

PROPHYLAXIS AGAINST ENDOCARDITIS IN DENTAL AND OTHER SURGERY

Recently both the American Heart Association and NICE have reviewed the evidence for antibiotic prophylaxis against infective endocarditis (IE) in dental and other surgery and have concluded that the **routine use of antibiotics in most, if not all, situations is not justified on the balance of risks and benefits**, i.e. the risk of antibiotic-associated adverse events may exceed the benefit from prophylactic antibiotic therapy. The maintenance of optimal oral health and hygiene may reduce the incidence of bacteraemia from daily activities and may be more important than prophylactic antibiotics for a dental procedure to reduce the risk of IE as IE is much more likely to result from frequent exposure to random bacteraemias associated with daily activities than from bacteraemia caused by a dental, GI tract, or GU tract procedure^{1,2}.

In light of these recommendations, the current guideline has been reviewed. After careful consideration, the consultant cardiologists and consultant microbiologists at NUH have decided to **continue to recommend prophylaxis for dental procedures in patients with the highest risk of adverse outcome of endocarditis**. *This guidance is contrary to NICE guidelines but compatible with those of the American Heart Association*^{1,2}.

The following high-risk patient group should receive antibiotic prophylaxis:

- Patients with a prosthetic cardiac valve
- Patients with previous IE
- Congenital heart disease (CHD) – the following conditions only
 - Unrepaired cyanotic CHD, including palliative shunts and conduits
 - Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure (i.e. pre-endothelialisation)
 - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialisation)
- Cardiac transplantation recipients who develop cardiac valvulopathy

The following procedures require prophylaxis:

1. All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosal in the high risk patient groups listed above.
2. If a person at risk of infective endocarditis is receiving antimicrobial therapy because they are undergoing a gastrointestinal or genitourinary procedure at a site where there is a suspected infection or for prophylaxis, the person should receive an antibiotic that covers organisms that cause infective endocarditis.

The following procedures DO NOT require prophylaxis:

- Routine anaesthetic injections through non-infected tissue, taking dental radiographs, placement of removable prosthodontic or orthodontic appliances, adjustment of orthodontic appliances, placement of orthodontic brackets, shedding of deciduous teeth, and bleeding from trauma to the lips or oral mucosa.
- Prophylaxis is no longer recommended for genitourinary, gastrointestinal procedures or ENT procedures including bronchoscopy.

Prophylactic antibiotic regimens		
Prophylactic antibiotic regimens for dental procedures		
Clinical situation	Drug	Regimen
Patients with high-risk of adverse outcome (see above).	Amoxicillin	3 g oral - 1 hour pre-procedure ³ or 2 g IV - <30 min pre-procedure if undergoing general anaesthetic. ¹
If allergic to penicillin →	Clindamycin	600 mg oral - 1 hour pre-procedure or 600 mg IV - <30 min pre-procedure.

The following patient groups at risk of developing IE should be provided with clear and consistent information about prevention:

- Acquired valvular heart disease with stenosis or regurgitation
- Valve replacement
- Structural congenital heart disease, including surgically corrected or palliated structural conditions, but excluding isolated atrial septal defect, fully repaired ventricular septal defect or fully repaired patent ductus arteriosus, and closure devices that are judged to be endothelialised
- Previous infective endocarditis
- Hypertrophic cardiomyopathy

Advice:

- The benefits and risks of antibiotic prophylaxis, and an explanation of why some experts no longer routinely recommend antibiotic prophylaxis
- The importance of maintaining good oral health
- Symptoms that may indicate infective endocarditis and when to seek expert advice
- The risks of undergoing invasive procedures, including non-medical procedures such as body piercing or tattooing.

References

- 1.AHA guidelines: Circulation 2007;116;1736-1754 available online at <http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.106.183095v1>
- 2.NICE guidelines <http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11938>
- 3.BNF Edition 54 (September 2007)

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July 2008