

## **Online Appendix**

### **Common Procedures and Associated Procedural Bleed Risk**

The views expressed in this appendix by various specialty societies do not necessarily reflect the official views of the American College of Cardiology.

In selected circumstances, differences may exist between specialty societies as to the assigned bleeding risk for a given procedure.

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**Electrophysiology Section Leadership Council of the  
American College of Cardiology**

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Lead extraction, mechanical/laser assisted	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ablation, epicardial VT (ventricular tachycardia)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LAAO (left atrial appendage occlusion) (e.g., Watchman device or Lariat procedure)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ablation, structural VT (ventricular tachycardia)*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, PVC (premature ventricular complex)*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, atrial fibrillation*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, atrial flutter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant or generator replacement, CIED (cardiac implantable electronic device)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant, subcutaneous ICD (implantable cardioverter defibrillator)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, SVT (supraventricular tachycardia)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant, ILR (implantable loop recorder)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, endocardial VT (ventricular tachycardia)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Most AF ablation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Could be intermediate, but only under extreme circumstances. Otherwise would be low.

We are grateful for this contribution by the Electrophysiology Section Leadership Council of the American College of Cardiology.

## Interventional Section Leadership Council of the American College of Cardiology

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Coronary angiography, transradial	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coronary angiography, transfemoral*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PCI (percutaneous coronary intervention), transradial	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCI (percutaneous coronary intervention), transfemoral	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TAVR (transaortic valve replacement)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, aortic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pericardiocentesis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mitral valve repair, percutaneous (MitraClip procedure)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right heart catheterization	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MCS (mechanical circulatory support)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IABP (intra-aortic balloon pump)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, mitral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Grafting, endovascular	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAO (left atrial appendage occlusion), Watchman device	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAO (left atrial appendage occlusion), Lariat procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

\*The consensus of the group was that this was a low intermediate risk. It was not as low as radial but certainly not in the same category as other intermediate procedures such as a pericardiocentesis. It would also depend on the sheath size and the patient's body habitus.

We are grateful for this contribution by the Interventional Section Leadership Council of the American College of Cardiology.

## Surgeons' Section Leadership Council of the American College of Cardiology

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
<b>General Surgery</b>				
Tracheostomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bronchoscopy w/ BAL (bronchoalveolar lavage), brushings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bronchoscopy, w/ biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stenting, bronchial/tracheal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bronchoscopy w/ trans-bronchial biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reconstruction, carina	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair, tracheal wound	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Thoracostomy w/ rib section for empyema w/ or w/o flap	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoracotomy w/ lung biopsy/wedge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoracotomy with pleural biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoracotomy for exploration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Thoracotomy for resection of bullae (or LVRS (lung volume reduction surgery) or spontaneous pneumothorax	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decortication, partial or complete	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pneumonectomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lobectomy, single or bi-lobe	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lobectomy (segmentectomy)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection, apical (Pancoast) tumor w/ chest resection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VATS (video-assisted thoracoscopic surgery) w/ lung biopsy/wedge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VATS (video-assisted thoracoscopic surgery) w/ pleural biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insertion, tunneled pleural catheter w/ cuff	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube thoracostomy (chest tube)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Removal, indwelling tunneled pleural catheter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoracentesis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pleurodesis (chemical)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VATS (video-assisted thoracoscopic surgery) resection, pleural or pericardial cyst	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sternotomy for thymectomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VATS (video-assisted thoracoscopic surgery) for thymectomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VATS (video-assisted thoracoscopic surgery)/thoracotomy for lymphadenectomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pericardiocentesis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pericardiectomy, partial/total w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resection, pericardial cyst	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection, intracardiac tumor w/ bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Resection, extracardiac tumor w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transmyocardial revascularization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Placement of epicardial pacemaker leads (via thor)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Implant new pacemaker/ICD	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insertion temp. transvenous pacemaker lead	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replace existing pacemaker (leads already in place)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pacemaker system upgrade	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repositioning of lead	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Pacer/ICD Lead extraction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ablation of afib/WPW/VT-VF (transvenous)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation of afib/WPW/VT-VF (VATS/thor/sternotomy)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Surgical ablation (MAZE) with resection of tissue (w bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ligation of left atrial appendage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Repair of cardiac wound (w/wo bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cardiac exploration (i.e. removal foreign body) (w/wo bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Suture repair of aorta or great vessels (w/wo bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TAVR/TAVI – femoral/iliac	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TAVR/TAVI – transapical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TAVR/TAVI – axillary/direct access	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair, aortic valve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic valve (stented bioprosthetic or mechanical)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, aortic (catheter based, closed)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, aortic (open, surgical w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Aortic valve replacement (homograft, stentless)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AVR with root enlargement (non-coronary)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair of LVOT with patch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resection of sub-aortic membrane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ventriculomyotomy (i.e. septal myomectomy)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mitral valve valvotomy (closed)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mitral valve repair (open, w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mitral valve replacement (open, w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mitral valve valvotomy (open)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tricuspid valve valvotomy (closed)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tricuspid valve repair (open, w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tricuspid valve replacement (open, w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tricuspid valve valvotomy (open)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary valve valvotomy (closed)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary valve repair (open, w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary valve replacement (open, w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary valve valvotomy (open)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RVOT enlargement (patch, bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair of coronary artery anomalies	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Re-operative valve surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Coronary Artery Bypass Grafting (on/off pump)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Coronary endarterectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary artery embolectomy (w/wo bypass) – acute	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary artery thrombo-embolctomy (w/ bypass)-chronic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heart Transplant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lung Transplant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Heart-Lung Transplant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ECMO cannulation (Veno-veno, veno-arterial - central)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ECMO cannulation (Veno-veno, veno-arterial – peripheral)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ECMO cannula revision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ECMO decannulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Esophagectomy (any approach)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Esophageal biopsy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Esophageal stent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair of esophageal perforation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resection of intra-luminal esophageal tumor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Esophageal diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Esophageal myectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Esophageal dilation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EGD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EGD with feeding tube (PEG)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Photodynamic therapy (lung, esophageal)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pericardial window	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replace ascending aorta	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replace ascending aorta with root (coronary re-implant)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replace aortic arch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Re-operative cardiac surgery (any)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Implant intra-aortic balloon pump	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Removal IABP (open cut-down)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant LVAD/RVAD/Bi-VAD	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Removal of LVAD/RVAD/Bi-VAD	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair LV aneurysm	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mediastinotomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection mediastinal cyst	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mediastial resection of tumor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mediastonoscopy w biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair laceration of diaphragm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair paraesophageal hernia – open	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair paraesophageal hernia – closed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair hernia/defect of diaphragm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection of diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replace descending aorta	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stent graft of descending aorta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Congenital Heart Disease Surgery (Pediatric)</b>				
Cardiac exploration (i.e., removal foreign body) w/ or w/o bypass	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Suture repair of aorta/great vessels w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, aortic valve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic valve (homograft, stentless bioprosthetic)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic valve (stented bioprosthetic or mechanical)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic valve w/ root enlargement (non-coronary)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, aortic (open, surgical w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, LVOT (left ventricular outflow tract) w/ patch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resection, sub-aortic membrane	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ventriculomyotomy (i.e., septal myomectomy)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, mitral valve (open w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, mitral valve (open w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Valvotomy, mitral valve (open)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, tricuspid valve (open w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, tricuspid valve (open w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Valvotomy, tricuspid valve (open)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair, pulmonary valve (open w/ bypass)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, pulmonary valve (open) w/ bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Valvtotomy, pulmonary valve (open)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valve surgery, re-operation w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RVOT (right ventricular outflow tract) enlargement (patch) w/ bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, coronary artery anomalies	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Embolectomy, pulmonary artery (acute) w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Thrombo-embolctomy, pulmonary artery (chronic) w/ bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transplant, heart	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transplant, lung	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transplant, heart-Lung	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ECMO (extracorporeal membrane oxygenation) cannulation (veno-venous, veno-arterial – central)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ECMO (extracorporeal membrane oxygenation) cannulation (veno-venous, veno-arterial – peripheral)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ECMO (extracorporeal membrane oxygenation) cannula revision	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ECMO (extracorporeal membrane oxygenation) decannulation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pericardial window	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replacement, ascending aorta	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, ascending aorta w/ root and coronary re-implant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic arch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Advancement, aortic arch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Re-operation, cardiac surgery (any)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Implant, LVAD (left ventricular assist device), RVAD (right ventricular assist device), or Bi-VAD (biventricular assist device)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Removal, LVAD (left ventricular assist device), RVAD (right ventricular assist device), or Bi-VAD (biventricular assist device)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, LV (left ventricular) aneurysm	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mediastinotomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection, mediastinal cyst	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection, mediastinal tumor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surgical ablation (e.g., MAZE) w/ resection of tissue w/ bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lead extraction, chronic pacemaker/ICD (implantable cardioverter defibrillator)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Placement, epicardial pacemaker leads (via thoracotomy)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repositioning, epicardial lead	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Upgrade, epicardial pacemaker system	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replacement, existing pacemaker (leads already in place)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resection, extra-cardiac tumor w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resection, intracardiac tumor w/ bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resection, pericardial cyst	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pericardiectomy, partial/total w/ or w/o bypass	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sternotomy for thymectomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pleurodesis (chemical)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube thoracostomy (chest tube)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complex congenital open heart surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Congenital open heart surgery w/ or w/o bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, coarctation of the aorta via thoracotomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Re-operation, congenital heart defects	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by the Surgeons' Section Leadership Council of the American College of Cardiology.



## American Academy of Ophthalmology

Procedure Name	Bleed Risk Level				
	Very Low	Low	Intermediate	High	Uncertain
Intravitreal injection with a pharmacologic agent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cataract Surgery with Intraocular Lens	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After-cataract laser surgery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complex cataract surgery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closure of tear duct opening	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trabeculectomy by laser surgery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Revision of eyelashes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Treatment of extensive or progressive retinopathy, photocoagulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Destruction of localized lesion of retina, photocoagulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Revision of iris	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pars plana vitrectomy (particularly in diabetics)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orbital surgery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
certain eyelid procedures such as blepharoplasty	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by the American Academy of Ophthalmology.

## American Academy of Orthopaedic Surgeons

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Major elective lower extremity surgery, THA (total hip arthroplasty), TKA (total knee arthroplasty), or revision of THA/TKA	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Major lower extremity fracture ORIF (open reduction and internal fixation), (femur, tibia, or peri-articular)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lower extremity fracture closed reduction and internal fixation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ankle/foot fracture ORIF (open reduction and internal fixation)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Major soft tissue resection, lower extremity	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minor soft tissue resection, lower extremity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trauma, upper extremity fracture w/ tourniquet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trauma, upper extremity fracture w/o tourniquet	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Trauma, lower extremity fracture w/ tourniquet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trauma, lower extremity fracture w/o tourniquet	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Trauma, hip, pelvis and acetabular fractures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minor hand surgery, carpal tunnel release, trigger finger or benign tumor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate hand and upper extremity surgery, (e.g., cubital tunnel release, trapeziometacarpal (thumb) arthroplasty, ORIF (open reduction and internal fixation) of distal radius fracture)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Substantial hand and upper extremity surgery (e.g., total elbow or shoulder arthroplasty)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spine surgeries (all)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Joshua Jacobs, Mr. Paul Zemaitis, and the American Academy of Orthopaedic Surgeons.

## American Association of Neurological Surgeons

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Craniotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Laminectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fusion, spinal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Endarterectomy, carotid	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Angiogram, cerebral	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stent, carotid	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Embolization, intracranial	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Embolization, spinal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Embolectomy, stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Decompression, peripheral nerve	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stimulation, deep brain	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stimulation, spinal cord	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Craniectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VP (ventriculoperitoneal) shunt	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lumbar puncture	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pituitary surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Bernard Bendok and the American Association of Neurological Surgeons.

## American Association of Oral and Maxillofacial Surgeons

Procedure Name	Bleed Risk Level				
	Not clinically relevant	Low	Intermediate	High	Uncertain
Local anesthesia by infiltration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local anesthesia by inferior alveolar nerve blocks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dental extractions, simple or erupted, 1-3 teeth	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incision and drainage, intra-oral swellings	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dental extractions (surgical), complex, >3 teeth	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extractions, impacted teeth flap, bone removal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dental implant surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bone grafting, alveolar ridge	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biopsy or excisions, oral soft tissue lesions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preprosthetic surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facial trauma repair by open techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Corrective jaw or facial surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Excision, bone or large soft tissue pathology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Ravi Agarwal and the American Association of Oral and Maxillofacial Surgeons.

## American College of Chest Physicians

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Thoracentesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pleural biopsy, closed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lung needle aspiration biopsy, percutaneous	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chest drain insertion, smaller drain	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chest drain insertion, larger drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CVC (central venous catheter) insertion, ultrasound-guided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CVC (central venous catheter) insertion, non-ultrasound-guided (i.e., subclavian)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peripheral arterial line insertion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FOB (fiberoptic bronchoscopy), nasal or oral route	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FOB (fiberoptic bronchoscopy), through E-T (endotracheal), N-T (nasotracheal), or tracheostomy tube	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FOB (fiberoptic bronchoscopy) w/ washing or BAL (bronchoalveolar lavage) only	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FOB (fiberoptic bronchoscopy) w/ brushing or endobronchial biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FOB (fiberoptic bronchoscopy) w/ transbronchial forceps or needle biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Endobronchial ultrasound FNA (fine needle aspiration)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intubation, laryngoscopic/endoscopic E-T (endotracheal)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navigational bronchoscopy w/ biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navigational bronchoscopy w/ fiducial marker placement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Bruce Davidson and the American College of Chest Physicians

## American College of Obstetricians and Gynecologists

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Hysterectomy (laparotomy)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hysterectomy (vaginal) *	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hysterectomy (endoscopic) *	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adnexectomy (laparotomy) *	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adnexectomy (endoscopic) *	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radical hysterectomy, endoscopic or laparotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Node dissection, endoscopic or laparotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Peritoneal (ovarian) cancer debulking	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diagnostic laparoscopy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operative laparoscopy (other than items listed above), low complexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Operative laparoscopy (other than items listed above), high complexity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cesarean delivery, primary or repeat	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spontaneous vaginal delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Operative vaginal delivery, w/ forceps, vacuum	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hysteroscopy, diagnostic or operative	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cervical conization (cold knife)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cervical LEEP (loop electrosurgical excision procedure) or LLETZ (large loop excision of the transformation zone)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cervical biopsy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vulvar (skin) biopsy, wide local excision	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assisted reproduction procedures (e.g., egg retrieval, IVF [in vitro fertilization])	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D & C (dilation and curettage) (gynecologic procedure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D & E (dilation and evacuation)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suction curettage (pregnancy)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Myomectomy, endoscopic or laparotomy**	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vulvectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vaginal reconstructive surgery procedures for prolapse	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vaginal procedures for urinary incontinence	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amniocentesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CVS (chorionic villus sampling)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Postpartum tubal sterilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Depends on the indication

**\*\*For a markedly enlarged uterus and/or a large number of leiomyomata, bleeding risk could be high**

We are grateful for this contribution by Dr. Christopher M. Zahn and the American College of Obstetricians and Gynecologists.

## American College of Physicians

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Arterial puncture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arthrocentesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bone marrow aspiration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LP (lumbar puncture)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paracentesis, abdominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skin biopsy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CVC (central venous catheter) placement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoracentesis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wound debridement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sigmoidoscopy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Geno Merli and the American College of Physicians.



## American College of Rheumatology

Procedure Name	Bleed Risk Level				
	Not clinically relevant	Low	Intermediate	High	Uncertain
Arthrocentesis (aspiration and injections of the joint)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injection, trigger point	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injection, bursal, tendon and soft tissue	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Joan M. Von Feldt, MD, MEd and the American College of Rheumatology.

## American Society of Breast Surgeons

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
FNA (fine needle aspiration), breast	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FNA (fine needle aspiration), axillary node	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breast biopsy, core needle breast biopsy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Needle aspiration, breast cyst or abscess	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Punch biopsy, skin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minimally invasive biopsy w/ vacuum assisted, rotating or any other device designed to obtain for minimally invasive biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breast biopsy, excisional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insertion of intraoperative or accelerated partial breast radiation device	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duct excision	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SLN (sentinel lymph node) biopsy alone	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biopsy, excisional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I and D (incision and drainage), abscess	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial mastectomy (lumpectomy)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lumpectomy and SLN (sentinel lymph node) biopsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Axillary dissection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mastectomy (all types except partial), w/ or w/o SLN (sentinel lymph node) biopsy, axillary dissection, or reconstruction (all types)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reduction mammoplasty	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lumpectomy w/ oncoplastic reconstruction (advancement of adjacent tissue)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by The American Society of Breast Surgeons.

## American Society of Gastrointestinal Endoscopy

Procedure Name	Bleed Risk Level	
	Low	Higher
Polypectomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sphincterotomy, biliary or pancreatic	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Treatment of varices	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PEG (percutaneous endoscopic gastrostomy) placement*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Enteroscopy, therapeutic, balloon-assisted	<input type="checkbox"/>	<input checked="" type="checkbox"/>
EUS (endoscopic ultrasound) w/ FNA (fine needle aspiration)†	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Endoscopic hemostasis	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tumor ablation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cystgastrostomy	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ampullary resection	<input type="checkbox"/>	<input checked="" type="checkbox"/>
EMR (endoscopic mucosal resection)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Endoscopic submucosal dissection	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dilation, pneumatic or bougie	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PEJ (percutaneous endoscopic jejunostomy)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Diagnostic endoscopy, including EGD (esophagogastroduodenoscopy), colonoscopy, flexible sigmoidoscopy including mucosal biopsy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ERCP (endoscopic retrograde cholangiopancreatography) w/ biliary or pancreatic stent placement or papillary balloon dilation w/o sphincterotomy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Push enteroscopy and diagnostic balloon-assisted enteroscopy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Capsule endoscopy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Enteral stent deployment (controversial)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EUS (endoscopic ultrasound) w/o FNA (fine needle aspiration)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Argon plasma coagulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Barrett's ablation	<input checked="" type="checkbox"/>	<input type="checkbox"/>

\*PEG (percutaneous endoscopic gastrostomy) on aspirin or clopidogrel therapy is low risk. Does not apply to DAPT (dual antiplatelet therapy)

†EUS-FNA (endoscopic ultrasound-fine needle aspiration) of solid masses on aspirin/NSAIDs (non-steroidal anti-inflammatory drugs) is low risk

We are grateful for this contribution by Dr. Neena Abraham and the American Society for Gastrointestinal Endoscopy's Standards of Practice Committee.

## American Society of Nephrology

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Native kidney biopsy, percutaneous	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transplant kidney biopsy, percutaneous	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Insertion, temporary central venous hemodialysis catheter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insertion, tunneled hemodialysis catheter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tunneled hemodialysis catheter exchange	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tunneled hemodialysis catheter removal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Angiogram, AV (arteriovenous) fistula or graft	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Banding, AV (arteriovenous) fistula (e.g., percutaneous-MILLER, e-DAB)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AV (arteriovenous) graft angioplasty/Stent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AV (arteriovenous) fistula thrombectomy/Stent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AV (arteriovenous) graft thrombectomy/Stent	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermittent hemodialysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CRRT (continuous renal replacement therapy)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Venogram (very low risk)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arteriogram	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Placement, percutaneous peritoneal dialysis catheter (fluoroscopic or peritoneoscopic)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Removal, peritoneal dialysis catheter	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exchange, percutaneous peritoneal dialysis catheter (fluoroscopic or peritoneoscopic)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peritoneogram	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by the staff and members of the American Society of Nephrology.

The risk stratification for the nephrology procedures was assigned based on the publications cited below and the following explanatory points:

- Patients with advanced chronic kidney disease are considered to have disordered platelet aggregation leading to a higher bleeding risk.
- The interventional nephrology procedures (angioplasty and thrombectomy) are performed on “arterialized” veins with high flows (>600 ml/min) and therefore, the bleeding risk is commensurate with the arterial procedures
- As with any other invasive procedures the complication risk varies widely based on patient and operator factors.

References:

1. Beathard GA, Litchfield T, Physician Operators Forum of RMS Lifeline, Inc. Effectiveness and safety of dialysis vascular access procedures performed by interventional nephrologists. *Kidney Int.* 2004 Oct;66(4):1622-32
2. Vesely TM, Beathard G, Ash S, Hoggard J, Schon D; ASDIN Clinical Practice Committee. Classification of complications associated with hemodialysis vascular access procedures. A position statement from the American Society of Diagnostic and Interventional Nephrology. *J Vasc Access.* 2008; 9(1):12-9.

## American Society of Regional Anesthesia and Pain Medicine

Procedure Name	Bleed Risk Level			
	Low	Intermediate (Contested)	High	Uncertain
<b>Pain interventional procedures</b>				
Nerve block, peripheral, superficial and compressible	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peripheral joint and musculoskeletal injection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nerve block, SI (sacro-iliac) joint and sacral lateral branch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nerve block, peripheral, deep and non-compressible	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epidural injection, interlaminar and transforaminal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paravertebral blocks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intradiscal injections	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympathetic blocks (e.g., stellate, thoracic, splanchnic, celiac, lumbar paravertebral, hypogastric)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trial and implant, peripheral nerve stimulator	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pocket revision, IPG (internal pulse generator)/ITP (intrathecal pump)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trial and implant, spinal cord stimulator (SCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Implant, intrathecal catheter and pump	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vertebral augmentation (vertebroplasty and kyphoplasty)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Epiduroscopy and epidural compression	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Regional nerve blocks</b>				
Nerve block, superficial and compressible plexus/peripheral (e.g. axillary, femoral)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nerve block, deep and non-compressible plexus/peripheral (e.g., supraclavicular, lumbar plexus)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Neuraxial block (spinal, epidural)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other blocks*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Bleeding risk of other regional nerve blocks is based on compressibility, patient body habitus, co-morbidities and the degree and duration of anticoagulation.

We are grateful for this contribution by Dr. Honorio Benzon and the American Society of Regional Anesthesia and Pain Medicine.

## American Urological Association

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
<b>Open surfaces</b>				
Prostate outlet procedures w/ electrocautery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Prostate outlet procedures (any) upon resumption of anticoagulants	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TURBT (Transurethral resection of bladder tumor), not CBF, upon resumption of anticoagulants	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Renal enucleation procedures w/o capsular closure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Highly vascular organs</b>				
Incisional biopsy, renal capsule and/or parenchyma	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Incisional biopsy, tunica albuginea of testes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ablative procedures of the kidney, percutaneous	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Uncontained surroundings (as opposed to a confined space)</b>				
Pelvic dissection for cystectomy/prostatectomy w/ or w/o lymph node dissection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shock wave lithotripsy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retroperitoneal dissection for kidney cancer, testes cancer, or adrenal cancer w/ complete, not partial, organ removal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Female reconstructive procedures</b>				
Sling, anterior colporrhaphy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sacrocolpopexy (any method)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hysterectomy for prolapse	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Other</b>				
Endoscopic procedures (e.g., ureteroscopy) w/ or w/o laser lithotripsy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prostate biopsy, transperineal or transrectal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biopsy, CBF, needle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ureteral stenting/exchange, uncomplicated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drainage, lymphocele, abscess or hydrocele	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transurethral instrumentation w/o mucosal incision (e.g., cystoscopy, urodynamic procedures, routine catheter placement)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Percutaneous nephroscopy (newly treated tract)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other urologic surgery involving bowel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Male reconstructive procedures</b>				
Urethroplasty	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Penile prosthesis, artificial sphincters	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Bruce Jacobs and the American Urological Association.

## Heart Rhythm Society

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
EP (electrophysiology) study, diagnostic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, supraventricular or ventricular arrhythmia	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, PV (pulmonary vein) isolation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ablation, epicardial VT (ventricular tachycardia)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant, PM (pacemaker)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant, ICD (implantable cardioverter defibrillator)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant, CRT (cardiac resynchronization therapy) device	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generator replacement, PM (pacemaker), ICD (implantable cardioverter defibrillator), CRT (cardiac resynchronization therapy) device	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead extraction, PM (pacemaker) or ICD (implantable cardioverter defibrillator)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Insertion or removal, ILR (implantable loop recorder)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant or explant, subcutaneous ICD (implantable cardioverter defibrillator)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closure of LAA (left atrial appendage), percutaneous	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implant, leadless PM (pacemaker)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by the staff and members of the Heart Rhythm Society.



## Society for Cardiovascular Angiography and Interventions

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Coronary angiography and PCI (percutaneous coronary intervention), transradial	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coronary angiography, transfemoral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCI (percutaneous coronary intervention), transfemoral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TAVR (transaortic valve replacement), transfemoral	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TAVR (transaortic valve replacement), transapical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TAVR (transaortic valve replacement), direct aortic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Right heart catheterization	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closure of LAA (left atrial appendage)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mitral valve repair, percutaneous (MitraClip procedure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pericardiocentesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MCS (mechanical circulatory support)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary pacemaker, transvenous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, mitral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valvuloplasty, aortic	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulmonary thrombolysis, ultrasound-enhanced	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Drs. James Blankenship, C. Michael Gibson, and Sunil Rao, Mr. Bradley Pine, and the Society for Cardiovascular Angiography and Interventions.

## Society for Vascular Surgery

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
Abdominal vascular surgery, open (aortic surgery for aneurysm or occlusive disease, visceral arterial or venous reconstruction)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Thoracic vascular surgery, open (aneurysm repair, reconstruction for occlusive disease)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Arterial revascularization, lower extremity (femoral, popliteal, tibial)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deep venous reconstruction, lower extremity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EVAR (endovascular aneurysm repair), including FEVAR (fenestrated endovascular aneurysm repair), PEVAR (percutaneous endovascular aneurysm repair) and TEVAR (thoracic endovascular aneurysm repair)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arterial procedures, percutaneous with >/8 French sheath	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bypass, extra-anatomic	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cardiovascular surgery of the head and neck (carotid, subclavian, or vertebral surgery including venous procedures)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arterial procedures, percutaneous with </8 French sheath	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Venous procedures, percutaneous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Venous ablation, percutaneous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stab phlebectomy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biopsy, temporal artery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Drs. Benjamin Brooke, Cynthia Shortell and David H. Stone, and the Society for Vascular Surgery.

## Society of Thoracic Surgeons

Procedure Name	Bleed Risk Level			
	Low	Intermediate	High	Uncertain
CABG (coronary artery bypass graft) surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic valve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic valve with CABG (coronary artery bypass graft) surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, mitral valve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repair, mitral valve with CABG (coronary artery bypass graft) surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, mitral valve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, mitral valve with CABG (coronary artery bypass graft) surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replacement, aortic and mitral valve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Aortic procedures (e.g., treatment of aneurysm, dissection)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Esophagectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary segmentectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pneumonectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary lobectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary wedge resection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Excision, mediastinal mass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Thymectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulmonary decortication	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Paraesophageal Hernia Fundoplication	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hiatal Hernia Fundoplication	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are grateful for this contribution by Dr. Joseph Bavaria and the Society of Thoracic Surgeons.