

# ANHOPS GUIDELINES

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ANHOPS workshop on November 1998

This document has been several years in drafting. As immunisation advice is continually changing there are aspects of this document that will require continually updating. The intention of ANHOPS is for this document to be used as a basis for additional guidance from the Department of Health which can be incorporated within the "Immunisation against Infectious Disease" publication. We await the comments of this group prior to revising this guidance further.

## **General Statement :-**

***"This document has been approved by the ANHOPS Executive Committee. The information is intended to act as a guideline only, as any local occupational health practice should be determined by someone with adequate training and experience of occupational health within the NHS".***

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## **IMMUNISATION OF HEALTHCARE WORKERS**

### **1. INTRODUCTION**

1.1 Comprehensive guidelines on immunisation policy for healthcare workers were last issued in 1984 (reference). Guidance has since been issued on specific infections such as hepatitis B and tuberculosis (references). In addition the current edition of the UK Health Departments' memorandum *Immunisation against Infectious Disease* (reference) includes advice on immunisation of certain categories of healthcare workers. This booklet brings the various sources of advice together in a single publication with the aim of achieving greater consistency in policies and more practical guidance on implementation.

Immunisation is one of the most effective healthcare interventions. Nonetheless, it must be seen as just one part of a wider policy to prevent transmission of infection in healthcare workers and their patients. Immunisation should never be regarded as a

substitute for good infection control practices, such as hand washing and universal precautions for the prevention of transmission of blood-borne viruses.

By definition, any vaccine preventable disease that is transmissible from person to person poses a risk to both healthcare workers and their patients. Immunisation of healthcare workers may therefore be indicated:

- i. to protect the individual from an occupational risk;
- ii. to protect patients and fellow staff.

The workplace also provides an opportunity to identify and protect healthcare workers who are not immune and have not received immunisations that are recommended for general use and for other indications such as overseas travel. The delivery of these latter immunisations is normally the responsibility of the general practitioner.

## **1.2 Definition of 'Healthcare Worker'**

Many employees are directly or indirectly involved in the provision of healthcare and other patient services.

For the purposes of occupational risk, this document uses the following categories of healthcare workers:

1. Clinical and other staff, including those in primary care, who have regular, clinical contact with patients. This includes doctors, dentists and nurses, paramedical professionals such as occupational therapists, physiotherapists, radiographers, ambulance workers and porters, and students in these disciplines;
2. Laboratory and other staff (including mortuary staff) who have direct contact with potentially infectious clinical specimens and may additionally be exposed to pathogens in the laboratory. This includes those in academic [or commercial research] laboratories who handle clinical specimens. They do not normally have

direct contact with patients;

3. Non-clinical ancillary staff who may have social contact with patients, but not usually of a prolonged or close nature. This group includes receptionists, ward clerks and other administrative staff working in hospitals and primary care settings, and maintenance staff such as engineers, gardeners, cleaners, etc. These staff may be exposed to other specific occupational risks which require their own surveillance programmes.

It should be noted that workers may move between these groups and different immunisation recommendations may then apply. If they regularly move, they should be immunised to the higher standard. If they move by changing jobs then their immunisation needs must be reviewed. These situations should be covered by the local policy.

### **1.3 Immunisation to protect the individual from occupational risk**

All work except domestic employment is subject to the provisions of the Health and Safety at Work etc Act 1974 (HSWA). Employers, employees and the self-employed have specific duties to protect, so far as is reasonably practicable, those at work and others who may be affected by their work activity, such as contractors, visitors and patients.

Central to Health and Safety legislation is the need for employers to assess the risks to staff and others.

Further details of current legislation and the principles of risk assessment as they relate to immunisation are at Annex A.

### **1.4 Immunisation of Staff to Protect Patients**

Healthcare workers have a duty of care towards their patients which includes taking reasonable precautions to protect them from communicable diseases. Fulfilling their

obligations may incur inconvenience and some risks for the healthcare professional. While all reasonable steps should be taken to minimise such potential harm for healthcare providers, the duty to protect patients requires that health professionals accept basic measures such as immunisation in order to minimise the transmission of avoidable disease.

### 1.5 Key References:

Department of Health and Social Security, Welsh Office. Vaccination and immunisation policy for NHS staff. London, HMSO, 1984.

UK Health Departments Protecting healthcare workers and patients from Hepatitis B. Recommendations of the Advisory Group on Hepatitis. Department of Health, August 1993.

Joint Tuberculosis Committee of the British Thoracic Society. Control and prevention of tuberculosis in the United Kingdom: Code of Practice 1994. *Thorax* 1994; 49: 1193-1200.

UK Health Departments. Immunisation against Infectious Disease. Edward Jenner Bicentenary Edition. London, HMSO, 1996.

UK Health Departments. Guidance for Clinical Health Care Workers: Protection against infection with blood-borne viruses. Recommendations of the Expert Advisory Group on AIDS and the Advisory Group on Hepatitis. Department of Health, April 1998.

UK Health Departments. Hepatitis B infected Health care Workers. HSC 2000/20

UK Health Departments. Guidance on Implementation of circular HSC 2000/20 Hepatitis B infected Health care Workers.

*Control of Substances Hazardous to Health Regulations 1998: Approved Codes of Practice (L5)*. HSE Books 1997, ISBN 0-7176-1308-9.

Health and Safety Commission/Department of Health's Advisory Committee on Dangerous Pathogens. *Categorisation of biological agents according to hazard and categories of containment*. (Fourth edition 1995) HSE Books 1995. ISBN 0-7176-1038-1, 1995.

Health and Safety Commission/Department of Health's Advisory Committee on Dangerous Pathogens. *Infection risks to new and expectant mothers in the workplace: A guide for employers*. HSE Books 1997. ISBN 0-7176-1360-1.

Health and Safety Executive. *The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995: Guidance for employers in the healthcare sector*.

Health Services Information Sheet 1, HSE Books 1998.

Health and Safety Commission's Health Service Advisory Committee. *The management of occupational health services for healthcare staff*. HSE Books 1993 ISBN 0-11-882127-X.

## **2. OCCUPATIONAL HEALTH ISSUES**

### **2.1 Developing a policy for the immunisation of healthcare workers**

All organisations employing or training health care workers should have an occupational health policy covering the management of communicable disease including immunisation. An effective policy will need to be owned by those responsible for putting it into practice. It is likely to be drafted by the chairman of the Control of Infection Committee or the occupational physician in close co-operation with each other. It is helpful if the local consultant in communicable disease control (CCDC) also has a significant input.

The policy should clearly state the roles and responsibilities of everyone involved, and have supplementary practice guidelines or procedures. It should cover both new

employees and those already in post. It should be reviewed regularly.

The Policy needs to be based upon appropriate local or national guidelines, and should apply not only to NHS employees but also to commercial organisations which employ healthcare workers, including locum and agency staff, and to other institutions which train individuals to become healthcare workers. This particularly applies to dental and medical schools, some of whose students may commence training but later leave or move to work outside the health service, and is especially relevant where individuals are expected to undertake exposure prone procedures. As with any potential employment problem it is essential that these issues are addressed at the earliest stage possible and therefore all training institutions should have access to appropriately trained occupational health advice. A useful document is 'Management of Health, Safety and Welfare issues for NHS staff' issued by the NHS Executive in 1998.

## **2.2 Implementation of the policy**

Whilst all policies should reflect national guidance, it is possible that local policies and procedures may vary depending upon the background pattern of infection, and the availability of expertise within the District. For instance the incidence of HIV or hepatitis B and C may be much greater in an inner city hospital than in a rural hospital.

Whilst both hospitals will require expert advice in the event of contamination injuries to staff, the inner city hospital may have more ready access to on-call HIV counsellors, who could therefore play a greater role in their management procedures.

## **2.3 Control of Infection Committee**

The Control of Infection Committee is the appropriate body to ratify the contents of any policy relating to the immunisation of healthcare workers. Each Trust has its own Control of Infection Committee. However, where there are several Trusts within a locality, a model policy developed by one Trust may be used by the others, adapted as necessary to different circumstances. This will help ensure that all Trusts within one area are working to similar standards.

It is essential that there is a wide membership of the Control of Infection committee, which will frequently be chaired by a consultant microbiologist. There should be representation from control of infection staff, occupational health, CCDCs, general management, and nurse management. Other representatives should be co-opted as felt appropriate for local circumstances. *The Safety Representatives and Safety Committees Regulations 1977* and the *Health and Safety (Consultation with Employees) Regulations 1996* require employers to consult trade union safety representatives, other employee representatives or employees where there are no representatives, about health and safety matters. This includes changes to the work that may affect their health and safety at work, information on the risks and controls, and the planning of health and safety training. Further information and details of additional guidance can be found in a free HSE leaflet "*Consulting employees on health and safety: a guide to the law*" INDG232 HSE Books 1996".

In addition to the NHS, healthcare workers are employed by Local Authorities, and private employers. An increasing number of NHS Occupational Health services provide advice to such organisations and some Occupational Health services and their clients have found it helpful for the Control of Infection Committee to give supportive advice on relevant occupational control of infection problems.

Some Health Authorities have established District Control of Infection Committees, in addition to local Trust Committees, often under the responsibility of a consultant in communicable disease control; local arrangements would be dependent upon the type of Trusts and the availability of expertise.

#### **2.4 Role of Occupational Health**

The Occupational Health service should provide an independent, confidential advisory service for employees and managers. One of their roles will be to ensure that appropriate immunisation programmes are being delivered. Whilst the details of an individual's immunisations are confidential to that employee, and cannot be released to an employer or third party without the written consent of the individual, the manager requires to know whether the individual is fit to work in a specific area (see 2.8).

It is essential that all jobs have undergone a risk assessment in order to determine the level of fitness that is required to safely undertake those duties. For work involving exposure prone procedures, for instance, the Trust should determine what their appropriate standards are, based upon national guidance (Hep B Infected Health Care Workers NHS Exec Guidance 2000/020) and then clearly state them within their policies.

The occupational health service should also collaborate with control of infection teams in ensuring that the Trust has appropriate procedures to protect employees and patients from infection spread. It is the responsibility of managers, however, to ensure that employees comply with any recommended control of infection or immunisation procedures.

## **2.5 Role of General Practitioners**

Employers need to be able to demonstrate that an effective employee immunisation programme is in place, and they have an obligation to arrange and pay for this service. This is virtually impossible to achieve where employees are being advised by their own general practitioners. It is therefore recommended that the management of an immunisation programme is undertaken by an occupational health service which has appropriately qualified specialists. For logistic reasons General Practitioners may commence a course of hepatitis B vaccine however the occupational health service should check the immune status and then advise upon any further necessary action.

## **2.6 Obtaining information**

Most of the necessary pre-employment screening information can appropriately be obtained using a self assessment questionnaire. An example is attached as an Annex. Additional information may also be required, for example:

- the presence of a characteristic scar should be confirmed as evidence of previous BCG immunisation
- for healthcare workers who undertake exposure prone procedures, original documentation of immunisation and evidence of a satisfactory

serological response to vaccine, OR a negative hepatitis B surface antigen status is required.

## **2.7 Consent to release immunisation details**

Prior to being offered any job, employees should be advised of the potential hazards of the work and the need for any health surveillance or immunisation standards. The applicant will then be fully aware of the pre-employment health standards which are required for that particular post.

All new employees should undergo a pre-employment health assessment. Part of the appointment and assessment process will include a review of immunisation needs. For some healthcare workers, pre-employment screening may be required as part of the health surveillance requirements of COSHH. In this case the main reason for the surveillance procedure is to identify employees who do not have immunity and offer the appropriate immunisation or to identify those who may be more susceptible to infection because of a pre-existing medical condition such as eczema or impaired immune function.

A general statement on the immunisation status of an individual is included when the occupational health departments advise managers on the suitability of an individual for a particular post. The occupational health service needs to obtain written consent before additional immunisation or health information is sought from other occupational health services or general practitioners. Where an employee who is undertaking exposure prone procedures is found to be hepatitis B surface antigen positive, it will be necessary to obtain consent prior to discussing these results with the control of infection team or the employing manager. A general statement regarding their fitness to undertake EPP's could still be given.

Where employees refuse to give consent to the release of essential information it may be reasonable to declare the individual "unfit" having discussed this fully with the employee.

## **2.8 Record keeping**

Effective recall programmes, such as for hepatitis B immunisation, will almost certainly require the use of a computerised database. Any occupational health records, whether paper or computerised, are medical records covered by the Medical Reports Act etc. They are confidential to the occupational health service and written consent from the individual is needed before such records can be released to the employer or third party. Managers should not have access to such records. However, they do need to know, often at short notice, whether an individual they are employing is immune for the purposes of that employment. It may be possible to establish security passes on computer programmes to enable managers to access information that solely identifies whether the individual is suitable or not to undertake their proposed duties.

## **2.9 Exchange of records between hospitals**

Occupational health staff spend a great deal of time and effort obtaining consent prior to contacting other hospitals and general practitioners for employees' immunisation details. This would be eradicated if employees were to retain their own health records. Pilot programmes have already commenced to see if the use of "smart cards" or other methods will meet this purpose.

One problem with information supplied from other sources is that it is not always clear how the original information was obtained or 'confirmed'. To meet the current Department of Health criteria for fitness to undertake exposure prone procedures it is necessary to see an actual microbiology result form which can be proved to have originated from the employee in question. Specific procedures need to be in operation to fulfil these criteria and these may not yet be common practice. The occupational health adviser must satisfy themselves of the quality of information supplied from another department, and be prepared to repeat the testing if quality is not assured.

## **2.10 Locum and Bank staff**

Pre-employment control of infection concerns arise most frequently within this group of employees, particularly where locums are urgently required to undertake exposure

prone procedures. Where locum agencies are being used, they should be asked to confirm in writing that they will only supply employees who meet the Department of Health recommendations and that they employ occupational health professionals who are capable of interpreting hepatitis B information from doctors, particularly those undertaking exposure prone procedures. It is also essential that managers and medical staffing officers are fully aware of the fitness criteria, so that they can establish appropriate checking procedures.

### **2.11 Immunocompromised and pregnant workers individual risk assessment**

Prior to appointment any employees who may be immuno-compromised, should be carefully assessed by an occupational physician, in view of the increase in control of infection risks. These individuals will require personalised immunisation regimes. Additional infection risks may arise when employees become pregnant, and the risks of immunisation must be balanced against the risks of infection. It is therefore essential that employees are aware of these risks and that they can be discussed with an appropriate person. Liaison with the specialist caring for the employee may be beneficial in this situation.

### 3. SUMMARY OF RECOMMENDATIONS

The following list recommends the minimum standards that should be applied within NHS Trusts. The immunisations that may need to be considered for an individual healthcare worker are summarised in Table 1. They are dealt with in the text in alphabetical order, following a standard format that uses evidence for the recommendations wherever possible. For more detailed information about the individual vaccines, indications, contra-indications, administration and adverse events, readers should refer to the Health Departments' memorandum *Immunisation against Infectious Disease*.

#### 3.1 Primarily for staff protection:

- Diphtheria - workers in category 1 who have regular contact with patients within infectious disease units and category 2 who are at high risk of exposure (see text) should have immunity checked.
- Tetanus - important for maintenance staff at higher risk of tetanus-prone wounds e.g. gardeners
- Poliomyelitis -

BCG - especially important for all category 1 and 2 workers but is also likely to include most category 3

Meningococcal infection

### 3.2 Primarily for their own and patient protection

Hepatitis B - all healthcare workers who may have direct exposure to patients' blood, or blood-stained body fluid or tissues

Varicella-zoster - (as yet unlicensed in the UK - see text)

Hepatitis A - consider within certain institutions such as those for mentally handicapped children and adults where personal hygiene is difficult to maintain. It *may also be considered for laboratory staff working directly with the hepatitis A virus*

Rabies - Category 2 - those directly caring for rabid patients only

Others - Influenza - all healthcare staff (reference Winter planning document)

measles, mumps,

rubella - like any adult, all healthcare workers should have been immunised against these infections.

### 3.3 For the protection of certain specialised workers:

Anthrax

Japanese encephalitis

Tick-borne encephalitis

Typhoid

Yellow fever

**Table I**

Healthcare worker	Vaccine	Comment
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<p>All</p> <p>All falling within national policy risk groups</p>	<p>Diphtheria Tetanus Polio BCG</p> <p>Measles Mumps Rubella Influenza/pneumococcal</p>	<p>As part of national policy</p> <p>To protect possibly pregnant patients/staff</p>
<p>Category I</p> <p>All</p> <p>Those with direct exposure to blood, blood stained body fluids and tissues</p> <p>Those working with immunocompromised</p> <p>Those working in institutions for the mentally handicapped</p> <p>Those likely to be involved in direct care of patients with diphtheria, rabies</p>	<p>BCG status to be confirmed</p> <p>Previous history of chickenpox as minimum.</p> <p>Hepatitis B</p> <p>Consider hepatitis A</p> <p>Check diphtheria immunity Rabies</p>	<p>Varicella-zoster antibodies to be checked where immunity to varicella uncertain</p>
<p>Category II</p> <p>Where direct exposure to blood, blood stained body fluids and tissues</p> <p>Where handling faeces</p> <p>Where handling the relevant organism</p> <p>TB</p>	<p>Hepatitis B TB</p> <p>epatitis A</p> <p>Anthrax Diphtheria</p> <p>Influenza</p> <p>Japanese encephalitis Tickborne encephalitis Typhoid Yellow Fever Immunity to be established meningococcal</p>	

## 4. IMMUNISATION GUIDELINES - SPECIFIC ADVICE

### 4.1 Varicella

#### STANDARD 4.1.1

All healthcare workers should be asked about their past exposure to varicella infection at pre-employment. Those with a negative history or who are unsure about previous exposure should be screened for VZV IgG.

*The potential risk from varicella infection is greatest for the non-immune, pregnant female. The groups that are therefore at greatest risk are patients within maternity units and female staff who may become pregnant. As a large number of employees' work within maternity units and other risk areas, it is recommended for practical reasons that all staff are asked about their varicella immunity status. Those who are non-immune should be given advice to avoid contact with obstetric, immuno-compromised or neo-natal patients between 7-21 days after contact with the virus. Analysis of costs involved in the management of outbreaks of varicella in the healthcare settings suggest the above is justifiable (2).*

*Whilst it is recognised that screening for VZV by "history" may give rise to some false positives, and may therefore not be give 100% accuracy, this approach would appear to be a very practical one which does not require a large number of blood samples to be taken. Trusts may wish to consider a higher standard within known high risk areas, such as maternity and areas with immuno-compromised patients, and undertake antibody screening of all these staff. (1)*

#### STANDARD 4.1.2

Employees who are non-immune should be counselled and advised that if they come into contact with anybody who has VZV they should notify Occupational Health /Control of Infection as re-location may be necessary

between days 7-21 following contact with the virus (3).

#### **STANDARD 4.1.3**

Existing staff working within high risk clinical areas such as Maternity, Paediatric, and Oncology Units etc. who have not undergone previous screening should be assessed as outlined above.

*Once a vaccine becomes freely available the above employees should be included within a vaccination programme.*

- (1) Susceptibility to varicella zoster virus infection in health care workers. Occ Med 1996 46: 289-292
- (2) Impact and costs of varicella prevention in a University Hospital AM. J. Public Health 1988 (1) 19-23
- (3) (Burns S, Mitchell Higgs N, Carrington D, Occupational and Infection Control aspects of varicella – J Infect 1998 36 (Supp): 71-78

## **4.2 RUBELLA**

#### **STANDARD 4.2.1**

##### **EMPLOYEE PROTECTION**

Immuno-compromised staff, and females of child bearing age who work within areas which have an increased risk of exposure to rubella should have their immunity checked prior to placement. Staff may be considered to be immune if they have had two doses of a rubella containing vaccine, , or one dose of vaccine and one positive antibody test.

*National immunisation programmes may have established immunity of any UK residents prior to employment. (4) Exposure to rubella may be greater*

*within paediatric wards and within laboratories that work with the live virus, although the epidemiology of rubella in the UK is changing..*

- (4) UK Health Departments. (1996) Immunisation against Infectious Disease. HMSO, London. Department of Health. Health Information for Overseas Travel. London: HMSO, 1995.

#### **STANDARD 4.2.2**

##### **PATIENT PROTECTION**

Any Health Care Worker who may be working regularly with pregnant or immuno-compromised patients should have written evidence of immunity to rubella. (Male and Female)

*In November 1994 a national immunisation campaign with measles and rubella vaccine took place within the UK. This campaign was targeted at children aged 5-16. The majority of patients who may be pregnant will be immune and therefore the risk of rubella transmission for healthcare worker to patient would be estimated to be very small. Staff in midwifery and oncology departments should be able to demonstrate immunity to rubella. Staff who refuse immunisation or are vaccine non-responders may need to be prevented from working within certain risk areas.*

#### **4.3 POLIO**

##### **STANDARD 4.3.1**

Ensure that all employees are immune to polio. Particular care should be taken for employee's born before 1958 and those who may be working with the live virus e.g. laboratory staff in bacteriology/virology units.

*Staff born within the UK after 1958 can be assumed to have been offered childhood immunisations, but where there is doubt about immunity, individuals should be offered a primary course of O.P.V. i.e. 3 doses at 4 weekly intervals.*

##### **GENERAL INFORMATION**

Employees receiving OPV should be advised re personal hygiene although

there is no known case of transmission of poliomyelitis between a healthcare worker and patients. They may continue to work with immuno-compromised patients.

Reinforcing doses for adults are not necessary unless the individual is likely to be in regular contact with the virus e.g. laboratory workers or travelling abroad in business to areas where polio still exists. In these circumstances a 10-year booster may be appropriate.

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## Guidance

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UK Health Departments. (1996) Immunisation against Infectious Disease. HMSO, London.

Department of Health. Health Information for Overseas Travel. London: HMSO, 1995.

## 4.4 DIPHTHERIA

### STANDARD 4.4.1

Laboratory staff who may handle the live organism should have documented evidence of serological immunity to diphtheria.

### STANDARD 4.4.2

Health Care staff with clinical patient contact who work in Infection Disease Units should have documented evidence of Serological immunity to Diphtheria.

### Information

*It is a national policy that all individuals should be immunised against diphtheria and therefore most employees resident in the UK are likely to be immune prior to employment. However if there is doubt about immunity individuals should be offered a primary course of O.P.V. i.e. 3 doses at 4 weekly intervals*

### Guidance

Begg N. Manual for the management and control of diphtheria in the European Region and control of diphtheria in the European Region. Copenhagen: WHO Regional Office for Europe, 1994.

Bonnet JM, Begg NT. Control of diphtheria: guidance for consultants in communicable disease control. *Commun Dis Public Health* 1999; **2**: 242-9.

## 4.5 TUBERCULOSIS

### STANDARD 4.5.1

All staff involved with clinical contact at risk should show documented evidence of protection against tuberculosis in the form of a Grade 2 Heaf result or the presence of a BCG scar. Those with an inadequate response should be given BCG.

*One study has shown that the risk of tuberculosis amongst healthcare workers appears to be twice that of the general population (Meredith S, Watson JM, Citron K M, Cockcroft A, Darbyshire J H, Are Healthcare Workers in England and Wales at Increased Risk of Tuberculosis? BMJ 1996; 313:522-5).*

*A tuberculin test (usually the Heaf test) is only necessary in new employees who do not have documentary evidence of a BCG scar. or documentary evidence of previous BCG. (5)*

*Data on the upper age limit for the efficacy of BCG vaccination is limited. As the risk of exposure to tuberculosis in healthcare workers is likely to continue throughout occupation, it is recommended that healthcare workers who are previously unvaccinated and who have a grade 0 or grade 1 Heaf test result, should receive BCG immunisation.*

*Strongly positive tuberculin skin reactions are not uncommon in otherwise healthy healthcare workers and do not indicate active tuberculosis. The requirement for a chest X-ray should be based on the presence of symptoms or a history of contact with tuberculosis rather than on the tuberculin skin reaction alone.*

*It is not necessary to inspect the site after the BCG unless as a means of quality control of the technique of administering BCG.*

*If BCG is refused, the risk should be explained and the refusal recorded.*

*New employees arriving from a country with an annual incidence of tuberculosis greater than 40 per 100,000 population per year who have not previously been screened, should be screened with chest x-ray and tuberculin test for those without a BCG scar.*

### STANDARD 4.5.2

Staff with symptoms compatible with tuberculosis should seek advice from occupational health or from their own doctor so they do not expose patients to infection.

*The importance of reporting possible symptoms of tuberculosis promptly should be re-emphasised. There may be a need to restrict the area of work of staff who refuse BCG.*

*Routine periodic chest X-rays are not necessary. They are not an effective way of detecting tuberculosis.*

*When a healthcare worker is diagnosed with tuberculosis, if the worker has been at work while infectious, it is necessary to identify patients and colleagues and manage them according to routine contact tracing procedures.*

*These measures apply to medical and nursing students, locum agency doctors, agency staff and contract ancillary workers.*

#### **STANDARD 4.5.3**

Staff should be aware of the infection control guidelines for patients who are diagnosed with known or suspected sputum positive TB.

*It is uncommon for healthcare workers to acquire tuberculosis from patients.*

Control And Prevention Of Tuberculosis In The United Kingdom: Code Of Practice 2000. Thorax.2000 Joint Tuberculosis Committee of the British Thoracic Society

Interdepartmental Working Group on Tuberculosis. Recommendations for the prevention and control of tuberculosis at local level. London: Department of Health and Welsh Office, 1996.

## **4.6 INFLUENZA**

#### **STANDARD 4.6.1**

NHS employers have been advised to offer immunisation to all staff involved in the delivery of care and support of patients. Experience from occupational health services offering such programmes would indicate that uptake is frequently poor. It may be advisable to promote and improve access to immunisation in key groups of workers. These may include, A/E, ITU, and where-ever staff are working with vulnerable patients such as the immuno-compromised and elderly. (Immunisation of these patients may also be advisable)

*The Green Book states that immunisation of fit children and adults, including healthcare and other key workers is not recommended as a routine, however the Chief Medical Officer has recommended that Immunisation against influenza of*

*healthcare workers should be part of winter planning for health service providers.*

Letter from the Chief Medical Officer

Health circular HSC 2000/016 Winter 2000/01: Capacity Planning for Health and Social Care.

Wilde JA. McMillan JA. Serwint J. Butta J. O'Riordan MA. Steinhoff MC. Effectiveness of influenza vaccine in health care professionals: a randomized trial. JAMA 1999; 281(10):908-13.	Influenza vaccine is effective in preventing infection by influenza A and B in health care professionals and may reduce reported days of work absence and febrile respiratory illness. These data support a policy of annual influenza vaccination of health care professionals.
Grotto I. Mandel Y. Green MS. Varsano N. Gdalevich M. Ashkenazi I. Shemer J. Influenza vaccine efficacy in young, healthy adults. Clinical Infectious Diseases 1998; 26(4):913-7.	The current influenza vaccine significantly reduced febrile illness among healthy military personnel.
Keech M. Scott AJ. Ryan PJ. The impact of influenza and influenza-like illness on productivity and healthcare resource utilization in a working population. Occupational Medicine (Oxford) 1998; 48(2):85-90.	The impact of influenza and influenza-like illness on productivity in a working population and the resultant cost to employers and employees may be considerable.

## **4.7. TETANUS**

### **Standard 4.7.1**

On recruitment, ground staff and maintenance staff who are non-immune should be offered a primary course of immunisation. This should be combined with low dose diphtheria if this has not been previously given. Any other non-immune staff should also be advised of the need for tetanus immunisation. They could be referred back to their GPs for this or else arrange for it to be undertaken via the occupational health service. A life-time maximum of five doses of tetanus vaccine should be given.

*All UK citizens should have been offered a primary course of tetanus immunisation*

## **4.8 HEPATITIS A**

### **Standard 8.1**

A local risk assessment should be undertaken and any employee identified as being at an increased risk of exposure to hepatitis A virus, should be offered immunisation.

*These may include laboratory workers who are working directly with the virus and staff working in residential accommodation for people with learning difficulties and other institutions where standards of personal hygiene may be expected to be poor.*

*Staff who travel regularly to endemic areas in the course of their work and workers who come into direct contact with untreated sewage may also be offered immunisation however the routine immunisation of healthcare workers against hepatitis A is not recommended.*

*Under normal circumstances, the risk of exposure to hepatitis A virus can be minimised by careful attention to personal hygiene and the appropriate use of protective equipment.*

## **4.9 TYPHOID**

### **Standard 4.9.1**

A local risk assessment should be undertaken and employees at an increased risk of exposure to typhoid should be offered immunisation. Where there is an ongoing significant risk it may be necessary to re-immunise staff every three years.

*These may include laboratory workers who handle specimens containing *Salmonella typhi*, the organism that is responsible for typhoid.*

## **4.10 MENINGITIS**

Routine vaccination of health care workers with meningococcal C conjugate vaccines is not recommended for two reasons . First, at the time of exposure, the serogroup of the infecting strain is not usually known, so previous vaccination would not obviate the need for chemoprophylaxis. Second, as the UK vaccination programme takes effect, the incidence of serogroup C disease and the proportion of cases caused by such strains should diminish, thus reducing risk of secondary cases that are vaccine preventable.

Chemoprophylaxis is recommended for health care workers whose mouth or nose is directly exposed to infectious respiratory droplets/secretions within a distance of three feet from a probable or confirmed case of meningococcal disease . The most likely situation for this type of exposure would be in staff who undertake airway management during resuscitation without wearing a mask or other mechanical protection. Droplets and secretions are considered to be infectious from the onset of the acute illness until completion of 24 hours treatment with systemic antibiotics. Health care workers should be encouraged to wear masks when carrying out procedures which may result in exposure to infectious respiratory droplets.

Staff working in specialist intensive care units may be at risk of frequent exposure. Reducing the possibility of exposure to large droplets (e.g. wearing masks, using closed suction) and assessing the risk after any exposure are suggested measures to reduce the need for chemoprophylaxis.

#### **Standard 4.10.1**

A new conjugated meningitis group C vaccine is available and its use should be considered for laboratory workers, particularly those likely to be handling specimens containing *N. meningitidis*.

Meningococcal infection has occurred in laboratory workers after handling dense cultures of *Neisseria meningitidis*.

*Preventing secondary meningococcal disease in health care workers: Recommendations of a Working Group of the Public Health Laboratory Service Meningococcus Forum. Stuart JM, Gilmore AB, Ross A, Patterson W, Kroll JS, Kaczmarek EB, Macqueen S, Keady P, Monk P. Commun Dis Public Health 2001;4: 102-105.*

### **4.11. YELLOW FEVER**

#### **Standard 4.11.1**

A local risk assessment should be undertaken and employees at risk of exposure to yellow fever should be offered immunisation

*These may include laboratory staff working with the virus or handling material from suspected cases, and healthcare workers travelling in the course of their work to infected areas of Africa or South America.*

### **4.12 HEPATITIS B**

#### **Protecting Employees**

#### **Standard 4.12.1**

All healthcare workers, including students and trainees who have direct contact with patient's blood or other potentially infectious body fluids or tissues should be immunised against hepatitis B.

Immunisation is also recommended for staff and residents of residential accommodation for those with severe learning difficulties (mental handicap).

*Guidance for Clinical Health Care workers: Recommendations of the Expert advisory group on AIDS and Hepatitis(1998).*

#### **Standard 4.12.2**

A local risk assessment should be undertaken to assess the need for hepatitis B immunisation of other healthcare staff, such as porters, domestic assistants, laundry staff, CSSD staff and maintenance staff.

*Studies have shown that these groups of employees regularly sustain needlestick injuries and are therefore likely to be at an increased risk of exposure to hepatitis B and should be offered hepatitis B vaccine.*

### **Protecting Patients**

#### **Standard 4.12.4**

Any staff undertaking exposure prone procedures (defined in the document AIDS / HIV Infected Health care Workers – UK Health Departments Dec 1998) should have documented evidence of immunity and/or non-infectivity for hepatitis B prior to undertaking such work.

All employees should provide written documented evidence of immunisation and post-immunisation antibody testing. (from a recognised laboratory)

It is likely in future that all HCWs will be tested for HbsAg as well as anti-HBs. HCWs who are HBsAg positive would then be further investigated.

### **Further Guidance**

*Department of Health. Addendum to HSG(93)40: Protecting healthcare workers and patients from hepatitis B. London: Department of Health, 1996.*

*Department of Health. Protecting health care workers and patients from hepatitis B: HSG(93)40. London: Department of Health, 1993.*

*UK Health Departments. (1998) Guidance for Clinical Health Care Workers: Protection against Infection with Blood-borne Viruses. Recommendations of the Expert Advisory Group on AIDS and the Advisory Group on Hepatitis. UK Health Departments, London.*

*Department of Health. (1997) Guidelines on Post-Exposure Prophylaxis for Health Care Workers Occupationally Exposed to HIV. Department of Health, London.*

*NHS Executive HSC 2000/020 Hepatitis B Infected Health Care Workers.*

*NHS Executive HSC 2000/020 Guidance on Implementation of HSC 2000/020*

*NHS Executive HSC 2000/020 Further background information for occupational health departments.*

### **4.13 OTHER VACCINES**

#### 4.13.1 Rabies

Pre-exposure immunisation is indicated for:

- Laboratory workers who handle the virus
- those who work with recently imported animals
- those working in countries where rabies is endemic especially if they are more than 24 hours travel from medical treatment
  - Health workers who are likely to come into close contact with a patient with rabies

#### 4.13.2 Cholera

Routine immunisation of laboratory staff or other healthcare workers is not indicated.

***The probability that faecal material will contain the organism is low, the infective dose is high and the efficacy of the currently available vaccine is low.***

#### 4.13.3 Anthrax

Routine immunisation of laboratory workers is not indicated.

*The probability that clinical specimens and environmental samples in the UK will contain the organism Bacillus Anthracis is low.*

### 5. STORAGE OF VACCINES AND IMMUNOGLOBULINS

(Refers where relevant to non-reconstituted vaccine)

Vaccines should be stored in a fridge reserved for, and preferably designed specifically for storage of medicinal products - domestic fridge's are not designed for storing vaccines - and the following precautions observed:

- the plug should be sited where it cannot accidentally be switched off or disconnected e.g. by cleaners
- food and drink should not be put in it
- door opening should be kept to a minimum
- the vaccines should be in the body of the fridge, NOT in the door, with room for air to circulate around the packages
- a system should be in place for stock rotation to ensure the oldest vaccine is used first

- the temperature and stock rotation should be monitored
- fridge's should be defrosted regularly and precautions taken to ensure vaccines are stored at the correct temperature during the procedure

### 5.1 Vaccines

Anthrax	2-8 <sup>0</sup> C	Avoid freezing
BCG	2-8 <sup>0</sup> C	Avoid freezing. Protect from light.
PPD	2-8 <sup>0</sup> C	Avoid freezing. Protect from light.
Diphtheria	2-8 <sup>0</sup> C	Avoid freezing. Protect from light.
Hepatitis A	2-8 <sup>0</sup> C	Avoid freezing. Protect from light.
Hepatitis B	2-8 <sup>0</sup> C	Avoid freezing.
Influenza	2-8 <sup>0</sup> C	Avoid freezing. Protect from light.
Japanese encephalitis	<10 <sup>0</sup> C	Avoid exposure to direct sunlight.
Meningococcal	2-8 <sup>0</sup> C	Avoid freezing. Diluent.
Pneumococcal	2-8 <sup>0</sup> C	
Poliomyelitis OPV (SKB)	2-8 <sup>0</sup> C	Protect from light
(Evans)	0-4 <sup>0</sup> C	Protect from light.
eIPV	2-8 <sup>0</sup> C	Avoid freezing
Rabies	2-8 <sup>0</sup> C	Avoid freezing
Rubella	2-8 <sup>0</sup> C	Avoid freezing
Tetanus	2-8 <sup>0</sup> C	Avoid freezing. Protect from light.
Tick borne encephalitis	2-8 <sup>0</sup> C	Avoid freezing and storage at higher temperature
Typhoid (oral)	2-8 <sup>0</sup> C	Avoid freezing

### 5.2 Immunoglobulins

HNIG	0-4 <sup>0</sup> C	
Anti-tetanus		
Anti-rabies		
Anti-hepatitis B		
Anti-varicella-zoster	2-8 <sup>0</sup> C	Stable at room temperature for short periods

## 6. ANNEX A Health and Safety Legislation

All work except domestic employment is subject to the provisions of the Health and Safety at Work etc Act 1974 (HSWA). Employers, employees and the self-employed have specific duties to protect, so far as is reasonably practicable, themselves, those at work and others who may be affected by their work activity, such as contractors, visitors and patients.

The **Management of Health and Safety at Work Regulations 1992** require employers to assess risks to staff and others, including young persons and new and expectant mothers, and to make appropriate health and safety arrangements.

The **Control of Substances Hazardous to Health Regulations 1999[9] (COSHH)** provide a framework of action designed to manage the risks from hazardous substances, including biological agents (pathogenic micro-organisms). Schedule 9 of COSHH and the associated Biological Agents Approved Code of Practice refer specifically to work involving biological agents and the precautions which must be taken. Among other things, COSHH requires employers to:

- assess the risks of exposure to biological agents;
- prevent exposure, where reasonably practicable;
- where prevention is not reasonably practicable, control exposure adequately (including making available effective vaccines);
- maintain, examine and test control measures;
- provide information, instruction and training for employees;
- keep a list of workers exposed to Hazard Group 3 or 4 biological agents, and;
- provide health surveillance where appropriate.

### Risk assessment

Employers must carry out a suitable and sufficient risk assessment to carefully and systematically review what parts of the work could cause harm to employees and others who may be affected by their work activity, such as contractors, visitors and patients. The risk assessment is to help make decisions about whether employers have taken sufficient precautions to prevent the risk of ill health. There are many regulations which require risks to be assessed, but COSHH and the Management Regulations are the most relevant to making decisions about the immunisation of healthcare workers.

A risk assessment should consider the following factors when assessing the infection risks to workers:

- the types of infection likely to be transmitted at the work;
- the possible sources of infection, for example, infected patients, their blood, body fluids and wastes, or contaminated environments and object;
- the likelihood that a possible source of infection, e.g. a patient, is actually infected;
- the number of different sources of infection that staff may come into contact with and how often contact may occur;
- the control measures (eg procedural controls, working practices,

arrangements for the safe disposal of clinical waste) in use to protect employees;

- the medical history of the employee;
- the history of previous infection or immunisation;
- the need for suitable information, instruction and training for employees which will help them to prevent or reduce risk.

The risk assessment should only consider the infection risks arising from the work, not those that may be acquired by routine contacts with colleagues or friends and family outside of the workplace. The only exception would be where an infection may be acquired from a colleague in the course of first-aid duties.

The Management Regulations have additional requirements concerning new and expectant mothers. The regulations require a general risk assessment for all employees, including women of childbearing age if they are part of the workforce. However, it may be necessary to adopt extra control measures, to ensure the health and safety of a particular worker and/or her child. Guidance on the infection risks to new and expectant mothers has been published by ACDP (reference).

### **Immunisation as a control measure**

COSHH Schedule 9 requires that if the risk assessment shows that there is a risk of exposure to biological agents for which effective vaccines exist, such vaccines should be made available unless the employee is already immune. Immunisation should only be seen as a useful supplement to reinforce procedural controls and the use of protective equipment, not the sole protective measure. Staff should be fully aware of the benefits and drawbacks of both vaccination and non-vaccination. Section 9 of the HSWA requires that workers should not be charged for vaccinations and other protective measures.

A record should be made of any immunisations and the results of any checks on immunity. This should be made available to the worker on request. It may be sensible to combine this with any health surveillance records (such as a health record in the Appendix of the COSHH Regulations) and any list of workers exposure to a Hazard Group 3 or 4 biological agent (paragraph 11(3) of COSHH Schedule 9). Such a list is only required where there is a deliberate intention to work with the agent (such as a diagnostic microbiology laboratory) or where the risk assessment shows that there is a significant risk (ie where more than basic precautions are needed to control the risk from a Hazard Group 3 or 4 biological agent, such as in an infectious disease unit).

The **Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995** (RIDDOR) are designed to provide a national record of specified injuries, diseases and dangerous occurrences affecting people at work. Detailed guidance on the requirements relating to the healthcare sector has been published by HSE (references). The relevant parts of the Regulations for this document include the reporting of:

- **diseases** such as hepatitis, tuberculosis, legionellosis and tetanus or any other infection attributable to work with live or dead patients, exposure to blood or body fluids or any potentially infected material, and;
- **dangerous occurrences** such as any accident or incident which resulted in,

or could have resulted in, the release of a Hazard Group 3 or 4 biological agent, for example a needlestick with a needle known to contain hepatitis B positive blood or the spillage of a TB culture in a laboratory.

Relevant European legislation is the Biological Agents Directive (90/679/EEC). This was amended by 93/88/EEC to add, as Annex VII, a 'recommended code of practice on vaccination'. This is implemented in the UK by COSHH and the special provisions in Schedule 9. The Advisory Committee on Dangerous Pathogens has produced a small amount of guidance on immunisation in Appendix 7 of the 1995 categorisation.

## **7. ANNEX B - Overview of Immunisation Standards for Audit purposes**

### **4.1 Varicella**

#### **STANDARD 4.1.1**

All healthcare workers should be asked about their past exposure to varicella infection at pre-employment. Those with a negative history or who are unsure about previous exposure should be screened for VZV IgG.

#### **STANDARD 4.1.2**

Employees who are non-immune should be counselled and advised that if they come into contact with anybody who has VZV they should notify Occupational Health /Control of Infection as re-location may be necessary between days 7-21 following contact with the virus (3).

#### **STANDARD 4.1.3**

Existing staff working within high risk clinical areas such as Maternity, Paediatric, and Oncology Units etc. who have not undergone previous screening should be assessed as outlined above.

### **4.2 RUBELLA**

#### **STANDARD 4.2.1**

##### **EMPLOYEE PROTECTION**

Immuno-compromised staff, and females of child bearing age who work within areas which have an increased risk of exposure to rubella should have their immunity checked prior to placement.

#### **STANDARD 4.2.2**

##### **PATIENT PROTECTION**

Any Health Care Worker who may be working regularly with pregnant or

immuno-compromised patients should have written evidence of immunity to rubella. (Male and Female)

### **4.3 POLIO**

#### **STANDARD 4.3.1**

Ensure that all employees are immune to polio. Particular care should be taken for employee's born before 1958 and those who may be working with the live virus e.g. laboratory staff in bacteriology/virology units.

### **4.4 DIPHTHERIA**

#### **STANDARD 4.4.1**

Laboratory staff who may handle the live organism should have documented evidence of serological immunity to diphtheria.

#### **STANDARD 4.4.2**

Health Care staff with clinical patient contact who work in Infection Disease Units should have documented evidence of Serological immunity to Diphtheria.

### **4.5 TUBERCULOSIS**

#### **STANDARD 4.5.1**

All staff involved with clinical contact at risk should show documented evidence of protection against tuberculosis in the form of a Grade 2 Heaf result or the presence of a BCG scar. Those with an inadequate response should be given BCG.

#### **STANDARD 4.5.2**

Staff with symptoms compatible with tuberculosis should seek advice from occupational health or from their own doctor so they do not expose patients to infection.

#### **STANDARD 4.5.3**

Staff should be aware of the infection control guidelines for patients who are diagnosed with known or suspected sputum positive TB.

## **4.6 INFLUENZA**

### **STANDARD 4.6.1**

NHS employers have been advised to offer immunisation to all staff involved in the delivery of care and support of patients. Experience from occupational health services offering such programmes would indicate that uptake is frequently poor. It may be advisable to promote and improve access to immunisation in key groups of workers. These may include, A/E, ITU, and where-ever staff are working with vulnerable patients such as the immuno-compromised and elderly. (Immunisation of these patients may also be advisable)

## **4.7. TETANUS**

### **Standard 4.7.1**

On recruitment, ground staff and maintenance staff who are non-immune should be offered a primary course of immunisation combined with diphtheria if appropriate. Any other non-immune staff should also be advised of the need for tetanus immunisation. They could be referred back to their GPs for this or else arrange for it to be undertaken via the occupational health service. If staff have received five or more doses of tetanus vaccine they do not require reinforcing doses unless they have a tetanus prone wound

## **4.8 HEPATITIS A**

### **Standard 8.1**

A local risk assessment should be undertaken and any employee identified as being at an increased risk of exposure to hepatitis A virus, should be offered immunisation.

## **4.9 TYPHOID**

### **Standard 4.9.1**

A local risk assessment should be undertaken and employees at an increased risk of exposure to typhoid should be offered immunisation. Where there is an ongoing significant risk it may be necessary to re-immunise staff every three years.

## **4.10 MENINGITIS**

Routine vaccination of HCWs. with meningococcal vaccine is not recommended for two reasons. At the time of the exposure, the serogroup of the infecting strain is not usually known, so that previous vaccination would not affect the decision to administer chemoprophylaxis. As the vaccination programme proceeds, the incidence of serogroup C disease, and the proportion of virus carried by such strains will diminish, thus reducing the risk of secondary cases that are vaccine preventable.

#### **Standard 4.10.1**

A new conjugated meningitis group C vaccine is available and its use should be considered for laboratory workers, particularly those likely to be handling specimens containing *N. meningitidis*.

### **4.11. YELLOW FEVER**

#### **Standard 4.11.1**

A local risk assessment should be undertaken and employees at risk of exposure to yellow fever should be offered immunisation

### **4.12 HEPATITIS B**

#### **Protecting Employees**

#### **Standard 4.12.1**

All healthcare workers, including students and trainees who have direct contact with patient's blood or other potentially infectious body fluids or tissues should be immunised against hepatitis B.

Immunisation is also recommended for staff and residents of residential accommodation for those with severe learning difficulties (mental handicap).

#### **Standard 4.12.2**

A local risk assessment should be undertaken to assess the need for hepatitis B immunisation of other healthcare staff, such as porters, domestic assistants, laundry staff, CSSD staff and maintenance staff.

#### **Protecting Patients**

#### **Standard 4.12.4**

Any staff undertaking exposure prone procedures (clearly defined in the document Aids / HIV Infected Health care Workers – UK Health Departments Dec 1998) should have documented evidence of immunity and/or non-infectivity against hepatitis B prior to undertaking such work. All employees should provide written documented evidence of serological testing, (from a recognised laboratory) immunisation, and post-immunisation antibody testing, and in some circumstances DNA testing.

### **4.13 OTHER VACCINES**

#### **4.13.1 Rabies**

Pre-exposure immunisation is indicated for:

- those who work with the virus
- those who work with recently imported primates and other animals that may be infected
- those working in rural areas of countries where rabies is endemic.

#### **4.13.2 Cholera**

Routine immunisation of laboratory staff or other healthcare workers is not indicated.

#### **4.13.3 Anthrax**

Routine immunisation of laboratory workers is not indicated.

### **4.2 MEASLES, MUMPS AND RUBELLA**

#### EMPLOYEE AND PATIENT PROTECTION

Measles is currently eliminated in the UK but unfounded concerns about the safety of MMR has led to a fall in the proportion of children who are immunised. This could lead to outbreaks of measles in the future. If this happens, there is evidence that non-immune health care staff will be at increased risk of infection. Also in the past outbreaks of measles have involved transmission within health-care settings.

Outbreaks of rubella have occurred in healthcare settings and healthcare workers have transmitted rubella to patients.

Transmission of mumps has also occurred in healthcare settings.

#### **STANDARD 4.2.1**

All healthcare workers should be immune to measles, mumps and rubella (see Table).

#### **Table. Acceptable presumptive evidence of immunity for HCWs**

Measles	<ol style="list-style-type: none"> <li>1. Documented administration of two doses of a live measles virus vaccine <b>or</b></li> <li>2. Laboratory evidence of immunity <b>or</b></li> <li>3. Born before 1970</li> </ol>
Mumps	<ol style="list-style-type: none"> <li>1. Documented administration of one dose of a live mumps virus vaccine <b>or</b></li> <li>2. Laboratory evidence of immunity <b>or</b></li> <li>3. Born before 1970</li> </ol>
Rubella	<ol style="list-style-type: none"> <li>1. Documented administration of one dose of a live rubella virus vaccine <b>or</b></li> <li>2. Laboratory evidence of immunity <b>or</b></li> <li>3. Born before 1970 (note birth before 1970 is not acceptable as evidence of immunity for women who could become pregnant)</li> </ol>

Staff who are found to be non-immune to measles should be offered two doses of MMR separated by three months. Staff who are found to be non-immune to mumps or rubella should be offered one dose of MMR. Staff who refuse immunisation may need to be prevented from working in risk areas

*UK Health Departments. (1996) Immunisation against Infectious Disease. HMSO, London. Department of Health. Health Information for Overseas Travel. London: HMSO, 1995.*

*Nosocomial transmission of measles to healthcare workers. Time for a national screening and immunisation policy for NHS staff? Mendelson GM, Roth CE, Wreghitt TG, Brown NM, Ziegler E, Lever AM. J Hosp Infect 2000 Feb;44(2):154-155.*