

## Antibiotic Prophylaxis for Gastrointestinal Endoscopy

Bacterial translocation of endogenous microbial flora into the bloodstream may occur during endoscopy because of mucosal trauma related to the procedure. Endoscopy-related bacteremia carries a small risk of localization of infection in remote tissues (ie, endocarditis). Endoscopy also may result in local infections in which a typically sterile space or tissue is breached and contaminated by an endoscopic accessory or by contrast material injection. This summary is an update of the prior ASGE document on antibiotic prophylaxis for GI endoscopy, and provides recommendations for periprocedural antibiotic therapy. The purpose of antibiotic prophylaxis during GI endoscopy is to reduce the risk of iatrogenic infectious adverse events. Recommendations for antibiotic prophylaxis are summarized in Table 2 and 3.

Despite an estimated 17 million endoscopies of the lower gastrointestinal tract and perhaps as many upper endoscopies f.e. performed in the United States each year, only 25 cases of infective endocarditis have been reported with temporal association to an endoscopic procedure. There are no data demonstrating a causal association between endoscopic procedures and infective endocarditis or that antibiotic prophylaxis prior to endoscopic procedures protects against infective endocarditis.

Tab. 1 Rate of bacteremia

Type of Endoscopy	Mean Bacteremia Rate	Notice
Gastrosocopy	4.4%	Last <30 minutes Not associated with infection
Sigmoidoscopy	<1%	
Colonoscopy	4.4%	Up to 6.3% during stent placement
Enteroscopy	No data	
Upper endosonography	5.8%	With or without FNP
Lower endosonography	2%	
Brushing Teeth	20-68%	Range between 20-68%
ERCP	6.4%	

The highest rates of bacteremia (Table 2 bis) have been reported with esophageal dilation, sclerotherapy of varices, and instrumentation of obstructed bile ducts. The rate of bacteremia following esophageal bougienage was demonstrated to be 12% to 22% in 3 prospective trials. Estimates of bacteremia associated with variceal sclerotherapy have been reported to be as high as 52%, with a mean of 14.6%. Endoscopic variceal ligation has been associated with bacteremia rates of 1% to 25%, with a mean of 8.8%. Whereas ERCP in patients with non-obstructed bile ducts has been associated with a low rate of bacteremia of 6.4%, the incidence increases to 18% in the setting of biliary obstruction because of stones or strictures.

Given the relative rarity with which most individuals undergo endoscopic procedures, the frequency and risk of endoscopy-related bacteremia is trivial compared with the frequency of bacteremia encountered with routine daily activity.

### Prevention of infective Endocarditis

Tab. 2

		Adults	Children
GI tract	Endoscopy +/- biopsy	no prophylaxis	no prophylaxis
	elective abdominal surgery (cholecystectomy, appendectomy, sigmaresection)	Standard amoxicilline / clavulanate 2,2g iv  Allergy to penicilline vancomycine 1g iv + antibiotics against gram negative bacteria (aminoglycosides or ciprofloxacin) and anaerobic bacteria (i.e. metronidazole)	Standard amoxicilline / clavulanate 50/5 mg/kg iv  Allergy to penicilline vancomycine 20 mg/kg iv + AB against gram negative bacteria (i.e. aminoglycosides) and anaerobic bacteria (i.e. metronidazole)

Antibiotic prophylaxis is recommended in the following cardiac conditions

Table 3

1. Patients with prosthetic cardiac valve (mechanic, biologic valves or homografts)
2. History of infective endocarditis
3. Patients with / after reconstructed cardiac valves
  - a. After use of graft material as long as 6 months after intervention
  - b. with paravalvular leak
4. Patients with congenital heart disease (CHD)
  - a. Unrepaired cyanotic CHD including palliative shunts or conduits
  - b. Completely repaired CHD with prosthetic material or device, placed surgically or by catheter, for the first 6 months after the procedure
  - c. Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or device
  - d. VSD and persistent Ductus arteriosus
5. Cardiac transplant recipients who develop cardiac valvulopathy

Source: Revidierte Schweizerische Richtlinien zur Endokarditisprophylaxe *Kardiovaskuläre Medizin* 2008;11: Nr. 12

## Antibiotic prophylaxis and/or treatment for local bacterial complications

Tab. 3

Patient condition	Procedure contemplated	Goal of prevention	Periprocedural antibiotic prophylaxis
Bile duct obstruction in absence of cholangitis	ERCP + complete drainage	prevention of cholangitis	Not recommended <sup>1</sup> ++++
Bile duct obstruction in absence of cholangitis	ERCP + incomplete drainage	prevention of cholangitis	Recommended ; continue antibiotics after procedure +++
Solid lesion in the upper GI-tract	EUS-FNA	Prevention of local infection	Not recommended ++++
Solid lesion in the lower GI-tract	EUS-FNA	Prevention of local infection	Not recommended +++
Mediastinal cysts	EUS-FNA	Prevention of cyst infection	Recommended ++
Pancreatic cysts	EUS-FNA	Prevention of cyst infection	Recommended ++
All patients	Percutaneous endoscopic feeding tube placement	Prevention of peristomale infection	Recommended ++++
Cirrhosis with acute GI bleeding	Required for all patients regardless of endoscopic procedures	Prevention of infectious complications and reduction of mortality	On admission ++++
Synthetic vascular grafts and other non valvular cardiovascular devices	Any endoscopic procedure	Prevention of graft and device infection	Not recommended ++++
Prosthetic joints	Any endoscopic procedure	Prevention of septic arthritis	Not recommended ++++
Peritoneal dialysis	Lower GI endoscopy	Prevention of peritonitis	Recommended ++

<sup>1</sup> only for immunocompetent patients

Source: Antibiotic Prophylaxis for Gastrointestinal Endoscopy / Synthetic Summary of The ASGE Guidelines *Gastrointestinal Endoscopy 2015*

## **FINAL RECOMMENDATIONS**

Level of recommendation: High : ++++ ; Moderate : +++ ; Low : ++ ; Very low : +

1. We recommend against the routine administration of antibiotic prophylaxis solely for prevention of infective endocarditis. (+++)
2. We suggest that patients with high-risk cardiac conditions ([Table 3](#)) and established GI tract infections in which enterococci may be part of the infecting bacterial flora should receive antibiotic coverage. (++)
3. We recommend against antibiotic prophylaxis before ERCP when obstructive biliary tract disease is not suspected or complete biliary drainage is anticipated. (++++)
4. We recommend that antibiotic prophylaxis be administered before ERCP in patients who have had liver transplantation or who have known or suspected biliary obstruction, where there is a possibility of incomplete biliary drainage. Antibiotics that cover biliary flora such as enteric gram-negative organisms and enterococci should be used and continued after the procedure if biliary drainage is incomplete. ( +++)
5. We recommend against antibiotic prophylaxis before diagnostic EUS or EUS-FNA of solid lesions of the GI tract. (+++) <sup>[1]</sup><sub>SEP</sub>
6. We suggest antibiotic administration prior to EUS-FNA of mediastinal cysts. (++) <sup>[1]</sup><sub>SEP</sub>
7. We suggest administration of prophylactic antibiotics before EUS-FNA of pancreatic or peripancreatic cysts. (++) <sup>[1]</sup><sub>SEP</sub>
8. We recommend administration of parenteral cefazolin (or an antibiotic with equivalent microbial coverage) to all patients before PEG/PEJ tube placement. (+++++) <sup>[1]</sup><sub>SEP</sub>
9. We recommend that all patients with cirrhosis admitted with GI bleeding should have antibiotic therapy instituted at admission with intravenous ceftriaxone (or an antibiotic with equivalent microbial coverage [eg, oral norfloxacin] in patients allergic to or intolerant of ceftriaxone). (+++++) <sup>[1]</sup><sub>SEP</sub>
10. We recommend against administration of antibiotic prophylaxis before GI endoscopic procedures for patients with synthetic vascular grafts or other nonvalvular cardiovascular devices (eg, implantable electronic devices). (+++++) <sup>[1]</sup><sub>SEP</sub>
11. We recommend against antibiotic prophylaxis for patients with orthopedic prosthesis undergoing any GI endoscopic procedure. (+++)
12. We suggest administration of antibiotic prophylaxis before endoscopy of the lower GI tract in patients undergoing continuous ambulatory peritoneal dialysis. (+)
13. We recommend against antibiotic prophylaxis for patients undergoing endoscopic mucosectomy
14. We recommend against antibiotic prophylaxis for patients undergoing stent insertion or undergoing dilatation as a routine procedure but suggest its administration on an appropriate case by case decision (variceal hemorrhage, immunosuppression, fistulas, etc)