Guidelines for the Prevention of Infection in Splenectomised or Functionally Asplenic Patients

<table>
<thead>
<tr>
<th>Approval by Infection Prevention and Control Committee</th>
<th>Version</th>
<th>Issue Date</th>
<th>Review Date</th>
<th>Document Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18th April 2013</td>
<td>3</td>
<td>18th April 2013</td>
<td>April 2016</td>
<td>Dr Mick Martin Consultant Microbiologist</td>
</tr>
</tbody>
</table>
1.0 Introduction

Patients who have an absent or dysfunctional spleen are at risk of life threatening infections. In patients undergoing a splenectomy the risks are greatest within the first two years following splenectomy, but remain significantly elevated lifelong. Those rendered functionally hyposplenic by underlying disease carry a lifelong risk of overwhelming sepsis.

Infections can be caused by a variety of bacteria, the most serious being due to encapsulated bacteria such as:

- *Streptococcus pneumoniae* (pneumococcus)
- *Haemophilus influenzae* type b (Hib)
- *Neisseria meningitidis* (meningococcus)

Other organisms causing severe infections:

- *Capnocytophaga canimorsus* (associated with dog bites)
- Malaria
- Babesiosis (*Babesia* sp. associated with tick bites)
Compliance with the policy will be assessed on an annual basis by auditing a sample of patients meeting above criteria (in conjunction with clinical teams).

### 2.0 Patients At-Risk

Preventive strategies such as immunisation and prophylactic antibiotics are effective in reducing life threatening infections in asplenic and functionally hyposplenic patients and are advocated in current national guidelines. The guidance outlined in this document applies to the following patient groups:

- Patients who have undergone or are due to undergo splenectomy
- Patients with underlying disease which may render them functionally hyposplenic: haemoglobinopathies such as sickle cell anaemia and thalassaemia; essential thrombocytopenia; lymphoproliferative diseases; coeliac disease; inflammatory bowel disease; dermatitis herpetiformis; amyloidosis; sarcoidosis; bone marrow transplantation and patients undergoing splenic irradiation.
- Patients with congenital asplenia (associated with cardiac abnormalities & biliary atresia)

#### 3.0 Immunisations

<table>
<thead>
<tr>
<th>Age at which asplenia or splenic dysfunction or immunosuppression is acquired / diagnosed</th>
<th>Vaccination schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinations should ideally be given at least 2 weeks before elective splenectomy or commencement of immunosuppression</td>
<td></td>
</tr>
<tr>
<td>In the setting of an emergency splenectomy it is advisable to give vaccinations 2 weeks after surgery</td>
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</table>

<table>
<thead>
<tr>
<th>Month 0</th>
<th>Month 1</th>
<th>Additional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib/MenC vaccine (MENITORIX)</td>
<td>MenACWY conjugate vaccine</td>
<td>Re-vaccination with PPV every 5 years is recommended for all patients</td>
</tr>
<tr>
<td>Single dose of PPV</td>
<td></td>
<td>Annual seasonal Influenza vaccination is recommended for all patients</td>
</tr>
</tbody>
</table>

**Hib/MenC = Haemophilus influenzae** type B / Meningococcal gp C combined conjugate vaccine (Menitorix®)  
**MenACWY = Meningococcal A, C, W135 and Y conjugate vaccine.**  
**PPV = Pneumococcal polysaccharide vaccine (Pneumovax® II)**
Vaccinations should ideally be given at least 2 weeks before elective splenectomy or commencement of immunosuppression.

In the setting of an emergency splenectomy it is advisable to give vaccinations 2 weeks after surgery (although equivalent antibody levels are achieved with vaccination immediately after surgery, functional antibody responses are better with delayed (14 day) vaccination).

If vaccinations are not given prior to commencement of immunosuppressive therapy, then vaccination should be delayed for at least 3 months following treatment or radiotherapy. During this time period prophylactic antibiotics MUST be given.

Annual seasonal Influenza vaccination is recommended for ALL patients.

Patients who have previously received the meningococcal polysaccharide A&C vaccine or quadrivalent vaccine (A, C, W135, and Y) should still be offered the Hib/MenC vaccine.

Patients travelling to areas of high incidence of meningococcal infection (Middle East, Sub-Saharan Africa, Asia, India – country-by-country information is available from the National Travel Health Network and Centre: www.nathnac.org) or in close contact with a case of serogroup A, W135 or Y meningococcal infection still require the additional protection conferred by polysaccharide A&C vaccine or quadrivalent (A, C, W135, Y) vaccine according to the circumstances.

4.0 Antibiotic Prophylaxis

Lifelong antibiotic prophylaxis should be offered to all patients due to the risk of overwhelming sepsis.

The risk of overwhelming infection is greatest in:
- the first 2 years after splenectomy
- children under the age of 16yrs
- asplenic or hyposplenic patients who have additional impairment to immune function

<table>
<thead>
<tr>
<th>Oral Antibiotic Prophylaxis</th>
<th>Adults</th>
<th>500mg bd po</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erythromycin (if allergic to</td>
<td>Adults</td>
<td>500mg od po</td>
</tr>
</tbody>
</table>

N.B. Antibiotic prophylaxis is not 100% effective in preventing sepsis, patients showing signs of sepsis require full medical assessment and rapid administration of treatment dose antibiotics (see section 5).
5.0 Recognition & Management of Sepsis in Asplenia

5.1 Clinical Features
Sepsis in this patient group typically presents after a short prodrome of fever, chills, pharyngitis, muscle aches and vomiting / diarrhoea. A clinical focus for infection is often lacking in adults, children under the age of 5yrs are more likely to present with meningitic features. Deterioration to septic shock without treatment is swift. [68% of patients dying of overwhelming asplenic sepsis die in the first 24hrs, with 80% dying within first 48hrs]

5.2 Investigations (these should not delay antibiotic administration)
The diagnosis of sepsis is made on clinical grounds, with attending clinicians needing to maintain a high index of clinical suspicion in asplenic or functionally hyposplenic patients. Suggested initial investigations:
- Full blood count, Clotting screen, Urea & electrolytes, Urgent C-reactive protein (CRP)
- Blood cultures
- Pneumococcal urinary antigen
- EDTA blood for meningococcal PCR
- Other microbiological samples guided by clinical features (e.g. CSF etc)
  If recent overseas travel to malarious area:
  EDTA blood sample for urgent Malaria film and antigen screen

5.3 Management of Sepsis in Asplenics

5.3.1 Immediate Self-Treatment by Patient
Due to the potential for rapid deterioration, self-administration of a single dose of antibiotic by the patient at the first sign of a suspicious illness is advised. **This is NOT a substitute for immediate medical evaluation-patients should then seek medical review (A&E or GP).**

The single oral dose of “rescue” antibiotics is as follows:
- Amoxicillin 3g sachet po stat OR,
- Cefixime 800mg po stat (if non-severe penicillin allergy) OR,
- Azithromycin 1g po stat (if severe penicillin / beta-lactam allergy)

5.3.2 Management of Hospitalised Patients
Acute management of asplenic / functionally hyposplenic patients presenting to hospital with suspected sepsis should follow the RBCH pathway for Management of Severe Sepsis. **Once recognised as sepsis the administration of prompt antibiotics (within the hour) is vital and is the responsibility of the attending doctor.**

**Suggested antibiotic regimes: (as for Meningococcal septicaemia)**
- Ceftriaxone 2g iv stat, then 2g iv od OR,
- Chloramphenicol 1g qds iv (alternative agent if severe penicilllin/ beta-lactam allergy)
5.4 Management of Influenza

Patients who appear clinically to have influenza may be offered antiviral therapy (Oseltamivir or Zanamivir. Management of Pandemic Flu policy.

6.0 Other Infections Posing a Risk

Animal Bites

*Capnocytophaga canimorsus*, a bacteria which is a normal mouth commensal of animals (particularly dogs) can cause overwhelming sepsis in asplenic or functionally hyposplenic patients who have sustained an animal bite. At-risk patients should be warned about this and require a course of prophylactic antibiotics (typically either co-amoxiclav or erythromycin for 5 days) after such a bite.

Parasitic Infections

**Malaria:** Asplenic & functionally hyposplenic patients are at increased risk of severe falciparum malaria. Non-essential travel to malarious areas should be discouraged. If inevitable then the patient should seek pre-travel advice from a travel health clinic or their GP regarding the need for any additional immunisations, anti-malarial prophylaxis (adherence to this is paramount) & information on mosquito bite avoidance (e.g. use of mosquito repellents, wearing long trousers / long sleeved clothes, use of mosquito nets etc.).

**Babesiosis:** Babesia is a rare tick-borne parasitic infection which occurs infrequently throughout temperate European countries (including the UK) and North America. Risks include living or visiting an area where ticks are present (bearing in mind many tick bites go unrecognised). This infection carries high morbidity and mortality in patients with asplenia or functional hyposplenism. Diagnosis is by examination of a blood film. Management of a suspected case must be discussed with the duty Consultant Microbiologist. Patients should be advised to take tick-avoidance precautions when visiting tick-infested areas, and should undertake a thorough daily tick-check (with particular attention to groin, axillae, skin folds and scalp) and prompt removal of any attached ticks.

7 . 0 References


8.0 Patient Information

Copies of the attached patient splenectomy card and patient information leaflet (see Appendix A & B) can be obtained by calling Tel No 08701 555455

APPENDIX A: NHS Splenectomy Card

[Image of the NHS Splenectomy Card]

Further copies and a patient card are available from:
DH Publications Orderline Tel. 08701 555 455
E-mail: dh@prolog.uk.com PO Box 777 London SE1 6XH

[Table of immunisation details]

Name
Address
Post code
Tel
GP Tel
Hospital Tel
I have been immunised against: Date(s) last given
Pneumococcal
Hib
MenC
Men A, C, W, Y
Flu
This leaflet is for patients who have had their spleen removed, whose spleen isn’t present or doesn’t work.

Splenectomy is an operation to remove the spleen. Doctors may commonly perform a splenectomy because the spleen:
• has been damaged in a serious accident
• is diseased
• contains a growth or tumour
• has become overactive.

Some people are born without a spleen (this is called asplenia) or their spleen does not work properly (this is called splenic dysfunction). They will have the same problems as someone whose spleen has been removed.

What does the spleen do?
The spleen helps the body’s defence against bacterial infections. If you do not have a spleen you will still be able to cope with most infections, but in some cases serious infection may develop quickly. The risk of this happening is higher in children than in adults but it is still very small.

What should I do if I do not have a spleen?
• Remind your doctor and dentist that you do not have a spleen.
• Carry a card or wear an identifying bracelet or necklace to alert other people in an emergency.
• Make sure you have received all your routine childhood immunisations (talk to your doctor or nurse, or see www.immunisation.nhs.uk). In particular, you should ensure you have received the following vaccinations to help prevent infections to which you are particularly vulnerable:
  • Pneumococcal
  • Haemophilus influenzae type b (Hib)
  • Meningitis C (MenC)
  • Influenza (every year)
• And, if you are travelling abroad, you may need an additional meningococcal vaccine – ACWY.
Other important information

- You may be recommended to take antibiotics every day to prevent the onset of infections. This is essential in the first few years after your operation and for children under 16 years of age. Tell your doctor if you have been unable to take the antibiotics for any reason.
- Alternatively, you may be given a course of antibiotics to keep at home in case you become ill and there is a delay in seeing your doctor.
- Contact your doctor immediately if you are ill. Most illnesses will be minor and can be dealt with as usual but sometimes a fever, sore throat, severe headache or abdominal pain may be the beginning of something more serious. Early diagnosis and treatment are essential and may be life saving.
- Get treatment for any bites (especially dog) urgently and take any antibiotics you are given to prevent infection.
- If you are regularly involved in outdoor pursuits such as trekking or camping, you may be at risk from a rare disease called babesiosis which is transmitted by ticks and can be mistaken for malaria. You can help protect yourself by wearing clothing to cover exposed skin, especially long trousers to cover the legs. If you become ill, seek medical advice promptly.
- Talk to your doctor before travelling abroad. Extra vaccinations and special precautions to prevent malaria may be necessary. It is also wise to carry a course of antibiotics with you, whether or not you are already taking them on a daily basis.

Further copies and a patient card are available from:
DH Publications Order line Tel. 08701 555 455
E mail: dh@prolog.uk.com PO Box 777 London SE16XH
**Splenectomy / Functional Asplenia Notification**

THIS LETTER IS TO BE COMPLETED & SENT TO THE PATIENT’S GENERAL PRACTITIONER

Dear Dr,

Your Patient: Name: or affix label

Date of birth:

Hospital number:

Underwent splenectomy / was diagnosed as functionally asplenic on:

Your patient has received / requires the following:

<table>
<thead>
<tr>
<th>Action</th>
<th>Done? (date)</th>
<th>Required? (date)</th>
<th>Further Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Pneumococcal Vaccination:</td>
<td></td>
<td></td>
<td>If after splenectomy, the initial dose should ideally be given 2 weeks post-operatively.</td>
</tr>
<tr>
<td>Adult patients: Single dose of polysaccharide pneumococcal vaccine (Pneumovax II®)</td>
<td></td>
<td></td>
<td>Re-immunisation required every 5 years</td>
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<tr>
<td>Children: refer to Guideline / DH “Green Book”</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2 Haemophilus influenzae type B / Meningococcal Group C Vaccination (give as combined Menitorix®)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3 MenACWY = Meningococcal A, C, W135 and Y conjugate vaccine.</td>
<td></td>
<td></td>
<td>Give one month after the Menitorix immunisation.</td>
</tr>
<tr>
<td>4 Seasonal Influenza Vaccine</td>
<td></td>
<td></td>
<td>Annual re-immunisation required</td>
</tr>
<tr>
<td>5 Antibiotic Prophylaxis (Penicillin V 500mg bd po OR Erythromycin 500mg od po)</td>
<td></td>
<td>Antibiotic &amp; Dose:</td>
<td>Continue lifelong.</td>
</tr>
<tr>
<td>6 “Rescue” Single Dose of Antibiotics one of:</td>
<td></td>
<td>Antibiotic &amp; Dose:</td>
<td>If patient develops symptoms of sepsis, they should take the “rescue” dose of antibiotic and seek medical attention immediately.</td>
</tr>
<tr>
<td>Amoxicillin 3g sachet po OR Cefixime 800mg po OR Azithromycin 1g po</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Splenectomy Card &amp; Patient Information Leaflet issued.</td>
<td></td>
<td></td>
<td>Copies are available from DH Publications, PO Box 777, London SE1 6XH, Tel 08701555455</td>
</tr>
</tbody>
</table>

- Please enter the patient on a splenectomy register to ensure pneumococcal & influenza re-immunisation is given at the correct intervals.
- For further advice please contact the duty Consultant Microbiologist at RBCH.

Yours sincerely,

(Name, Grade and Consultant team)
1.0 Consultation

<table>
<thead>
<tr>
<th>Those listed opposite have been consulted and comments/actions incorporated as required.</th>
<th>List Groups and/or Individuals Consulted</th>
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<tbody>
<tr>
<td>(Author to ensure that relevant individuals/groups have been involved in consultation as required prior to this document being submitted for approval)</td>
<td>Andrew Duncan Medicines Management</td>
</tr>
<tr>
<td></td>
<td>Sally Killick Consultant Haematologist</td>
</tr>
<tr>
<td></td>
<td>Sean Weaver Consultant General &amp; Upper Gastro-Intestinal Tract</td>
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### EQUALITY IMPACT ASSESSMENT – SCREENING FORM

<table>
<thead>
<tr>
<th>1. Title of document/service for assessment</th>
<th>Trust Policy for the Prevention and Control of Infection</th>
</tr>
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<tbody>
<tr>
<td>2. Date of assessment</td>
<td></td>
</tr>
<tr>
<td>3. Date for review</td>
<td></td>
</tr>
<tr>
<td>4. Directorate/Service</td>
<td>Infection Control Team</td>
</tr>
<tr>
<td>5. Approval Committee</td>
<td>Infection Prevention and Control Committee</td>
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</tbody>
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<tr>
<th>6. Does the document/service affect one group less or more favourably than another on the basis of:</th>
<th>Yes/No</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Race</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>• Gender (including transgender)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>• Religion or belief</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>• Sexual orientation, to include heterosexual, lesbian, gay and bisexual people</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>• Age</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>• Disability – learning disabilities, physical disabilities, sensory impairment and mental health issues</td>
<td>No</td>
<td></td>
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<tr>
<td>• Marriage and Civil Partnership</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>• Pregnancy and Maternity</td>
<td>No</td>
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7. Does this document affect an individual’s human rights? **No**

8. If you have identified potential discrimination, are the exceptions valid, legal and/or justified? **No**

9. If the answers to any of the above questions is ‘yes’ then:

   - Demonstrate that such a disadvantage or advantage can be justified or is valid: **N/A**
   - Adjust the policy to remove disadvantage identified or better promote equality: **N/A**
   - If neither of the above possible, submit to Diversity Committee for review: **N/A**

10. Screener(s) Print name **Mick Martin**

11. Date Policy approved by Committee

12. Upon completion of the screening and approval by Committee, this document should be uploaded to papertrail.