Complete Summary

GUIDELINE TITLE

Guidelines for antibiotic prophylaxis for gastrointestinal (GI) endoscopy.

BIBLIOGRAPHIC SOURCE(S)

Hirota WK, Petersen K, Baron TH, Goldstein JL, Jacobson BC, Leighton JA, Mallery JS, Waring JP, Fanelli RD, Wheeler-Harbough J, Faigel DO. Guidelines for antibiotic prophylaxis for GI endoscopy. Gastrointest Endosc 2003 Oct;58(4):475-82. [113 references] PubMed

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

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SCOPE

DISEASE/CONDITION(S)

Infectious complications of gastrointestinal endoscopy, such as bacterial endocarditis

GUIDELINE CATEGORY

Prevention

CLINICAL SPECIALTY

Gastroenterology
Infectious Diseases

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To provide recommendations for the use of antibiotic prophylaxis for gastrointestinal endoscopy
- To update the 1995 American Society for Gastrointestinal Endoscopy guideline on this topic

TARGET POPULATION

Individuals with conditions that require gastrointestinal endoscopy

INTERVENTIONS AND PRACTICES CONSIDERED

Prophylactic Antibiotics

Cardiac prophylaxis regimens

1. Oral amoxicillin; alternative: intravenous/intramuscular ampicillin
2. Oral clindamycin (for penicillin-allergic patients); alternatives: oral cephalexin or cefadroxil
3. Intravenous clindamycin (for penicillin-allergic patients unable to take oral medication); alternatives: intravenous/intramuscular cefazolin or intravenous vancomycin

MAJOR OUTCOMES CONSIDERED

Incidence of bacteremia and post-procedural endocarditis

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

In preparing this guideline, a MEDLINE literature search was performed, and additional references were obtained from the bibliographies of the identified articles and from recommendations of expert consultants.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review
Review of Published Meta-Analyses

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Guidelines for appropriate utilization of endoscopy are based on a critical review of the available data and expert consensus.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary. The recommendations that follow are based on the previous version of the guideline.

Recommendations are followed by evidence grades (A-C) identifying the type of supporting evidence. Definitions of the evidence grades are presented at the end of the "Major Recommendations" field.

Consensus Statements for Antibiotic Prophylaxis during Gastrointestinal Endoscopic Procedures

Prophylaxis against Infective Endocarditis

1. For most endoscopic procedures, including upper endoscopy, sigmoidoscopy, and colonoscopy with or without mucosal biopsy, polypectomy, and/or nonvariceal hemostasis:
    a. Antibiotic prophylaxis is not recommended for patients with lesions at intermediate risk for the development of endocarditis, or those with lesions or conditions at no increased risk for endocarditis compared to the general population. For example patients with mitral valve prolapse, with or without regurgitation do not require prophylaxis for any of the above procedures.
    b. There are insufficient data to recommend routine prophylaxis for patients at "high risk" for infective endocarditis. The endoscopist may consider prophylaxis on a case-by-case basis.
2. For endoscopic procedures associated with increased rates of transient bacteremia, including dilation of an esophageal stricture, varix sclerotherapy, and retrograde cholangiography with known or suspected bile duct obstruction:
    a. Prophylaxis is recommended for patients at "high risk" for the development of endocarditis.
    b. No prophylaxis is recommended for patients with those cardiac lesions and conditions at no increased risk for infective endocarditis over the general population. However, it is recommended that all patients with suspected or known biliary obstruction should receive prophylactic antibiotics prior to endoscopic retrograde cholangiopancreatography (ERCP).
    c. There are insufficient data to recommend routine prophylaxis for patients with cardiac lesions or conditions at intermediate risk for the development of infective endocarditis. The endoscopist may consider prophylaxis on a case-by-case basis.
3. Regimens (Dajani et al, 1997):
    a. Standard general prophylaxis: amoxicillin 2.0 g orally (po) (adult) or 50 mg/kg po (child), 1 hour prior to the procedure. Alternative for those unable to take po is ampicillin 2.0 g intravenously or intramuscularly (IV/IM) (adult) or 50 mg/kg IV/IM (child), within 30 min before procedure.
    b. Penicillin-allergic patients: clindamycin 600 mg po (adult) or 20 mg/kg po (child), 1 hour prior to procedure. Alternatives: cephalexin or cefadroxil 2.0 g po (adult) or 50 mg/kg po (child), 1 hour prior to the procedure. Azithromycin or clarithromycin 500 mg po (adult) or 15 mg/kg po (child), 1 hour prior to procedure.

c. Penicillin-allergic patients unable to take po: clindamycin 600 mg IV (adult) or 20 mg/kg IV (child), within 30 min before procedure. Alternative: cefazolin 1.0 gm IV/IM (adult) or 25 mg/kg IV/IM (child) within 30 min before the procedure. Vancomycin 1.0 gm IV (adult) or 10-20 mg/kg (child).

The Patient with a Synthetic Vascular Graft

For up to the first year after placement of a synthetic vascular graft, antibiotic prophylaxis is recommended for patients undergoing esophageal stricture dilation, varix sclerosis, or endoscopic retrograde cholangiography (ERCP) with known or suspected bile duct obstruction. For other endoscopic procedures, there are insufficient data to recommend routine prophylaxis. The endoscopist may consider prophylaxis on a case-by-case basis.

The Patient with a Prosthetic Joint or Orthopedic Prosthesis

There are insufficient data to recommend antibiotic prophylaxis for patients with prosthetic joints or orthopedic prostheses undergoing gastrointestinal endoscopic procedures.

The Patient with Biliary Obstruction, Pancreatic Pseudocyst, or Pancreatic Cystic Lesion Requiring Fine Needle Aspiration (FNA)

All patients undergoing ERCP for known or suspected biliary obstruction or known pancreatic pseudocyst should receive antibiotics along with adequate drainage of the biliary obstruction or cyst. Endoscopic transmural drainage of pancreatic pseudocysts similarly may result in the introduction of infection into the cystic cavity. Additionally, the endoscopic ultrasound (EUS) guided aspiration of pancreatic cystic lesions may also result in introduction of infection. Although not supported by randomized, controlled trials, the use of prophylactic antibiotics prior to attempted drainage of such pseudocysts and similar pancreatic lesions is recommended. Antibiotics which cover biliary flora such as enteric gram-negative organisms, enterococci, and possibly *Pseudomonas* sp. are recommended. Prophylactic antibiotics do not appear to be necessary prior to FNA of solid masses.

The Endoscopic Placement of a Percutaneous Feeding Tube

All patients undergoing percutaneous endoscopic placement of a feeding tube should receive prophylaxis to prevent soft tissue infection. Parenteral cefazolin (or an antibiotic with equivalent coverage) should be given 30 minutes prior to the procedure. If the patient is already on an equivalent antibiotic, prophylactic antibiotic administration remains unnecessary.

The Patient with Cirrhosis, Ascites, and the Immunocompromised Patient

Cirrhotic and otherwise immunocompromised patients are susceptible to infections from transient bacteremia, which occurs more often in high risk invasive procedures. The endoscopist should consider prophylaxis on a case-by-case basis in these high risk procedures such as esophageal sclerotherapy and stricture

dilation. All cirrhotics presenting with gastrointestinal (GI) bleeding should receive prophylactic antibiotics.

For other endoscopic procedures including prophylactic endoscopic variceal ligation, routine antibiotic prophylaxis is not recommended. However, the decision to administer antibiotic prophylaxis should be made on a case-by-case basis. Cirrhotic patients with ascites appear to be at a potentially higher risk for infection. Additionally, transplant patients on high doses of steroids also appear to have increased susceptibility to infection. The choice of antibiotic should be tailored to the specific perceived risk.

Summary

- Antibiotic prophylaxis against infective endocarditis is recommended when a high risk patient is undergoing an endoscopic procedure associated with a high incidence for transient bacteremia (**C**).
- Patients undergoing high risk endoscopic procedures who have a synthetic vascular graft less than one year old should also receive antibiotic prophylaxis (**C**).
- There is no clear benefit or consensus in the use of prophylactic antibiotics in patients with a prosthetic joint or an orthopedic prosthesis undergoing any endoscopic procedure (**C**).
- All patients undergoing ERCP for known or suspected biliary obstruction or known pancreatic pseudocyst should receive antibiotics with adequate drainage of the biliary obstruction (**A**) or cyst (**C**).
- Prophylactic antibiotics are recommended for endoscopic ultrasound guided aspiration of pancreatic cystic lesions but not prior to FNA of solid masses (**C**).
- All patients undergoing endoscopic placement of a percutaneous feeding tube should receive prophylactic antibiotics to limit the risk of soft tissue infection (**A**).
- All patients with cirrhosis who present with GI bleeding should receive prophylactic antibiotics to decrease infectious complications and mortality (**A**).

Refer to Table 1 below where antibiotic prophylaxis for endoscopic procedures is summarized. There are insufficient data to provide definitive recommendations in certain circumstances. Other factors, including preferences of patients and referring physicians, must also be considered. It is strongly recommended that each endoscopy unit or center develop a policy appropriate for its specific practice. These recommendations may serve as a template for this process.

Antibiotic Prophylaxis for Endoscopic Procedures		
Patient Condition	**Procedure Contemplated**	**Antibiotic Prophylaxis**
High risk: Prosthetic Valve Hx Endocarditis	Stricture Dilation Variceal Sclerotherapy ERCP/obstructed biliary tree	Recommended

Antibiotic Prophylaxis for Endoscopic Procedures		
Patient Condition	**Procedure Contemplated**	**Antibiotic Prophylaxis**
Syst-Pulm Shunt Synth Vasc Graft (<1yr old) Complex Cyanotic congenital heart disease	Other endoscopic procedures including EGD and colonoscopy (with or without biopsy/polypectomy), variceal ligation	Prophylaxis Optional
Moderate Risk: Most other congenital abnormalities Acquired valvular dysfunction (eg. Rheumatic heart disease) Hypertrophic Cardiomyopathy Mitral valve prolapse with regurgitation or thickened leaflets	Esophageal Stricture Dilation Variceal Sclerotherapy ERCP/obstructed biliary tree	Prophylaxis is optional
	Other endoscopic procedures including EGD and colonoscopy (with or without biopsy/polypectomy), variceal ligation	Not recommended
Low Risk: Other cardiac conditions (CABG, repaired septal defect or patent ductus, mitral valve prolapse without valvular regurg., isolated secundum atrial septal defect, physiologic/functional/innocent heart murmurs, rheumatic fever without valvar dysfunction, pacemakers, implantable defibrillators)	All endoscopic procedures	Not recommended
Obstructed bile duct	ERCP	Recommended
Pancreatic cystic lesion	ERCP, EUS-FNA	Recommended
Cirrhosis acute GI Bleed	All endoscopic procedures	Recommended
Ascites, Immunocompromised Patient	Stricture Dilation Variceal Sclerotherapy	No Recommendation

Antibiotic Prophylaxis for Endoscopic Procedures		
Patient Condition	**Procedure Contemplated**	**Antibiotic Prophylaxis**
	Other endoscopic procedures including EGD and colonoscopy (with or without biopsy/polypectomy), variceal ligation	Not Recommended
All patients	Percutaneous endoscopic feeding tube placement	Recommended (parenteral cephalosporin or equivalent)
Prosthetic joints	All endoscopic procedures	Not recommended
Cardiac Prophylaxis Regimens (oral 1 hour before, IM or IV 30 min before procedure) Amoxicillin PO or Ampicillin IV: adult 2.0 g, child 50 mg/kg Penicillin allergic: Clindamycin (Adult 600 mg, child 20 mg/kg), OR Cephalexin OR cefadroxil (adults 2.0 g, child 50 mg/kg), OR Azithromycin or clarithromycin (adult 500 mg, child 15 mg/kg), OR Cefazolin (adult 1.0 g , child 25 mg/kg IV or IM), OR Vancomycin (Adult 1.0 g, child 10-20 mg/kg IV)		

Definitions:

A. Prospective controlled trials
B. Observational studies
C. Expert opinion

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and classifed for the recommendations using the following scheme:

A. Randomized controlled trials
B. Non-randomized studies
C. Expert opinion

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Antibiotic prophylaxis in select "high risk" patients has been shown to reduce rates of bacteremia, cholangitis, peristomal wound infection, as well as rates of peritonitis after sclerotherapy. It also reduced infectious complications and mortality in cirrhotic patients.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The information in this guideline is intended only to provide general information and not as a definitive basis for diagnosis or treatment in any particular case. It is very important that patients consult their doctor about their specific condition.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Hirota WK, Petersen K, Baron TH, Goldstein JL, Jacobson BC, Leighton JA, Mallery JS, Waring JP, Fanelli RD, Wheeler-Harbough J, Faigel DO. Guidelines for antibiotic

prophylaxis for GI endoscopy. Gastrointest Endosc 2003 Oct;58(4):475-82. [113 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2003 Oct

GUIDELINE DEVELOPER(S)

American Society for Gastrointestinal Endoscopy - Medical Specialty Society

SOURCE(S) OF FUNDING

American Society for Gastrointestinal Endoscopy

GUIDELINE COMMITTEE

Standards of Practice Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

GUIDELINE AVAILABILITY

Electronic copies of the updated guideline: Available in Portable Document Format (PDF) from the American Society for Gastrointestinal Endoscopy (ASGE) Web site.

Print copies: Available from the American Society for Gastrointestinal Endoscopy, 1520 Kensington Road, Suite 202, Oak Brook, IL 60523

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 16, 2004. The information was verified by the guideline developer on May 12, 2004.

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