess risks relating to their specific area of work.

The Agency's Adverse Incident Management policy and procedure, which provides a formal mechanism for reporting and learning from incidents across the Agency, has been revised and reissued. A real-time electronic incident management and investigation system has been implemented to improve the timeliness and rate of reporting. The Agency also publishes reports on major events such as the Buncefield oil depot fire and these are used to promulgate lessons learned for both the Agency and its partners. The Agency has a formal complaints procedure for patients and service users, which is published on the Health Protection Agency website.

The Risk Management Group develops the Agency's approach to risk management, and identifies crosscutting operational risks. The Agency's Clinical and Health Protection Governance Group (CHPGG) helps to ensure that robust clinical and health protection governance systems operate throughout the Agency. The CHPGG has developed a clinical and health protection governance strategy for the Agency.

The Agency's Health and Safety Strategy Group (HSSG) has continued to review the Agency's health and safety strategy and arrangements to ensure that they are appropriate for the future requirements of the Agency; and that they continue to meet changing statutory requirements. HSSG has developed and, through the Executive Group, has promulgated health and safety policies and guidance at a national level. HSSG has also ensured that our health and safety reporting processes have been further developed and that the resulting performance data have been reviewed and presented to the Executive Group and the Board on a regular basis.

The flow of information between the Agency and its partners is essential to the provision of our services. To ensure that patient-identifiable data is adequately safeguarded, we have a network of individuals with specific roles and responsibilities, namely Caldicott Guardians and Security of Information officers. The Agency also seeks approval from the Patient Information Advisory Group for permission to continue to handle patient identifiable information, on an annual basis.

An assurance register has been developed and published on the Agency's intranet. Performance against the Department of Health's *Standards for Better Health*, through the Healthcare Commission's *Health Check* process is assessed annually. Executive directors are responsible for producing self-assessments for their centre/division that are reviewed by the HPA Healthcare Standards Group. Based on work carried out by this group, a single declaration for the Agency is agreed by the Executive directors, and signed-off by the Board.

The Agency's work involves a large number of stakeholders, and work is carried out through partnerships and contractual agreements. In September 2007 overarching responsibility for stakeholder engagement and related issues was transferred to the Communications Division. Communications managers have undertaken a series of in-depth stakeholder interviews and established a baseline of attitudes to public health issues and awareness of the Agency, which included the identification of risks for the proposed programme of work. This was part of a larger public involvement programme commissioned by the Board. Also as part of the Agency's programme approach to the delivery of objectives, key risks are being identified and discussed with partners to establish a common understanding and to clarify responsibilities.

The Agency's Emergency Response Liaison Group ensures that the Agency can achieve coordinated and effective emergency response arrangements. Accountability for emergency response lies with centre and divisional directors and through regional directors to local teams. The Agency has been involved in, and has undertaken, a number of exercises to improve our preparedness and there is a rolling programme of exercises. Work with partners and other stakeholders to meet the requirements of the Civil Contingencies Act has been carried out at regional and local levels by emergency planners and resilience groups.

As an employer with staff entitled to membership of various pension schemes (see accounting policies), control measures are in place to ensure that the Agency complies with all of the employer obligations contained within the regulations of each scheme.

Statement on internal control Continued

REVIEW OF EFFECTIVENESS

As Accounting Officer, I have been responsible for reviewing the effectiveness of the system of internal control since my appointment on 7 April 2008. My review of the effectiveness of the system of internal control is informed by the work of the internal auditors and executive managers who have responsibility for the development and maintenance of the internal control framework, and comments made by the external auditors in their management letter and other reports. I have also been informed by discussions with Professor Pat Troop who was the Accounting Officer until her retirement on 6 April 2008. I have been advised on the implications of my review of the effectiveness of the internal control system by the Board and the Audit Committee and a plan to address weaknesses and ensure continuous improvement of the system is in place.

The Agency's Board receives regular reports from the Chairman of the Audit Committee concerning risk, control and governance, and associated assurance. The Audit Committee is fully committed to ensuring that corrective action is taken in a timely manner where necessary.

The Integrated Governance Group (IGG) reviews governance activities within the Agency and identifies the actions necessary for improvement. The appropriateness, effectiveness and progress of the risk management strategy, policy and approach are monitored by the IGG. The IGG reports and makes recommendations to the Audit Committee. Cross-attendance between the IGG, the Audit Committee and the Health and Safety Strategy Group helps to ensure that a consistent approach is taken. An electronic system for gathering and monitoring assurances is under development and in future this will be used to inform the Agency's response to the Department of Health's *Standards for Better Health*.

Internal Audit provides an independent, objective assurance and consulting service designed to add value and improve the Agency's operations. Its work is based on an agreed audit plan, which is carried out in accordance with Government Internal Audit Standards. This helps ensure that the work undertaken by Internal Audit provides a reasonable indication of the controls in operation across the whole of the Agency. Findings from work carried out during the year were presented to my predecessor and the Audit Committee. In addition, the Head of Internal Audit provided my predecessor with copies of all final reports and has provided me with an annual written statement setting out a formal opinion on the adequacy, reliability and effectiveness of the systems and controls in place across the Agency. The level of assurance provided by the Head of Internal Audit recognises the significant progress in consolidating the Agency's systems of control since its inception. However, the Agency is still working to ensure that it has better systems and processes that will improve governance processes, embed risk management practices and ensure adequate controls in respect of its key operational risks to match the effective financial controls already in place.

The Executive Group undertook a review of Business Continuity Management (BCM) arrangements and a BCM group has been established to strengthen work in this area. A great deal of work has been undertaken to improve the resilience of the Agency's information technology infrastructure.

CONTROL ISSUES DURING THE YEAR

Following a number of high profile incidents of data losses in other public sector organisations, the Agency submitted responses to the Department of Health on its arrangements for data security and restated its position that all laptops and removable media devices containing person-identifiable data must be encrypted. I am aware of my responsibilities in respect of personal data and am taking steps to address any identified issues.

In preparation for inspection under the Healthcare Commission's Health Check process, improvement plans are in place to strengthen the Agency's compliance with medicines management, risk management, equality and diversity requirements, records management and workforce planning.

The Health and Safety Executive (HSE) has investigated a health and safety incident which occurred in June 2005 at the Centre for Emergency Preparedness and Response and analysis of the evidence is awaited. No one was harmed in the incident and significant steps have been taken to address all of the lessons learned and to prevent recurrence. It is not yet known whether the HSE will be taking any further action regarding the incident.

Mr Justin McCracken
Chief Executive
19 June 2008

The certificate and report of the Comptroller and Auditor General to the Houses of Parliament

I certify that I have audited the financial statements of the Health Protection Agency for the year ended 31 March 2008 under the Health Protection Agency Act 2004. These comprise the Operating Cost Statement, the Balance Sheet, the Cash Flow Statement, the Statement of Recognised Gains and Losses and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration Report that is described in that report as having being audited.

RESPECTIVE RESPONSIBILITIES OF THE CHIEF EXECUTIVE AND AUDITOR

The Chief Executive, as Accounting Officer, is responsible for preparing the Annual Report, the Remuneration Report and the financial statements in accordance with the Health Protection Agency Act 2004 and directions made thereunder by the Secretary of State for Health, and for ensuring the regularity of financial transactions. These responsibilities are set out in the Statement of Accounting Officer's Responsibilities.

My responsibility is to audit the financial statements and the part of the Remuneration Report to be audited in accordance with relevant legal and regulatory requirements, and with International Standards on Auditing (UK and Ireland).

I report to you my opinion as to whether the financial statements give a true and fair view and whether the financial statements and the part of the Remuneration Report to be audited have been properly prepared in accordance with the Health Protection Agency Act 2004 and the directions made thereunder by the Secretary of State for Health. I report to you whether, in my opinion, the information, which comprises the Management Commentary and Remuneration Report, included in the Annual Report is consistent with the financial statements. I also report whether in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

In addition, I report to you if the Health Protection Agency has not kept proper accounting records, if I have not received all the information and explanations I require for my audit, or if information specified by HM Treasury regarding remuneration and other transactions is not disclosed.

I review whether the Statement on Internal Control reflects the Health Protection Agency's compliance with HM Treasury's guidance, and I report if it does not. I am not required to consider whether this statement covers all risks and controls, or form an opinion on the effectiveness of the Health Protection Agency's corporate governance procedures or its risk and control procedures.

I read the other information contained in the Annual Report and consider whether it is consistent with the audited financial statements. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements. My responsibilities do not extend to any other information.

BASIS OF AUDIT OPINIONS

I conducted my audit in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board. My audit includes examination, on a test basis, of evidence relevant to the amounts, disclosures and regularity of financial transactions included in the financial statements and the part of the Remuneration Report to be audited. It also includes an assessment of the significant estimates and judgments made by the Chief Executive in the preparation of the financial statements, and of whether the accounting policies are most appropriate to the Health Protection Agency's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations which I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements and the part of the Remuneration Report to be audited are free from material misstatement, whether caused by fraud or error, and that in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements and the part of the Remuneration Report to be audited.

AUDIT OPINIONS

In my opinion:

- The financial statements give a true and fair view, in accordance with the Health Protection Agency Act 2004 and directions made thereunder by the Secretary of State for Health, of the state of the Health Protection Agency's affairs as at 31 March 2008 and of its net operating cost for the year then ended

- The financial statements and the part of the Remuneration Report to be audited have been properly prepared in accordance with the Health Protection Agency Act 2004 and directions made thereunder by the Secretary of State for Health

- Information, which comprises the Management Commentary and Remuneration Report, included within the Annual Report, is consistent with the financial statements.

AUDIT OPINION ON REGULARITY

In my opinion, in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

REPORT

I have no observations to make on these financial statements.

TJ Burr
Comptroller and Auditor General
24 June 2008

National Audit Office
151 Buckingham Palace Road
Victoria
London SW1W 9SS

Operating Cost Statement

FOR THE YEAR ENDED 31 MARCH 2008

	Note	2008 £'000	2007 £'000
Gross operating costs			
Staff costs	3	153,983	145,672
Other operating charges	6	100,845	91,543
Amortisation and depreciation	7	14,777	10,747
Notional cost of capital charge		4,650	4,419
Gross operating costs before deduction of notional cost of capital charge		274,255	252,381
Reversal of notional cost of capital charge		(4,650)	(4,419)
Total gross operating costs		269,605	247,962
Operating income	2	(109,188)	(93,887)
Net operating cost before interest		160,417	154,075
Interest receivable		(400)	(228)
Net operating cost for the financial year	17	160,017	153,847

The notes on pages 125 to 145 form part of these accounts. All operations are continuing.
The net operating cost reported above represents the net cost of the public health work funded by Government grant in aid from the Department of Health and the Devolved Administrations.

In addition to the Government grant in aid financing, the Agency generates significant operating income from Government and commercial customers and grant funding bodies. This income enables the Government grant in aid to be kept below the full cost of the Agency's public health work and enables a wider public health function than would otherwise be possible with Government grant in aid financing alone.

Statement of Recognised Gains and Losses

FOR THE YEAR ENDED 31 MARCH 2008

	2008 £'000	2007 £'000
Unrealised surplus on revaluation of tangible fixed assets	6,565	8,554
Gain recognised for the year	6,565	8,554

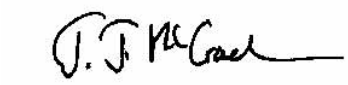
The notes on 125 to 145 form part of these accounts. All operations are continuing.

Balance Sheet

AS AT 31 MARCH 2008

	Note	2008 £'000	2007 £'000
Fixed assets			
Intangible fixed assets	8	594	700
Tangible fixed assets	9	167,177	153,958
Investments	10	3	1
Total fixed assets		167,774	154,659
Current assets			
Stock	11	3,419	4,261
Debtors	12	30,551	35,243
Cash at bank and in hand	13	30,415	22,914
Total current assets		64,385	62,418
Creditors: amounts falling due within one year	14	(56,359)	(58,538)
Net current assets		8,026	3,880
Total assets less current liabilities		175,800	158,539
Provisions	15	(8,559)	(7,413)
Net assets		167,241	151,126
Capital and reserves			
Capital grant reserve	16	3,013	1,154
Revaluation reserve	16	18,179	11,614
General reserve	16	146,049	138,358
Total capital and reserves		167,241	151,126

The notes on pages 125 to 145 form part of these accounts. All operations are continuing.



Mr Justin McCracken
Chief Executive
19 June 2008

Cash Flow Statement

FOR THE YEAR ENDED 31 MARCH 2008

	Note	2008 £'000	2007 £'000
Net cash (outflow) from operating activities	18	(142,131)	(146,644)
Returns on investment and servicing of finance			
Interest received		400	228
Capital expenditure and financial investment			
Payments to acquire intangible fixed assets	8	(151)	(15)
Payments to acquire tangible fixed assets	9	(19,128)	(14,627)
Payments to acquire investments	10	(2)	-
Funds received from the sale of assets to the NHS returned to the Department of Health		-	(331)
Receipts from the sale of tangible fixed assets		-	30
Net cash (outflow) before financing		(161,012)	(161,359)
Financing			
Government revenue grant in aid received	17	145,383	149,313
Government capital grant in aid received	17	21,038	16,696
Other capital grants received	17	1,983	1,211
Receipts from the sale of assets to the NHS on 1 April 2003		109	331
Increase in net cash in the year	13	7,501	6,192

The notes on pages 125 to 145 form part of these accounts. All operations are continuing.

Notes to the Financial Statements

1. ACCOUNTING POLICIES

a) Principal accounting policies

The accounts for the Health Protection Agency have been prepared under the historical cost convention, modified to include the revaluation of fixed assets, and comply with the provisions of the Health Protection Agency Act 2004 (Schedule 1).

Without limiting the information given, the accounts have been prepared in accordance with the Accounts Direction issued by the Secretary of State for Health with the approval of HM Treasury, and are in accordance with:

(i) the Companies Act 1985;

(ii) generally accepted accounting principles in the United Kingdom (UK GAAP); and

(iii) the accounting and disclosure requirements detailed within HM Treasury guidance *Managing Public Money* and *The Government Financial Reporting Manual* insofar as these are appropriate to the Health Protection Agency.

The aforementioned direction and guidance require the following departures from the Companies Act and accounting standards requirements:

(i) the note on historical cost profit and losses required under Financial Reporting Standard 3 *Reporting Financial Performance* has not been disclosed; and

(ii) the historical cost information regarding assets included at valuation as required by paragraph 33(3) of Schedule 4 to the Companies Act 1985 has not been disclosed.

b) Operating income

Operating income comprises amounts receivable, excluding Value Added Tax, for goods and services supplied. Income on long term contracts is recognised as the work progresses, in accordance with the contractual arrangements and the stage completion of the work.

c) Government grant in aid

Under the *Government Financial Reporting Manual,* non-departmental public bodies should regard Government grants and grants in aid received for revenue purposes as a financing flow. This is based on the position that grant and grant in aid are, in effect, a contribution from a controlling party and tend to be given to finance the activities of the non-departmental public body rather than to acquire specific goods and services and, therefore do not meet the generally accepted accounting principle (GAAP) definition of income.

Both revenue and capital Government grant in aid received via the Department of Health and the Devolved Administrations is credited to the general reserve as received.

d) Intangible fixed assets

Intangible fixed assets comprise software licences purchased from third parties with a life of more than one year. Individual licences with a life of less than one year, or a value below £5,000, are not capitalised. Such software costs are charged to operating costs as they are incurred.

Where capitalised, software licences are valued at cost, net of amortisation and impairment, or depreciated replacement cost where materially different. The cost or valuation of software licences, less their estimated residual values, is amortised on a straight-line basis over the life of the licence or the life of the related asset where there is no licence expiry date.

e) Tangible fixed assets

Freehold land is valued on an existing use basis. Freehold buildings with a specialised use are valued at depreciated replacement cost and non-specialised buildings are valued at their open market value for their existing use. Independent valuations will be carried out every five years in accordance with guidance issued by the Royal Institute of Chartered Surveyors.

The freehold land and buildings were valued on 31 March 2005 by the Valuation Office Agency. In the years where no valuation occurs, land and buildings are revalued using the appropriate indices provided by the Department of Health.

Leasehold land and buildings with a contract of less than 50 years as at balance sheet date are sub-categorised as short-term leases. All other leasehold assets are sub-categorised as long-term leasehold assets. The useful economic life of all leasehold assets is based upon the lower of the length of the relevant lease, or the life as advised by the Valuations Office Agency.

Individual items with a cost below £5,000 are not capitalised. Tangible fixed assets of the same or similar type acquired around the same time and scheduled for disposal about the same time, or assets which are purchased at the same time and are used, and subsequently disposed of together, are grouped and treated as if they were individual assets.

Other tangible fixed assets are valued at depreciated replacement cost on an existing use basis. The depreciated replacement cost is calculated by applying, annually, the appropriate indices provided by the Department of Health.

Expenditure on tangible fixed assets is recorded at historic cost under assets under construction until the point at which the assets are brought into use. They are then reclassified as fixed assets, under the appropriate asset category, depreciated from the date on which they were brought into use and revalued as at the 31 March in line with the policy set out above.

The difference between the net book revaluation of tangible fixed assets at 31 March and the net book value at historic cost is credited (in the case of a surplus) or debited (in the case of a deficit) to the revaluation reserve.

Capital grants receivable for the purchase of specific capital assets are credited to a capital grants reserve and released to operating income to match the depreciation charged over the life of the capital assets concerned.

Impairment losses resulting from short-term changes in price that are considered to be recoverable in the longer term are taken in full to the revaluation reserve. These include impairments resulting from the revaluation of fixed assets. This may lead to a negative revaluation reserve in certain instances. There are no impairment losses recorded within the 2007/08 annual accounts.

f) Investments

Unlisted investments are valued on a historic cost basis, as a readily ascertainable market value cannot be obtained.

g) Depreciation

Depreciation is provided on all tangible fixed assets from the month of purchase, but not in the month of disposal, at rates calculated to write off the cost of valuation of each asset evenly over its expected useful life as follows:

Asset category	Expected useful life
Freehold buildings	Up to 50 years as advised by the Valuation Office Agency
Leasehold land and buildings	Over the life of the lease
Fixtures and fittings	Up to 20 years as advised by the Valuation Office Agency
Plant and equipment	5 to 20 years
Vehicles	7 years
Information technology equipment	3 to 5 years

Freehold land, investments and assets under construction are not depreciated.

h) Stock

Stocks are valued at the lower of cost, or net current replacement cost if materially different, and net realisable value. For stock held for resale, net realisable value is based on estimated selling price less further costs expected to be incurred to completion. Work in progress is valued at cost, less the cost of work invoiced on incomplete contracts and less foreseeable losses. Cost means direct cost plus production overheads. Where necessary, provision is made for obsolete, slow moving and defective stocks.

i) Research and development

Research and development expenditure is charged to operating costs as incurred.

j) Income and Corporation Tax

The Agency, as a body corporate, is subject to the provisions of the Income and Corporation Tax Act 1988. As the majority of operations are funded by Government grant in aid, no provision is required in these accounts for any Corporation Tax liability.

k) Value Added Tax

The Health Protection Agency is registered for Value Added Tax (VAT). VAT is charged on invoices for business contracts relating to products, services and research activities. The Agency recovers part of its input VAT proportionate to its business activities in relation to total income. Expenditure is shown net of recoverable VAT. Non-recoverable VAT is charged to the most appropriate expenditure or capitalised if it relates to a fixed asset.

l) Operating leases

Operating lease costs are charged to operating costs on a straight line basis over the lease term.

m) Foreign currencies

Transactions denominated in foreign currencies are translated into sterling at the exchange rate prevailing on the date the transaction takes place or at the contracted rate if the transaction is covered by a forward exchange contract. Balances denominated in foreign currencies are translated into sterling at the exchange rate prevailing at the end of the year. Exchange gains and losses are dealt with in accordance with Statement of Standard Accounting Practice 20.

n) Pensions

The Agency provides pension schemes for the benefit of the majority of its employees, and participates in three defined benefit schemes:

1. The National Health Service Pension Scheme (NHSPS).
2. The United Kingdom Atomic Energy Agency (UKAEA) Combined Pension Scheme (CPS).
3. The Principal Civil Service Pension Scheme (PCSPS).

Although each is an unfunded scheme, they each receive contributions, partly from participating employees and partly from the Agency. Details of each scheme are included in the notes to the financial statements (note 5). Each scheme is multi-employer, and the scheme administrators prepare separate accounts which are subject to audit and regular actuarial review. Because of this, HM Treasury's *Financial Reporting Manual 2007/08* (paragraph 6.5.2) requires the pension schemes to be treated as defined contribution schemes within these financial statements. The amount charged to operating costs is the employer's contributions payable for the year.

In certain circumstances, employees taking early retirement are entitled to an enhanced lump sum and ongoing pension. The Health Protection Agency is responsible for meeting the additional cost of the lump sum, the full cost of the pension until normal retirement age and the enhanced element of the pension thereafter. Payment is made in full for all early retirees from the NHS pension scheme in the year of retirement; for all other pension schemes, provision is made for the estimated future cost of early retirements at the time when the employee retires. Further details are provided within note 15.

o) Provisions for liabilities and charges

The Agency maintains balance sheet provisions, as allowed by Financial Reporting Standard 12, for a number of significant future liabilities arising from past events where the timing and amount of the liability is uncertain. These provisions are reviewed annually as at the balance sheet date and are adjusted to reflect the latest best estimate of the liability. These adjustments are reflected in the Operating Cost Statement for the year. Details of the provision are contained in note 15.

p) Notional Costs

Operating costs include a notional charge for the cost of the Government funded capital employed during the year. The charge is calculated at 3.5 per cent of the average net assets for the year, excluding cash balances held with the Office of the Paymaster General and fixed assets funded by grants other than Government grant in aid. There are no other notional costs.

2. OPERATING INCOME

	2008 £'000	2007 £'000
Products and royalties	29,002	20,379
Contracts and services	79,873	73,149
Other operating income	313	359
Total operating income	109,188	93,887

No segmental reporting disclosures have been made as all the Agency's activities are inter-related and contiguous and have the single objective to further the health protection functions stated in the Health Protection Agency Act 2004.

3. STAFF COSTS

	2008 £'000	2007 £'000
Salaries and wages	115,827	110,986
Social security costs	10,679	10,223
Other pension costs (note 5)	15,502	14,644
Total costs of staff employed	142,008	135,853
Agency and seconded staff	10,757	9,205
Redundancy and early retirement costs	384	211
Transfer to provision for future costs of early retirement (note 15)	647	656
Total costs of employed and other staff	153,796	145,925
Manufacturing staff costs transferred from/(to) finished goods	187	(253)
Total staff costs	153,983	145,672

4. EMPLOYEE NUMBERS

The average number of full-time equivalent staff employed during the year was as follows:

	2008	2007
Medical	258	249
Nursing	189	184
Professional, administrative and operational support	982	920
Scientific and technical	1,731	1,689
Total employee numbers	3,160	3,042

The above figures relate to staff with a United Kingdom employment contract, and include those staff on maternity, sick, special or paternity leave and those on career breaks, but only where they are being paid by the Agency.

In addition, during the year ended 31 March 2008, the Agency engaged staff on various agency, secondment and similar arrangements for variable time periods. Due to the nature of these engagements it is not possible to quantify the precise number of full-time equivalent persons engaged. It is estimated that the average number of persons engaged on these arrangements amounted to approximately 234 (2007: 210) whole time equivalents.

5. PENSION SCHEME

a) Pension scheme participation

The majority of the Agency's employees are covered by two pension schemes; the National Health Service Pension Scheme (NHSPS) and the United Kingdom Atomic Energy Agency (UKAEA) Combined Pension Scheme (CPS). A few employees have retained their individual membership of the Principal Civil Service Pension Scheme (PCSPS), or have exercised other options available as a result of The Social Security Act 1986. The pension schemes available to Health Protection Agency employees are defined benefit schemes, all of which prepare separate scheme statements, which are readily available to the public. Details of the major pension schemes are provided below.

b) The NHS Pension Scheme

The NHS Pension Scheme (NHSPS) is an unfunded multi-employer defined benefit scheme, the provisions of which are contained in the NHS Pension Scheme Regulations (SI 1995 No. 300). The Scheme is notionally funded, payment liabilities are underwritten by the Exchequer. The Agency is unable to identify its share of the underlying assets and liabilities. Scheme accounts are prepared annually by the NHS Business Services Authority and are examined by the Comptroller and Auditor General. The Government Actuary's Department (GAD) values the NHSPS every four years, and those quadrennial reports are published. The Scheme has a money purchase Additional Voluntary Contribution (AVC) arrangement, which is available to employees to enhance their pension benefits.

Between valuations the GAD provides an update of the scheme liabilities on an annual basis. The latest

assessment of the liabilities of the Scheme is contained in the *Report of the Actuary*, which forms part of the *NHS Pension Scheme & Compensation for Premature Retirement Scheme Resource Accounts*, published annually. These accounts can be viewed on the NHS Pensions website at www.nhspa.gov.uk. Copies can also be obtained from The Stationery Office.

Under NHSPS regulations, the Agency and participating employees are required to pay contributions, as specified by the Secretary of State for Health. These contributions are used to defray the costs of providing the NHSPS benefits. For the year ended 31 March 2008, non-manual employees were required to pay contributions of 6 per cent (2007: 6 per cent) of pensionable pay. Manual workers were required to pay contributions of 5 per cent (2007: 5 per cent). The employer's contribution amounted to 14 per cent (2007: 14 per cent) of pensionable pay in all cases. Employer contributions are charged to operating costs as they become due.

The *Government Financial Reporting Manual 2007/08* requires the scheme to be accounted for as defined contribution in nature.

c) The UKAEA Combined Pension Scheme

The UKAEA Combined Pension Scheme (CPS) was set up as a statutory body with effect from 1 July 1997 as a result of merging the previous UKAEA Principal Non-Industrial Superannuation Scheme (PNISS) and the UKAEA Industrial Superannuation Scheme (ISS). The scheme is managed by the UKAEA. It is a multi-employer scheme which provides defined benefits to its members. The Agency is unable to identify its share of the underlying assets and liabilities.

In common with other public sector schemes the UKAEA CPS does not have many of the attributes of normal pension schemes. All contributions are paid to and benefits paid by HM Government via the Consolidated Fund. Any surplus of contributions made in excess of benefits paid out in any year is surrendered to the Consolidated Fund and any liabilities are met from the Consolidated Fund via the annual Parliamentary vote. Government does not maintain a separate fund and the scheme valuations are based on a theoretical calculation as to how a typical UK pension scheme would have invested the historical surplus of contributions over payments. There is no actual fund.

The *Government Financial Reporting Manual 2007/08* requires the scheme to be accounted for as defined contribution in nature.

d) Employer contributions

The Agency has accounted for its employer contributions to these schemes as if they were defined benefit schemes. The Agency's employer contributions were as follows:

	2008 £'000	2007 £'000
The National Health Service Pension Scheme (NHSPS)	13,852	12,920
The UKAEA Combined Pension Scheme (CPS)	1,466	1,542
Other pension schemes	184	182
Total contributions by the Health Protection Agency	15,502	14,644

There were no outstanding or prepaid contributions as at the balance sheet date.

6. OTHER OPERATING CHARGES

	2008 £'000	2007 £'000
Laboratory consumables and services	30,092	27,046
Supplies and services	41,825	38,471
Accommodation	23,609	20,139
Travel and subsistence	5,357	4,767
Foreign exchange losses	121	208
Auditor's remuneration	130	130
Bad and doubtful debt provision	(352)	689
Losses on disposal of tangible fixed assets	63	93
Total other operating charges	100,845	91,543

7. AMORTISATION AND DEPRECIATION

The charge to operating costs for amortisation and depreciation for the year is as follows:	2008 £'000	2007 £'000
Charge in respect of assets funded by capital grant in aid from the Department of Health:		
Intangible fixed assets (note 8)	257	245
Tangible fixed assets (note 9)	14,396	10,445
	14,653	10,690
Charge in respect of other tangible fixed assets (note 9)	124	57
Total charge to operating costs	14,777	10,747

8. INTANGIBLE FIXED ASSETS

	Software Licences £'000
Cost or valuation	
At 1 April 2007	1,370
Additions	151
Disposals	-
At 31 March 2008	**1,521**
Amortisation	
At 1 April 2007	670
Charge for Year	257
Disposals	-
At 31 March 2008	**927**
Net book value	
At 31 March 2008	594
At 31 March 2007	700

9. TANGIBLE FIXED ASSETS

	Land and buildings £'000	Fixtures and fittings £'000	Plant and equip-ment £'000	Information Technology equipment £'000	Vehicles £'000	Assets under construction £'000	Total £'000
Cost							
At 1 April 2007	129,931	4,917	25,173	9,232	169	14,912	184,334
Reclassification of assets	1,564	(1,564)	-	-	-	-	-
Increase of assets under construction	-	-	-	-	-	2,865	2,865
Additions	2,113	5,547	5,184	4,228	13	-	17,085
Revaluations	10,705	63	739	21	7	-	11,535
Revaluation adjustment	(1589)	-	-	-	-	-	(1589)
Disposals	-	-	(501)	(342)	(4)	-	(847)
At 31 March 2008	**142,724**	**8,963**	**30,595**	**13,139**	**185**	**17,777**	**213,383**
Depreciation							
At 1 April 2007	15,924	378	10,049	3,934	91	-	30,376
Charge for year	7,334	1,015	3,845	2,297	29	-	14,520
Revaluations	1,635	11	438	20	5	-	2,109
Revaluation adjustment	(15)	-	-	-	-	-	(15)
Disposals	-	-	(438)	(342)	(4)	-	(784)
At 31 March 2008	**24,878**	**1,404**	**13,894**	**5,909**	**121**	**-**	**46,206**
Net Book Value							
At 31 March 2008	**117,846**	**7,559**	**16,701**	**7,230**	**64**	**17,777**	**167,177**
At 31 March 2007	114,007	4,539	15,124	5,298	78	14,912	153,958

Land and buildings

Freehold land and buildings have a net book value of £116,780,000 (2007: £113,760,000). Long leasehold land and buildings have a net book value of £918,000 (2007: £696,000 including reclassification addition of £449,000). Short leasehold land and buildings have a net book value of £1,722,000 (2007: £1,115,000 – reclassification addition).

Third party owned assets

In addition to the above assets, the Agency held tangible fixed assets, at no cost to the Agency, with a total cost of £3,968,000 (2007: £2,130,000) which were funded by and remain in the ownership of third parties. These assets, required to meet customer contracts, consisted of modular buildings £2,393,000 (2007: £1,350,000) and plant and equipment £1,575,000 (2007: £780,000).

Revaluation adjustment

The revaluation adjustment referred to above corrects an inconsistency that has been identified during the year on the latest valuation of buildings carried out as at 1 April 2005 which resulted in some sites being overvalued by £1,333,000. The correction includes an amount in respect of indexing adjustments carried out since the date of the valuation.

10 INVESTMENTS

Investments comprise of the unlisted securities of Syntaxin Limited (Syntaxin) and Proacta Incorporated (Proacta).

As a result of the Syntaxin Series B funding round, which was completed in October 2007, the Agency now holds a 9.3 per cent interest in Syntaxin (2007: 20.81 per cent). The holding was acquired for a cash consideration of £2,565.00 (2007: £1,232.50), and is made up of 100 (2007: Nil) preference shares of £1 each and 2,465,000 (2007: 1,232,500) ordinary shares of 0.1p each.

The Agency also holds 25,052 shares of the US$ 0.001 common stock of Proacta, for which there was no cash consideration.

The Agency has no significant influence over the operating and financial policies of Syntaxin or Proacta, as defined by Financial Reporting Standard 9, so is required to treat the holdings as a simple investment. There is no easily ascertainable market value for either investment, so the Board continues to disclose both on a historic cost basis.

11. STOCK

	2008 £'000	2007 £'000
Raw materials	290	194
Finished goods	2,071	3,219
Laboratory consumables and other stores	1,058	848
Total stock	3,419	4,261

The replacement cost of raw materials, laboratory consumables and other stores is not materially different from the balance sheet value.

12. DEBTORS

	2008 £'000	2007 £'000
Amounts falling due within one year		
Trade debtors	11,621	11,001
Accrued income	11,158	11,757
Prepayments	2,116	3,235
Other debtors	5,163	8,986
	30,058	34,979
Amounts falling due after more than one year		
Other debtors	493	264
Total debtors	30,551	35,243

The debtor amounts falling due after more than one year relate to lump sums paid to premature retirees from the UKAEA Combined Pension Scheme. These amounts will be repaid by the Scheme administrators to the Agency on the retirees' normal retirement age, or death, whichever is the earliest.

Intra-Government balances

Intra-Government balances within the totals for debtors are as follows:

	2008 £'000	2007 £'000
Balances with the Department of Health	857	1,380
Balances with NHS trusts	7,312	8,127
Balances with other Central Government bodies	1,828	3,832
Balances with local authorities	586	1,957
Total intra-Government balances	10,583	15,296

13. ANALYSIS OF CHANGES IN NET FUNDS

	31 March 2008 £'000	31 March 2007 £'000	Change in year £'000
Cash at bank and in hand	30,415	22,914	7,501
Overdraft (note 14)	(2,121)	(10,684)	8,563
Net funds	28,294	12,230	16,064

Net funds can be analysed as follows:

	2008 £'000	2007 £'000
Paymaster General Account	28,833	19,663
Commercial bank accounts	(539)	(7,433)
Net funds	28,294	12,230

The overdraft is a technical book overdraft relating to the value of unpresented payments as at the balance sheet date. No actual bank overdraft existed at any time during the year.

14. CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2008 £'000	2007 £'000
Trade creditors	12,011	9,496
Overdraft	2,121	10,684
Deferred income	12,641	18,330
PAYE and social security	3,583	2
Accruals	20,025	16,286
Other creditors	5,978	3,740
Total creditors: amounts falling due within one year	56,359	58,538

There were no creditor amounts falling due after more than one year at 31 March 2008.

The overdraft is a technical book overdraft relating to the value of unpresented payments as at the balance sheet date. The cash to meet these payments was held in the Agency's account with the Office of the Paymaster General. No actual bank overdraft existed at any time during the year.

Intra-Government balances

Intra-Government balances within the totals for creditors are as follows:

	2008 £'000	2007 £'000
Balances with the Department of Health	6,110	1,419
Balances with NHS trusts	5,835	8,903
Balances with other central Government bodies	7,811	1,150
Balances with local authorities	219	236
Total intra-Government balances	19,975	11,708

15. PROVISION FOR LIABILITIES AND CHARGES

	Legal claims £'000	Future costs of early retirement £'000	Agenda for Change £'000	Other provisions £'000	Total provision £'000
Provision at 1 April 2007	1,648	1,681	4,084	-	7,413
Other expenditure during the year	(230)	(194)	(2,822)	-	(3,246)
Additional provisions	1,224	647	1,664	857	4,392
Provision at 31 March 2008	2,642	2,134	2,926	857	8,559

The provision for legal claims comprises several items, the most significant of which relates to a clinical negligence claim the Agency inherited from the Public Health Laboratory Service. Although significant progress has been made during the year to arrive at a settlement, medical assessments continue, and the case remains unresolved.

The provision for the future costs of early retirement consists of the element of the cost in respect of employees that took early retirement before 31 March 2008 which, in accordance with the terms of the Agency's pension schemes (note 5) fall to the Agency. The balance of £2,134,000 (2007: £1,681,000) relates entirely to members of the UKAEA CPS.

The Agenda for Change provision relates to the estimated increase in the non-medical staff costs from 1 October 2004 (1 April 2005 for former staff of the National Radiological Protection Board), the implementation date for the new pay structure for the NHS and related bodies. Actual increases in pay will be based on formal job evaluations which are expected to be completed during the financial year ending 31 March 2009.

Other provisions comprise:
A provision of £594,000 (2007: Nil) for the estimated costs of making good dilapidations on various properties leased by the Agency, when these properties are returned to the lessors on the termination of the leases. The sum represents the expected costs of making good dilapidations amortised over the terms of the various leases to date.

A provision of £263,000 (2007: Nil) for the estimated costs of the Agency's liabilities for the disposal of radioactive sources falling within the scope of the High Activity Sealed Radioactive Sources and Orphan Sources Regulations 2005. The sum represents the expected costs of disposal amortised over the lives of the various sources to date.

16. CAPITAL AND RESERVES

	General reserve £'000	Revaluation reserve £'000	Capital grant reserve £'000	Total £'000
Balance at 1 April 2007	138,358	11,614	1,154	151,126
Net operating cost for the year	(160,017)	-	-	(160,017)
Revenue grant in aid credited for year (note 17)	145,383	-	-	145,383
Capital grant in aid credited for year (note 17)	21,038	-	-	21,038
Capital grants received for specific projects	-	-	1,983	1,983
Release of capital grant to offset depreciation	-	-	(124)	(124)
Realisation of revaluation reserve (difference between historic cost depreciation and current cost depreciation)	1,287	(1,287)	-	-
Revaluation of tangible fixed assets (note 9)	-	9,426	-	9,426
Revaluation adjustment (note 9)	-	(1574)	-	(1574)
Balance at 31 March 2008	**146,049**	**18,179**	**3,013**	**167,241**

Included within the general reserve are negative balances of £7,013,000 inherited from the Agency's predecessor bodies, the National Radiological Protection Board and the Public Health Laboratory Service.

17. GOVERNMENT FINANCING

The following grant in aid has been received during the year:

	2008 £'000	2007 £'000
Department of Health	163,787	163,593
Scottish Government	722	704
National Assembly for Wales	420	400
Consultants' Clinical Excellence Award	1,492	1,312
Total Government grant in aid received	166,421	166,009
Less Government grant in aid in respect of general capital expenditure	(21,038)	(16,696)
Total revenue Government grant in aid received	145,383	149,313

The Agency has UK-wide responsibilities. In addition to the formal grant in aid reported above, the Agency received income from the Northern Ireland Executive of £714,800 (2007: £712,000) to fund specific work which is included within operating income (note 2). The Agency also received other income from UK Government departments for contract and grant work, which is also included within note 2.

Result for the year

The net operating cost for the financial year shown in the Operating Cost Statement and the related total revenue Government grant in aid for the financial year may be compared as follows:

	2008 £'000	2007 £'000
Total revenue Government grant in aid received	145,383	149,313
Revenue Government grant in aid received in current year but relating to future years commitments	-	(3,868)
Revenue Government grant in aid received in past years	3,868	-
Revenue Government grant in aid received in past years relating to future years commitments	(3,668)	-
Depreciation on assets funded by capital grant in aid from the Department of Health (note 7)	14,653	10,690
Total revenue Government grant in aid relating to net operating cost for the financial year	160,236	156,135
Less net operating cost for the financial year	(160,017)	(153,847)
Government grant in aid less net operating cost for the year	219	2,288

Capital for the year

The capital expenditure for the financial year may be compared with the capital financing for the financial year as follows:	2008 £'000	2007 £'000
Total capital Government grant in aid relating to the capital expenditure for the financial year	21,038	16,696
Capital grants received for specific projects	1,983	1,211
Total capital financing for the financial year	23,021	17,907
Less capital expenditure for the financial year	(20,101)	(16,602)
Capital financing less capital expenditure for the year	2,920	1,305

18. RECONCILIATION OF NET OPERATING COST TO NET CASH OUTFLOW FROM OPERATING ACTIVITIES

	2008 £'000	2007 £'000
Net operating cost for the financial year	(160,017)	(153,847)
Interest received	(400)	(228)
Net operating cost before interest	(160,417)	(154,075)
Adjustments		
Amortisation of intangible fixed assets (note 8)	257	245
Depreciation of tangible fixed assets (note 9)	14,520	10,502
Loss on disposal of fixed assets	63	93
Release of capital grant from capital grant reserve (note 16)	(124)	(57)
Net transfer to/(from) provisions (note 15)	1,146	(7,967)
Decrease in stock	842	61
Decrease in debtors and accrued income	4,583	169
(Decrease)/increase in creditors*	(3,001)	4,385
Net cash (outflow) from operating activities	(142,131)	(146,644)

* The decrease in creditors of £3,001,000 (2007: increase of £4,385,000) excludes the estimated increase in capital creditors of £822,000 (2007: £1,960,000). This movement in creditors is included in the payments to acquire tangible fixed assets shown on the cashflow statement.

19. RELATED PARTY DISCLOSURES

The Agency is sponsored by the Department of Health, which is regarded as a related party. During the year the Agency has had various material transactions with the Department of Health itself and with other entities for which the Department of Health is regarded as the parent entity. These include many NHS and Primary Care Trusts, the Medicines and Healthcare products Regulatory Agency, the NHS Litigation Authority, NHS Business Services Authority and many others.

The Department of Health's 2004 review of its Arms Length Bodies proposed transferring the management of the National Institute of Biological Standards and Control to the Health Protection Agency, thus allowing for the abolition of the National Biological Standards Board. Subject to the passage of legislation, this is expected to be implemented by 1 April 2009.

In addition, the Health Protection Agency had transactions with other Government departments and Central Government Bodies. These included the Ministry of Defence, the Food Standards Agency, the Department for Environment, Food and Rural Affairs, the Department for International Development and the Medical Research Council.

During the year no Board members, members of the senior management or other related parties have undertaken any material transactions with the Health Protection Agency except for:

- Professor Pat Troop, Chief Executive and executive Board member, is also a Board member of the London School of Hygiene and Tropical Medicine from which the Agency purchased £468,000 (2007: £396,000) and provided £47,000 (2007: £78,000) of goods and services during the year to 31 March 2008.

  Professor Troop is also an Honorary Professor of City University, London. During the year to 31 March 2008, the Agency paid £171,000 (2007: £31,000) for goods and services from City University, London.

- Professor Stephen Palmer is an employee of the Cardiff University, and acted as a member of the Executive Group for the whole of the year ended 31 March 2008. The amount due to the Cardiff University for the supply of goods and services throughout the year totalled £325,000 (2007: £285,000).

- Dr Barbara Bannister is an employee of the Royal Free Hospital, and attends Board meetings as an advisory member. During the year to 31 March 2008, the Agency paid a total of £81,000 (2007: £23,000) to the Royal Free Hospital, of which £10,000 related to the salary costs of Dr Bannister recharged to the Agency.

- Dr Vanessa Mayatt is a director of Mayatt Risk Consulting Limited, as well as non-executive member of the Agency's Board. During the year to 31 March 2008, the Agency paid £5,000 (2007: £10,000) to Mayatt Risk Consulting Limited for additional services provided by Dr Mayatt to the Agency.

- The Agency has a minor shareholding in Syntaxin Limited (see note 10). During the year ended 31 March 2008, Syntaxin Limited was charged £1,075,000 (2007: £2,209,000) for goods and services received from the Agency.

- Professor Andrew Hall holds research grants from The Wellcome Trust, and is a non-executive member of the Agency's Board. During the year to 31 March 2008, the Agency provided £348,000 (2007: £213,000) of goods and services to The Wellcome Trust.

- Dr John Stephenson is a member of the Agency's Executive Group, and holds an honorary academic position at the London School of Hygiene and Tropical Medicine, from which the Agency purchased £468,000 (2007: £396,000) and provided £47,000 (2007: £78,000) of goods and services during the year to 31 March 2008.

20. CAPITAL COMMITMENTS

The contracted capital commitments at 31 March 2008 not provided for in the accounts amounted to £11,810,000 (2007: £2,137,000). There were no other financial commitments at 31 March 2008 (2007: None) that require disclosure.

21. COMMITMENTS UNDER OPERATING LEASES

Commitments under operating leases to pay rentals during the year following the year of these accounts are given in the table below, analysed according to the period in which the lease expires.

Obligations under operating leases comprise:	2008 £'000	2007 £'000
Land and buildings:		
- Expiring within one year	3,591	3,761
- Expiring between two and five years	604	584
- Expiring after five years	121	240
Other leases:		
- Expiring within one year	1,480	1,495
- Expiring between two and five years	409	282
- Expiring after five years	-	-
Total obligations under operating leases at 31 March	6,205	6,362

22. FINANCIAL INSTRUMENTS

Financial Reporting Standard 13, Derivatives and Other Financial Instruments, requires disclosure of the role which financial instruments have had during the year in creating or changing the risks an entity faces in undertaking its activities.

Due to the largely non-trading nature of its activities, and the way in which it is financed, the Health Protection Agency is not exposed to the degree of financial risk faced by other business entities. Moreover, financial instruments play a much more limited role in creating or changing risk than would be typical of the listed companies to which Financial Reporting Standard 13 mainly applies. The Health Protection Agency has no authority to borrow or to invest without the prior approval of the Department of Health and the Treasury. Generally, financial assets and liabilities are generated by day-to-day operational activities and are not held to change the risks facing the Health Protection Agency in undertaking its activities.

a) Liquidity risk

The Health Protection Agency has no borrowings and relies primarily on funding from the Department of Health for its own cash requirements, and is therefore not exposed to liquidity risks. It also has no material deposits, and all material assets and liabilities are denominated in sterling.

b) Interest rate risk

The Health Protection Agency is not exposed to significant interest rate risk.

c) Foreign currency risk

The Health Protection Agency received Euro income of £3,103,000 (2007: £3,983,000) and US Dollar income of £9,926,000 (2007: £6,067,000), upon which there was some currency risk. The only other currency risk is that of a Euro currency bank balance, valued at £144,000 on 31 March 2008 (2007: £106,000), and a US Dollar bank balance valued at £81,000 (2007: £81,000). The Agency operates Euro and US Dollar bank accounts to handle transactions denominated in those currencies. This helps to manage potential exposure to exchange rate fluctuations. The fair value of cash is the same as the book value.

For all other assets and liabilities book value represents fair value.

As allowed by Financial Reporting Standard 13, debtors and creditors that are due to mature or become payable within 12 months from the balance sheet date have not been disclosed as financial instruments.

23. CONTINGENT LIABILITIES

As at 31 March 2008, there were a small number of outstanding legal claims made against the Health Protection Agency by patients and others. Standard accounting practice requires that provision only be made in the accounts if it is probable that a claim will be successful, and that a reliable estimate of the claim can be made. The Health Protection Agency's provision for legal claims is disclosed at Note 15.

The possibility of reimbursement of certain elements of the legal claims mentioned above is remote. In such circumstances, accounting practice requires the Agency to disclose a contingent liability within the financial accounts. The NHS Litigation Authority recommended that the Agency discloses a contingent liability of £13,540 as at 31 March 2008 (2007: £22,860) in respect of legal damages, claimants' costs and the Health Protection Agency's costs.

The Statement of Internal Control on page 115 refers to an investigation by the Health and Safety Executive into an incident which occurred in June 2005. The extent of any costs arising from this incident, other than costs already incurred in preventing a recurrence, are not yet known.

There were no other contingent liabilities as at 31 March 2008.

24. LOSSES AND SPECIAL PAYMENTS

Losses and special payments that require disclosure during the year ended 31 March 2008 totalled £336,295 (2007: None). Of this total, £215,000 related to a legal claim inherited from one of the Agency's predecessor bodies, which occurred before the inauguration of the NHS Litigation Authority scheme.

25. EXCEPTIONAL ITEMS

There are no exceptional items for the year ending 31 March 2008 (2007: None).

26. POST BALANCE SHEET EVENTS

The financial statements were authorised to be issued on 24 June 2008 by Mr Justin McCracken, Accounting Officer of the Health Protection Agency since his appointment as Chief Executive on 7 April 2008.

There are no other post balance sheet events that would require reporting under Financial Reporting Standard 21.

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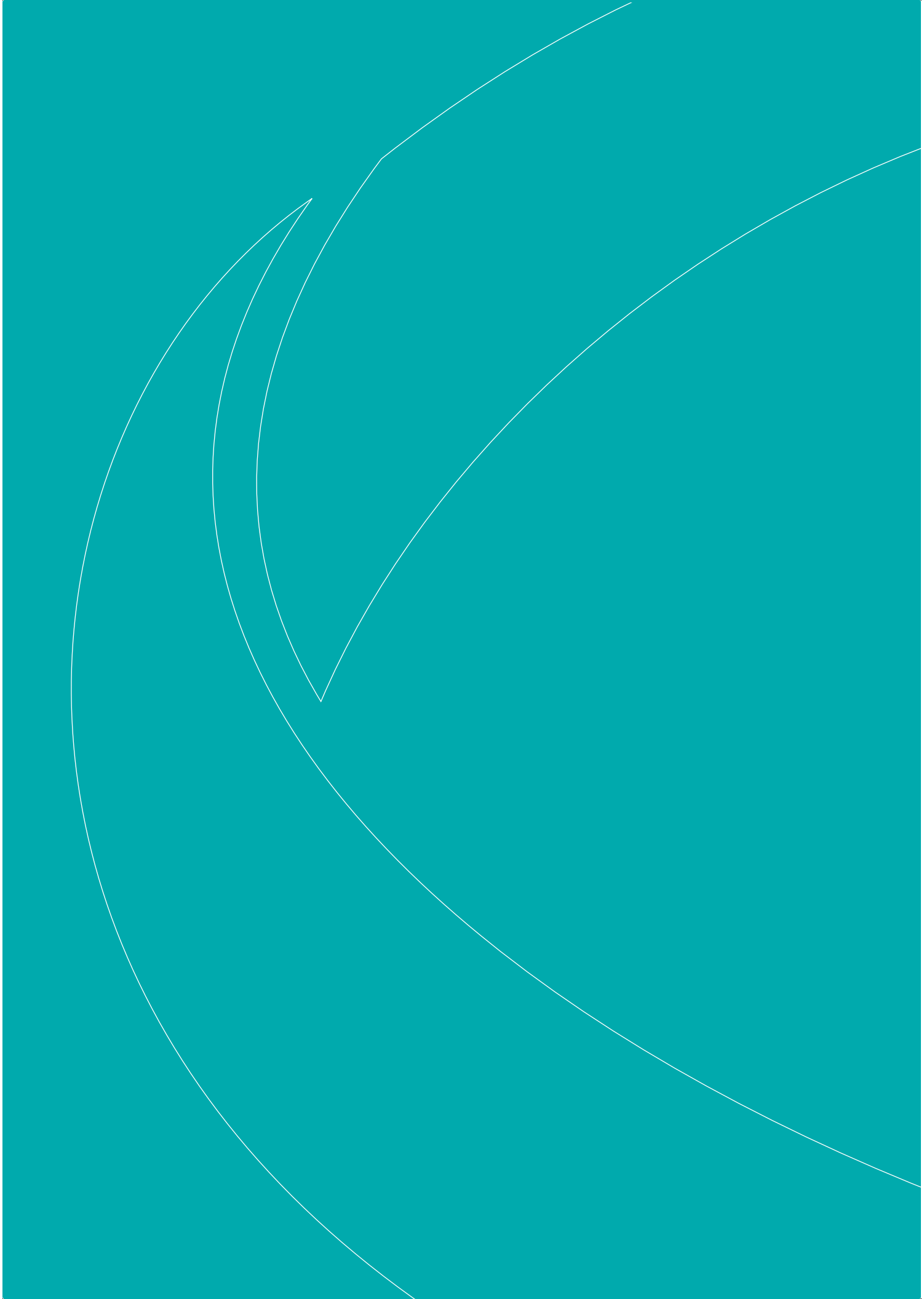

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Published by TSO (The Stationery Office) and available from:

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www.tsoshop.co.uk

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ISBN 978-0-10-295578-1
9 780102 955781