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The first national strategy against infectious disease

Broadening the Agenda to Health Protection

The Chief Medical Officer for England (Professor Sir Liam Donaldson) has published the first ever national strategy for combating infectious disease: *Getting ahead of the curve – a strategy for combating infectious disease* <www.doh.gov.uk/cmo/idstrategy/index.htm>. The strategy is radical in that it combines infection control within the wider remit of health protection (1,2). A wide-ranging 140 page report presents a comprehensive view of infection in the United Kingdom and internationally, highlighting both new threats and success stories. It then goes on to analyse how protection against infections is currently provided, but also identifies potential weaknesses in the existing defences. The document lists the broad functions that are necessary to provide a response to infections that threaten human health (table 1). Some actions to be undertaken in support of the strategy are noted (table 2), as well as some of the major threats to public health that the strategy would have to cope with (table 3) (2).

The main plank of the Strategy is a new national agency – the National Infection Control and Health Protection Agency – subsuming the functions of the PHLS, the Centre for Applied Microbiology and Research (CAMR), the National Radiological Protection Board (NRPB) and the National Focus for Chemical Incidents (NFICI) and other agencies dealing with chemical incidents. The proposed functions of the Agency are listed in table 4. Its structure would include: communicable disease surveillance and vaccines; field services (consultants in communicable disease control, (CCDCs); radiological protection; chemical hazards protection; specialist and reference laboratory services, including those provided by PHLS and CAMR; and emergency response. The Agency's field officers will be in teams led by specialists in infection control and health protection. The report envisages that these staff will be drawn mainly from existing regional epidemiologists, CCDCs, and their teams.

In addition to the Agency there will be a National Advisory Panel to identify and assess the threat from new and emerging infections. Surveillance will be strengthened with the integration of infectious disease and other aspects of health protection (1). Key to the strengthening of surveillance will be a duty of care on all microbiology laboratories to report communicable diseases, greater involvement of clinicians, and some direct public reporting of infectious diseases. CDSC will continue to provide a single point for co-ordination, analysis, and reporting of all the different systems of infectious disease surveillance.

It is proposed that there will be a review of legislation focusing on reporting arrangements for infectious diseases, and information requirements for health protection and data protection, removing outdated legislation and clarifying the roles of health bodies and local authorities.

Major infectious disease programmes envisaged under the strategy would be to control: tuberculosis, healthcare associated infections, antimicrobial resistance, blood-borne and sexually transmitted viruses.

New action plans for each of these are to be in place by the end of 2002. These are not intended to be restrictive and work will continue on other important infections.

There will be some rationalisation and standardisation of microbiology laboratory services, with laboratories classified into those providing routine clinical diagnostic microbiology work, and those providing public health, specialist, or reference functions. In the future, most of the former will be under the management of the NHS (or commissioned by the NHS) with the latter being managed by the Agency. There will still be a network of public health laboratories managed by the new Agency but the number will be less than that currently managed by the PHLS. The precise size of this network, which will cover all regions, will be reviewed by the new Agency in conjunction with the regional directors of public health, whose role will be to commission the public health component of microbiology services in each region. The report recognises the importance of not decoupling major diagnostic laboratories from the public health laboratory function. There will also be a new post, an Inspector of Microbiology, akin to the Department of Health's Inspector of Anatomy.

There will be programme of new vaccine development. Key elements are extending vaccine use, (for example flu and pneumococcal vaccines), increased research and investment on vaccines against priority infections (in particular meningococcal group B, respiratory syncytial virus, and rotavirus gastroenteritis), and identifying how best to use the new varicella and pneumococcal conjugate vaccines. A strengthened, integrated approach to childhood infection will be addressed in the *National Service Framework for Children*.

The work undertaken before and since 11 September to produce clear and comprehensive contingency plans to reduce the impact of any deliberate release of chemical radiological or biological agents will be continued. There will be enhanced surveillance and training, development of rapid diagnostic techniques, identification of newly emergent pathogens, provision of adequate specialist diagnostic support, increased research, risk assessment, and innovative countermeasures.

The document acknowledges the importance of improving the information available to the public, and there is a general commitment for the new Agency and the Department of Health (DH) to provide more information to the public on infectious disease. There will be enhanced programmes of professional education and training in infectious disease prevention, control and treatment with a review of existing education programmes.

Finally, the document proposes a research and development (R&D) programme the NHS Director of Research and Development.

1. Regan M. Health protection in the next millennium: from tactics to strategy? *J Epidemiol Community Health* 1999; **53**: 517-8

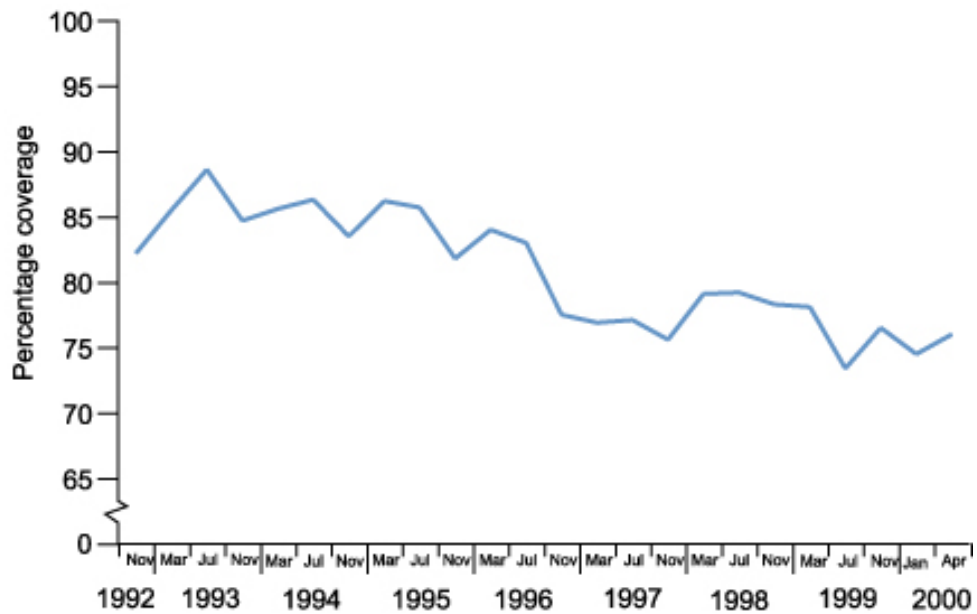
2. Nicoll A, D Wilson D, N Calvert N, P Borriello P. Managing major public health crises. *BMJ* 2001; **323**: 1321-2. <<http://bmj.com/cgi/content/full/323/7325/1321>>

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Coverage of MMR vaccine at 16 months of age shows slight improvement

The latest sentinel surveillance data for vaccination coverage of measles, mumps, and rubella (MMR) at 16 months in England (children born in April 2000) shows an increase of 1.5% to 76.0% compared with the previous evaluation published in September 2001 (figure) (1). Enhanced surveillance of MMR coverage in Wales and Northern Ireland has revealed similar trends (2). The decrease in early MMR coverage observed in the previous evaluation was partially due to the dual scheduling of routine MMR vaccination and catch-up MenC vaccination, resulting in some children only receiving one of the two vaccines they were scheduled for in a timely manner. With the completion of the MenC programme there has been a slight recovery in early MMR coverage. These data can be used to predict trends in routine MMR coverage and therefore there should be a small increase in the latter half of this year in United Kingdom MMR coverage data at 24 months.

Table MMR vaccine coverage in England for children aged 16 months



1. PHLS. Coverage of MMR shows slight drop as predicted. *Commun Dis Rep CDR Wkly* [serial online] 2001 [cited 10 January 2002]; **11** (39): news. Available from <www.phls.co.uk/publications/CDR%20Weekly/archive/news/news3901.html#MMRnews3901>.

2. CDSC Northern Ireland. Enhanced MMR vaccination uptake surveillance. *Northern Ireland Communicable Diseases Monthly Report* 2001; **10** (8): 1-2,6.

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Meningitis C vaccine to be offered to 20 to 24 year olds

The Joint Committee on Vaccination and Immunisation (JCVI) having reviewed the epidemiology of Group C infection in those aged over 20 years has recommended that immunisation should be made available for people aged from 20 to 24 years (born after 7 January 1977) (1). The vaccine has already been offered to people who are under 20 years of age (2). This decision was made following the successful reduction in disease in young people who had been offered the Meningitis C vaccine. Data from the PHLS Meningococcal Reference Unit showed that the overall risk of meningococcal infection in those aged from 20 to 24 years is over twice as high as the background rate in the rest of the over 20 year old population (1).

The Group C conjugate meningococcal vaccine was introduced in November 1999. The vaccine was implemented in phases in step with the availability and supply of new vaccine. The groups being immunised were selected according to the risk of disease, vaccine supply, and scheduling with other routine vaccines (on the national immunisation programme). In 15 to 17 year olds, meningococcal C vaccination coverage was lower in those not attending schools, sixth form colleges, or further education (3). This probably reflects the difficulty of access to populations outside educational settings. Vaccination for those under 25 years will be conducted in general practice and provides another opportunity to vaccinate those who missed out on the campaign.

In the first groups to be immunised, confirmed group C meningococcal disease has been reduced by 90% in those aged from 15 to 17 years and by 82% in infants under the age of one year (4). Despite this, it will be important to remain alert to the signs and symptoms of meningococcal disease in young adults, as not all eligible individuals will be immunised with the meningococcal C vaccine and the vaccine does not protect against group B meningococcal disease, or other less common strains of meningococcal infection.

1. Chief Medical Officer. *Extending meningitis C vaccine to 20-24 year olds; pneumococcal vaccine for at risk under 2 year olds*. CMO letters PL/CMO/2002/1. London: Department of Health, 2002. Available at <<http://www.doh.gov.uk/cmo/cmo0201.htm>>

2. Health Promotion England. *Aged 24 or under? Get the meningitis C message*. London: Health Promotion England, 2001. Available at <<http://www.immunisation.org.uk>>

3. Miller E, Salisbury D, Ramsay M. Planning, registration, and implementation of an immunisation campaign against meningococcal serogroup C disease in the UK: a success story. *Vaccine* 2002; **20**: S58-67.

4. Chief Medical Officer. *Current vaccine and immunisation issues. CMO letter PL/CMO/2001/1*. London: Department of Health, 2001. Available at <<http://www.doh.gov.uk/cmo/cmo0101.htm>>

Appendix: tables from *The first national strategy against infectious disease*

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Table 1 Essential functions for providing an effective response to infectious diseases that threaten human health

- Comprehensive preventive action including active public education and involvement, suitable professional education and training, immunisation programmes, technological measures, good hygiene practice;
- Early recognition, notification to the public health authorities and accurate clinical and laboratory diagnosis of infection;
- Treatment and care for people with infection and for any long term consequences of their infection;
- A strong system of surveillance supported by fully accredited diagnostic and reference microbiology services;
- Clear public health control measures tailored to each major infectious disease problem;
- Rapid expert response to investigate and control epidemics, incidents and outbreaks;
- Effective links with other national and international bodies;
- Good communication with the public;
- Ongoing research and development programmes to improve all aspects of infectious disease control.

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Table 2 The strategy for combating infectious diseases – proposed actions

- Higher levels of recognition and detection of infection;
- More accurate diagnosis of infection and a standardised approach to laboratory profiling of microorganisms;
- Giving every microbiology laboratory a public health, as well as a clinical diagnostic role and rationalising the management arrangements for such laboratories;
- Achieving higher levels of reporting of infectious diseases, closing serious gaps in the surveillance system and improving the comprehensiveness and quality of surveillance generally;
- Intensifying control measures to reduce illness and death from certain key infectious disease problems - tuberculosis, health care associated infection, antimicrobial resistant organisms, blood-borne and sexually transmitted infections;
- Eradicating more infectious diseases by developing safer, more effective vaccines;
- Being prepared to anticipate, respond swiftly to and consistently to outbreaks and epidemics;
- Being better prepared to recognise and take action to control new infectious disease threats: previously unrecognised infections, re-emergent problems and particularly bioterrorism;
- Promoting innovation in the prevention and control of infectious diseases and harnessing new technologies and knowledge to bring about improvements;
- Creating a unified system of health protection from national to local level adding other aspects to infectious disease control.

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Table 3 A health protection service equipped for the future: some acid test

A modernised service would be expected to protect our population against a wide range of eventualities. For example:

- A major community outbreak of gastrointestinal disease
- An urgent need to reduce incidence of a specific infection e.g. tuberculosis, genital chlamydia, meningococcal disease
- An outbreak of an unknown illness - could be biological, or the result of chemical or radiological exposure
- A large fire in a plastics factory
- The appearance of a previously unrecognised pathogen in the national blood supply
- Uncontrolled serious infection contracted in hospitals
- Chemical, biological or radiological contamination of a water supply
- A lost radiation source
- A local or national vaccine safety scare
- A hepatitis virus-infected health care worker who has practiced in many areas
- A serious imported infection, affecting a number of hospitals
- The emergence of a new sexually transmitted infection or the re-emergence of a previously recognised sexually transmitted infection
- The next influenza pandemic
- A suspected deliberate or accidental release of a biological or chemical agent or radioactivity
- A major animal epidemic with implications for human health

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Table 4 Proposal A – The National Infection Control and Health Protection Agency

Main functions:

- To provide information, expertise and advice on infectious diseases, chemical and radiation hazards;
- To co-ordinate all systems of surveillance relevant to the prevention and control of infectious diseases in England;
- To develop and maintain a system of surveillance to protect the public health against the risks from chemical and radiation hazards;
- To identify gaps in surveillance and develop information systems to close them;
- To set standards and guidelines for the notification and reporting of infection by health professionals and by laboratories;
- To recommend changes to the statutory list of notifiable diseases and institute modern criteria for case definitions;
- To work with the Commission for Health Improvement where there are serious deficiencies in standards of infection control in hospitals, primary care or other health service premises;
- To work with the NHS and local authorities to provide a health protection and infectious disease control service;
- With the NHS and local authorities to investigate and manage outbreaks of infectious diseases, and chemical and radiation incidents in liaison with the appropriate authorities;
- To respond to new or emerging threats, including terrorism;
- To advise on national and local policy in relation to the prevention and control of infectious diseases and the protection of the public health from chemical and radiation hazards;
- To commission microbiology laboratories to provide specialist public health or reference functions;
- To review the current arrangements for provision of advice on chemical toxicology issues relating to clinical poisoning and chemical incidents to provide a robust, efficient system which meets the needs of both central government and the NHS.
- To provide agreed technical services.

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General outbreaks of foodborne illness, England and Wales: laboratory reports, weeks 49-52/01* and 01/02

Health authority	Organism	Place of outbreak	Month of outbreak	No. ill	Cases positive	Suspect vehicle	Evidence
Liverpool	S. Brandenburg	Reception	December	11	11	None	–
Oxford	S. Enteritidis PT24	College	November	3	3	None	–
Leeds	S. Typhimurium DT104	Not stated	December	3	3	None	–
Brighton	S. Typhimurium U311	Lunch	December	3	3	None	–

* Preliminary data. Final information will be published in the quarterly report.

M (microbiological): identification of an organism of the same type from cases and in the suspect vehicle, or vehicle ingredient(s), or detection of toxin in faeces or food; S (statistical): a significant statistical association between consumption of the suspect vehicle(s) and being a case; D (descriptive): other evidence, usually descriptive, reported by local investigators as indicating the suspect vehicle.

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Salmonella infections (faecal specimens), England and Wales: reports to the PHLS (salmonella data set*)

Details of serotypes of the 1425 salmonella infections recorded in November 2001 are given in the table below. In December 2001, 685 salmonella infections were recorded and preliminary information was received about four outbreaks.

* figures quoted from the PHLS salmonella data set are for isolates confirmed and typed by PHLS Laboratory of Enteric Pathogens (LEP)

	November 2001
Salmonella (provisional total)	1425
S. Enteritidis (PT4)	448
S. Enteritidis (other PTs)	563
S. Typhimurium	161
S. Virchow	22
Other (typed)	231

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Common gastrointestinal infections, England and Wales: laboratory reports, weeks 50-52/01 and 01/02

Laboratory reports	Number of reports received				Total reports 50-52/01	Annual totals	
	50/01	51/01	52/01	01/02		2001	2000
Campylobacter	1174	983	94	561	2251	56420	55887
Escherichia coli O157*	9	8	9	2	26	693	885
Shigella sonnei	10	24	2	7	36	897	750
Rotavirus	126	64	13	100	203	16345	16528
SRSV	29	36	1	29	66	1604	1983
Cryptosporidium	109	84	9	45	202	3681	5799
Giardia	87	101	4	53	192	3579	4015

* Vero cytotoxin producing isolates (data from LEP)

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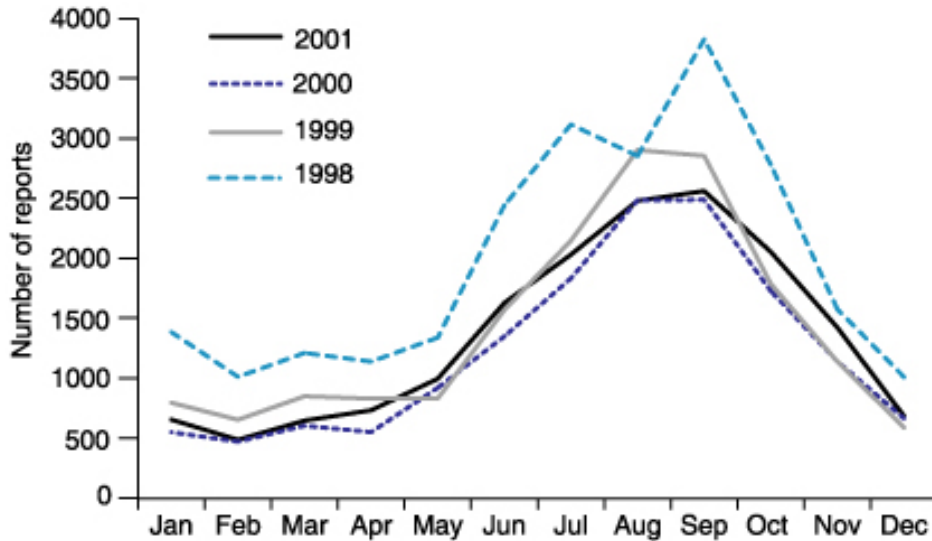
Other gastrointestinal infections, England and Wales: laboratory reports, weeks 40-52/01

Laboratory reports	Total reports	Cumulative reports	
	40-52/01	2001	2000
Adenovirus*	55	256	313
Astrovirus	5	116	234
Calicivirus	8	28	57
<i>Shigella boydii</i>	10	52	56
<i>Shigella dysenteriae</i>	4	31	26
<i>Shigella flexneri</i>	72	225	196
Aeromonas	72	204	271
Plesiomonas	6	25	32
Vibrio	10	51	65
Yersinia	4	26	25
<i>Entamoeba histolytica</i>	43	220	257
<i>Blastocystis hominis</i>	108	344	396
<i>Dientamoeba fragilis</i>	62	199	195
<i>Taenia</i> spp	42	97	42
<i>Trichostrongylus</i>	1	2	1
<i>Trichuris trichiura</i>	28	83	61

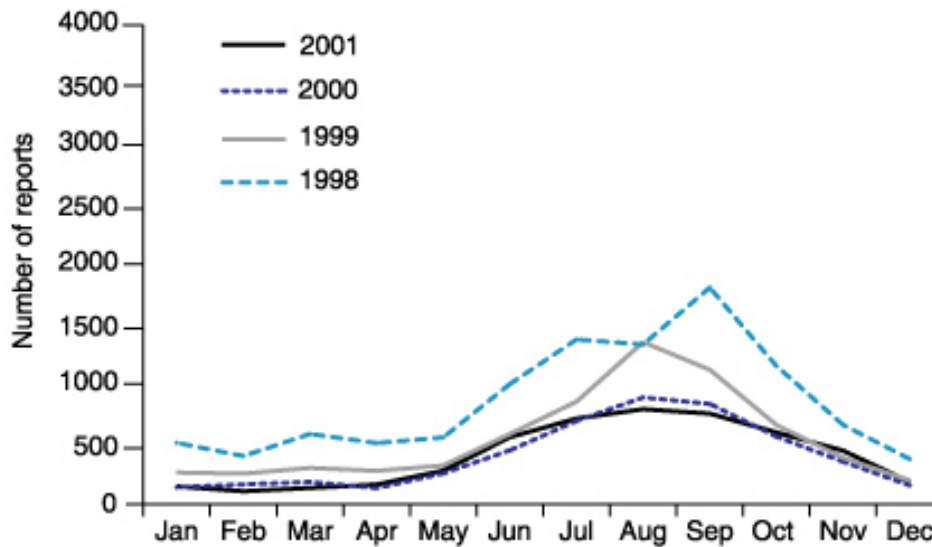
*Includes adenovirus EM faeces and adenovirus group F

Salmonella infections in humans: monthly totals for 1998 to 2001

a) All salmonellas



b) *S. Enteritidis* phage type 4



Just over 16,400 salmonellas were reported in 2001, 11% higher than in 2000 which is nevertheless 6% lower than in 1999. The number of reports of *Salmonella* Enteritidis phage type (PT) 4 in 2001 increased by 1% but is 29% down on the figure for 1999. Other phage types of *S. Enteritidis* increased by 27% during 2001.

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