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## Prevention of Infectious Disease at Sea by Immunisations and Anti-Malaria Medication (prophylaxis)

Notice to Ship Owners, Ship Operators and Managers, Manning Agencies, Port Operators; Ship Masters and Seafarers

*This Note should be read in conjunction with Merchant Shipping Notices MSN 1765(M), MSN 1768(M+F) and Marine Guidance Note MGN 219(M)+ amendment*

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### Summary

This guidance note provides information and recommendations on how to obtain:

- appropriate immunisations against infectious diseases likely to be encountered by seafarers in the course of their duties; and
- medication for protection against malaria .

Annexes are attached in respect of:

1. Useful references for further information
2. UK routine and job specific immunisations and geographical requirements
3. Immunisations schedule
4. Summary of malaria medication needs
5. Malaria emergency standby medication

It is based on a detailed review undertaken for the MCA which is available at [www.mcga.gov.uk/publications](http://www.mcga.gov.uk/publications) or from the MCA's Research Programme Manager, Spring Place, at the address at the end of this Notice.

### 1.0 Background

- 1.1 Infections can be life-threatening health problems for seafarers and lead to major costs and disruption for maritime employers. Preventive measures are therefore essential.
- 1.2 Infection may be transmitted by food and water, from person to person or by insect bites. The major means of infection control on board ship are through effective hygiene measures,

but these are not the subject of this MGN. Reference to them can be found in the Code of Safe Working Practices for Merchant Seamen<sup>1</sup>.

- 1.3 Good hygiene must be supplemented by clinical preventive measures: **immunisations** for a range of infectious diseases, and preventive **medication** in the case of malaria, since immunisation is not available.

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<sup>1</sup> Available from any branch of The Stationery Office (Tel: 0870 600 5522)

## 2.0 Infection risks

2.1 The risk of contracting an infectious disease will depend on its frequency in the area of the world where the ship is calling at or passing close to, the duties of seafarers, their exposure to the source of infection and the readiness with which they become infected. Hence requirements are determined by:

- the route of the vessel, especially the location of ports visited
- the job of each seafarer
- the hygienic and clinical preventative measures taken.

## 3.0 Route and ports

3.1 **Within Europe, USA and Canada, Japan and Australasia** the risks are no greater than those onshore in the UK and no immunisations over and above those given to the general population are needed.

3.2 **For all other parts of the world**, location-specific requirements must be determined. A wider range of immunisations is likely to be needed and these must be carried out before the voyage and kept up to date as long as they are relevant. A full course of treatment may take a month to complete so prior planning is essential.

3.3 **Tropical and subtropical regions** - Malaria is a particular risk in these areas. Guidance on prevention and treatment is given in paragraph 7 below.

## 4.0 Job related risks

4.1 **Maintenance of Sewage Systems** - seafarers whose work involves maintaining shipboard sewage systems are at increased risk of faecal contamination. Immunisation against **typhoid and hepatitis A** is therefore recommended.

4.2 **Food Handlers** - These seafarers will, if infected, pose a risk of transmitting food-borne infections to other crew members or passengers. They too should have **typhoid and hepatitis A** immunisation.

4.3 **Cruise Liners** - Where large numbers of susceptible passengers are carried, as on cruise ships, outbreaks of **influenza** can be severe and crew immunisation should be considered.

4.4 **Night Work** - Crew who are required to spend periods on deck, particularly at night, in places where malaria is rife, will be at high risk of mosquito bites, and correct use of anti-malarial tablets is particularly important.

4.5 **Travel Away from Vessel** - If a seafarer is planning to spend time away from the ship and harbour area either on business or for leisure, additional advice is needed before departure on whether the precautions used on account of the ship's voyage, remain adequate.

4.6 **Crew Providing Medical Care** - Health professionals working on board ship should be fully immunised, including confirmed protection from hepatitis B. The provision of routine hepatitis B immunisation may need to be considered if non-health care specialists are regularly required to provide such care.

## 5.0 Responsibilities

5.1 **Ship operators and employers** have a duty to protect the health and safety of workers (so far as reasonably practicable). In practical terms, implementing this general duty of care means that they are responsible for minimising the risks of infection by ensuring that hygiene measures are effective and suitable. They will also know the routes and destinations of ships and so must make arrangement for infection control, including supply of medical stores, with these in mind. As the risks of infection arise out of the work activities of the seafarer it is the responsibility of the **maritime employer** to provide and pay for preventive measures such as immunisations. It is the **seafarer's** responsibility to comply with these measures. The discharge of these duties needs to be encompassed within a procedural system which is effective and which can be audited.

5.2 Before a seafarer is appointed to a ship, the **maritime employer, including the manning agency or ship management company** where they formally employ the seafarer(s), needs to know where each crew member will be travelling to and the risks of infection. They

should check the immunisation status of the seafarer and ensure that any missing immunisations are given.

5.3 **Doctors** approved by the MCA to undertake seafarer medicals (Approved Doctors) are able to advise on requirements and either provide them or refer seafarers for immunisation to specialist centres. Immunisation can often conveniently be undertaken at the same time as medical certification. Approved Doctors can also indicate whether there are any medical reasons for individual seafarers not being given any of the specific antimalarial treatments used where there are drug resistant parasites. In the UK, routine immunisations recommended for all members of the population are provided by General Practitioners (GPs) under the NHS. Travel health clinics can also provide immunisations, malaria medications and advice. **Employers** need to give the seafarer or the Approved Doctor information on likely destinations so that the correct immunisations and advice are given. The **doctor** should give the seafarer a record of immunisation as well as maintaining his/her own records.

5.4 Where **manning agencies** are recruiting without adequate briefing on destinations, the possible lack of immunisations must be clearly indicated to the ship operator and the seafarer. The **ship operator** then has the duty to arrange them. When the pattern of voyage differs from that originally envisaged when the seafarer was immunised, ensuring that additional immunisations required are given is necessarily a responsibility of the **ship operator**, even when they are not the formal employer of the seafarer.

5.5 When seafarers are recruited from countries with different patterns of disease and immunisation from the UK, the **employer** must obtain medical advice from an Approved Doctor or travel medicine specialist on immunisation and anti-malaria requirements.

5.6 **Seafarers** should retain a record of immunisations and present it to the Approved Doctor at medicals and when requested by employers. They should also be aware of the importance of informing any doctor of their recent locations of work if they develop fever or diarrhoea, especially if they have recently

flown home from a vessel in an area subject to infections. The seafarer's record should be checked before departure by the **ship operator and finally by the ship's master**.

## 6.0 Schedules for immunisation

6.1 The table and schedule in Annexes 2 and 3 to this Notice indicate the requirements for immunisation in broad terms. The doctor providing the immunisations will be able to check precise recommendations and advise on the correct immunisation schedule.

## 7.0 Anti-Malaria Medication

7.1 Since immunisation against malaria is not available, a course of preventive medication is required, usually starting before likely exposure. Detailed local information on risk is needed to decide on the medication to use. Some treatments are suitable for all seafarers but others require the individual to have medical clearance before administration. This is important where drug-resistant forms of malaria exist, and as a result, the first choice medications cannot be used.

7.2 It is the ship operator's responsibility to ensure that a vessel entering malarious areas carries appropriate medication against malaria in sufficient quantities (see Annex 4). The ship's stores may need to be further supplemented if there are resistant strains present. Appropriate emergency standby medication should also be carried (see Annex 5). Preventive treatment (prophylaxis) needs to start shortly before entering a risk area and must be continued for a period thereafter. Hence ships' masters must know when the crew should start to use it. This needs to be supplemented by knowledge of how to use emergency standby medication in the event of a suspected case, either in a location where anti-malarial tablets are not indicated because of the low level of anticipated risk, or because a seafarer has failed to take the appropriate preventive medicine.

7.3 It is the master's responsibility to determine the time at which anti-malarial tablets should be started and finished, based on the timing of visits to areas where there is a risk of infection.

Based on specialist advice, the use of standby treatment alone may be justified where the risks are low. Standby treatment must always be followed-up with contact to a radio medical advisory service for recommendations on subsequent action.

7.4 The Approved Doctor will also be able to advise the seafarer whether they have any medical reasons for not using particular anti-malarial medicines. There are reliable Internet sources, which specify the malaria risk in different locations, as well as providing information on any drug resistance, listed in Annex 1 to this Notice. Additional valid local knowledge may be relevant to particular ports. It is normally best for the ship operator to obtain specific advice from a travel medicine specialist on the particular regime of prevention to be followed, to buy the appropriate medication accordingly and to ensure that ships' masters are familiar with the advice given with the medication.

7.5 This guidance only relates to anti-malaria medication. Advice on other preventive measures, such as use of mosquito nets, is included in The Ship Captain's Medical Guide and also in MSN 1768 (M+F) on Medical Stores.

## **8.0 Further Information**

8.1 Further information on the contents of this Note or any issue relating to seafarer health and safety should be referred to the Maritime and Coastguard Agency at:

Seafarer Health and Safety Branch  
2/09 Spring Place  
105 Commercial Road  
Southampton  
SO15 1EG

Tel: 023 8023 9247  
Fax: 023 8032 9251  
Email: [seafarerH&S@mcga.gov.uk](mailto:seafarerH&S@mcga.gov.uk)

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*Department for*  
**Transport**

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## Useful References

### Web sites

- General travel health and safety ([www.fco.gov.uk/travel/](http://www.fco.gov.uk/travel/))
- The World Health Organisation: International Travel and Health; Vaccination Requirements and Health [www.who.int/ith/](http://www.who.int/ith/)
- "Fit for Travel" is a public access website provided by the NHS which gives travel health information for people travelling abroad from the UK ([www.fitfortravel.scot.nhs.uk](http://www.fitfortravel.scot.nhs.uk))
- The International Society of Travel Medicine: an information resource for both travel medicine practitioners and travellers [www.istm.org](http://www.istm.org)

### General

CDC Travellers' Health. Cruise Ship Travel: Health recommendations. Released September 5, 2002. <http://www.cdc.gov/travel>

Rooney R. Ship sanitation and health. The Global Occupational Health Network. 2002; vol.3, pgs 4 - 5.

British National Formulary. British Medical Association and the Royal Pharmaceutical Society of Great Britain.

Review and Recommendations to Seafarers on Immunisations and Prevention of Malaria including the Use of Prophylaxis - Report to MCA by Dr Jane Zuckerman, Director of the Academic Centre for Travel Medicine and Vaccines and the Royal Free Travel Health Centre. Available on MCA's website: [www.mcga.gov.uk/publications](http://www.mcga.gov.uk/publications)

### Travel Health Risk Assessment

Stringer C, Chiodini J & Zuckerman Jane N. International travel and health assessment. Nursing Standard 2002; vol 16, Issue 39, pgs 49 - 54.

### Malaria

Wernsdorfer WH. Protection against malaria among seafarers. International Maritime Health 2002; vol 53, Issue 1 - 4: pgs 7 - 16.

Bradley DJ and Bannister B (on behalf of the Advisory Committee on Malaria Prevention for UK Travellers). Guidelines for malaria prevention in travellers from the United Kingdom for 2001. Communicable Disease Public Health 2001; vol 4(2): pgs 84-101.

MCA Merchant Shipping Notice MSN 1768 (M + F). (To be published 2003)

The Ship Captain's Medical Guide - 22<sup>nd</sup> Edition. The Maritime and Coastguard Agency of the Department for Transport. London: The Stationery Office (Published 1998)

### Immunisations

World Health Organisation. International Travel and Health, Vaccination Requirements and Health Advice, ISBN 92 4 158026 7, 2001

Department of Health, Welsh Office, Scottish Office Department of Health, DHSS (Northern Ireland), PHLS CDSC. Health Information for Overseas Travel 2001

## UK Routine and Job Specific Immunisations and Geographical Requirements

### UK Routine Immunisations

- Poliomyelitis
- Tetanus
- Childhood immunisations e.g Diphtheria/Tetanus/Pertussis (in date)

### Additional Immunisations

Recommended for travel outside of NW Europe, N America, Australia & New Zealand:

- Diphtheria (close contact with the indigenous population)
- Hepatitis A
- Hepatitis B
- Typhoid
- Yellow fever (sub-Saharan Africa, parts of Central and Southern America)

### Special Risk by Duties

- Hepatitis A & typhoid (food handlers)
- Hepatitis A (sewage workers)
- Hepatitis B (crew providing medical care)

### Other Special Risks

- Influenza (including those with underlying medical problems)
- Meningococcal meningitis (close contact with the indigenous population)
- BCG (when appropriate)

### Specific Certificate Required by Port Authorities

- Yellow fever (travel to parts of sub-Saharan Africa, and parts of Central and Southern America)

## IMMUNISATION SCHEDULES

The following table is based upon schedules of immunisation applicable to the United Kingdom.

Key: **I.M** - intramuscular, **S.C** - sub-cutaneous, **ID** - intra-dermal

Vaccine	Route / Dose	Schedule	Booster	Available from GP
<b>Diphtheria (adults)</b>	0.5 ml I.M	3 doses at 4-week intervals	10 years	Yes
<b>Hepatitis A</b>	I.M	2 doses at 0, 6-12 months	10 years	Yes
<b>Hepatitis A /typhoid</b>	I.M	1 dose	Hepatitis A: 6-12 months  Typhoid: 3 years	Yes
<b>Hepatitis B</b>	I.M	3 doses at:  0, 1 month, 6 months  <i>Or:</i> 0, 1 month, 2 months  <i>Or:</i> 0, 7 days, 21 days	5 years  12 months  12 months	Yes
<b>Hepatitis A /hepatitis B</b>	I.M	3 doses at: 0, 1 month, 6 months  <i>Or:</i> 0, 7, 21 days	Hepatitis A: 10 years  Hepatitis B: 5 years	Yes
<b>Influenza</b>	0.5 ml I.M	Adults: Single dose	Annually	Yes
<b>Japanese encephalitis</b>	S.C	3 doses at 0, 7-14 days, 28 days  or 2 doses 0, 7-14	2 years  3 months	No
<b>Measles/ mumps/ rubella (MMR)</b>	0.5 ml I.M	Single dose		Yes
<b>Meningococcal meningitis</b>	I.M	Single dose	3-5 years	Yes
<b>Poliomyelitis</b>	Oral/ I.M	3 doses at 4-week intervals	10 years	Yes
<b>Rabies (pre-exposure)</b>	I.M/I.D	3 doses at 0, 7 days, 21 or 28 days  2 doses at 0, 28 days	2-3 years  6-12 months	No
<b>Tetanus</b>	0.5 ml I.M (or as Td)	3 doses at 4-week intervals	10 years	Yes
<b>Tuberculosis (BCG)</b>	0.1 ml I.D	Single dose		Yes

<b>Vaccine</b>	<b>Route / Dose</b>	<b>Schedule</b>	<b>Booster</b>	<b>Available from GP</b>
<b>Typhoid</b>	I.M	Single dose	3 years	Yes
	Oral	3 doses on alternate days	Annually	
<b>Varicella</b>	S.C	2 doses at 0, 4-8 weeks	N/A	No
<b>Yellow fever</b>	S.C	Single dose	10 years	No

## Summary of Needs for Malaria Medication

### Areas of chloroquine resistance

**Doxycycline**                    one tablet (100 mg) daily starting one day before travel to endemic area and continue for four weeks after leaving malarious area

### **Atovaquone + proguanil (Malarone™)**

one tablet (250 mg atovaquone + 100 mg proguanil) daily starting one day before travel to endemic area and continue for seven days after leaving malarious area

**Mefloquine**                    one tablet (250 mg) weekly starting trial dose for three weeks prior to departure if appropriate and continue for four weeks after leaving malarious area

### **Chloroquine + proguanil**

two tablets (150 mg) of chloroquine taken weekly starting a week before travel to endemic area and continue for four weeks after leaving malarious area together with two tablets (100 mg) of proguanil daily starting a week before travel to endemic area and continue for four weeks after leaving malarious area

### Areas with no chloroquine resistance

**Chloroquine**                    two tablets (150mg) weekly

**Proguanil**                      two tablets (100mg) daily

See also British National Formulary for information on advantages and disadvantages of different treatments.

## Malaria Emergency Standby Medication

The use of emergency medication is indicated whenever infection is suspected (see Chapter 6 of the Ship Captain's Medical Guide). This may form part of a planned approach where the risk is low (see para 7.3 of this Notice). Use will also be required where either a crew member has failed to take the recommended anti-malarials or where symptoms are present despite the use of anti-malarials.

<b><u>Drug</u></b>	<b><u>Dose</u></b>
<b>Atovaquone &amp; proguanil (Malarone™)</b>	4 tablets as a single dose on each of 3 consecutive days
<b>Quinine &amp; doxycycline</b>	2 tablets of quinine 3 times a day for 3 days + 1 tablet of doxycycline twice daily for 7 days
<b>Mefloquine</b>	15mg not exceeding 4 tablets in split dose, 6 hours apart
<b>Co-artemether (Riamet)</b>	6 doses of 4 tablets over a period of 60 hours
<b>Chloroquine (only in chloroquine sensitive areas)</b>	4 tablets on days 1 and 2, 2 tablets on day 3



