

Preoperative Risk Stratification for Noncardiothoracic Surgery: Systematic Review for the American College of Physicians. (Annals of Internal Medicine, 2006, 144(8) 581-595)

Risk factors	Key value	Estimated complication rate	Comments
PATIENT-RELATED:			
Age	≥ 70 yrs	4%-45%	<ul style="list-style-type: none"> • Second most commonly identified risk factor • **Important independent predictor of PPC even after adjustment for co morbid conditions
Chronic lung disease	Odds ratio 1.79		<ul style="list-style-type: none"> • Most frequently identified risk factor for PPC • Statistically significant predictor of PPC • Strongest predictor- abnormal chest exam (↓ BS, prolonged expiration, wheezes or “rales”). Cough test: take a deep breath and cough once –positive test is recurrent coughing
Smoking	Odds ratio 1.26 to 5.5	Considered modest increase in PPC	<ul style="list-style-type: none"> • 2 months smoking cessation needed for intra operative sputum volume to decrease to nonsmokers level • current smokers attempting to reduce shortly before surgery-more likely than smokers to develop a PPC
Congestive heart failure and ASA score	Odds ratio 2.55 to 4.87	Substantial increased risk for PPC	<ul style="list-style-type: none"> • ASA score of 11 or higher is associated with a substantial increase in PPC
Sleep Apnea	20% vs 6% 24% vs 9%		<ul style="list-style-type: none"> • compared with controls-for unplanned ICU admissions • compared with controls- for all serious complications
Delirium or confusion	1.39		<ul style="list-style-type: none"> • acutely confused or delirious –not chronic dementia for example
Functional dependency	Odds ratio 2.51		<ul style="list-style-type: none"> • total dependency-inability to perform any ADL’s –this was compared with partial dependency at 1.65

Odds ratio (OR): If the OR is greater than 1 than the event is more likely than not to occur. It is a statistical measure to predict the relative risk of an event

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PROCEDURE-RELATED:			
Surgery site:			
Upper abdominal	Odds ratio 2.91	19.7%	<ul style="list-style-type: none"> higher risk surgeries include esophagectomy, thoracic and upper abdominal
AAA		Up to 25%	
Head and neck		10.3%	
Esophagectomy		18.9%	
Thoracic	Odds ratio 4.24		
Duration of surgery	Odds ratio 2.26		<ul style="list-style-type: none"> prolonged as defined from 2.5 to 4 hours
Emergency surgery	Odds ratio 2.21	Modest risk of incurring PPC	<ul style="list-style-type: none"> This compares with elective procedures
TESTING- RELATED			
Spirometry		27 to 31%	<ul style="list-style-type: none"> for FEV1 of less than 61% predicted; FEV1 is a statistically significant predictor of PPC A prohibitive level below which surgery risk is unacceptable has not been defined
			<ul style="list-style-type: none">
Chest Xray		46% PPC with abn. 25% PPC with N preop X ray	<ul style="list-style-type: none"> limited evidence for: > 50years, known pulmonary disease, upper abdominal, thoracic or AAA surgeries
Serum Albumin	< 36g/L	27.6%	<ul style="list-style-type: none"> low level -an important , independent predictor of PPC