

Appendix 1: search strategies for studies on risk factors for critical care in patients undergoing routine upper airway surgery across Medline and Embase databases

Medline		
Population	Intervention/comparison	Outcome
1. otorhinolaryngologic surgical procedures/	44. smoking/	116. Complicat*.ti.
2. ear-surgery*.mp.	45. tobacco smoking/	117. critical care/ or postoperative period/ or reoperation/ or patient readmission/ or clinical deterioration/ or morbidity/ or emergency treatment/ or intraoperative complications/ or postoperative complications/
3. otologic surgical procedures/	46. cigar smoking/	118. Return-to-theatre.mp.
4. mastoidectomy/	47. cigarette smoking/	119. Return-to-hospital.mp.
5. middle ear ventilation/	48. or/44-47 [smoking]	120. Emergency.mp.
6. myringoplasty/	49. (sleep-apnea or sleep-apnoea).ab.	121. Re-operat*.mp.
7. stapes surgery/	50. sleep apnea, obstructive/	122. Intensive.mp.
8. stapes mobilization/	51. or/49-50 [OSA]	123. ICU.mp.
9. ossicular replacement/	52. diabetes mellitus/	124. ITU.mp.
10. tympanoplasty/	53. "diabetes mellitus, type 1"/	125. or/116-124 [morbidity]
11. or/2-10 [ear procedures]	54. "diabetes mellitus, type 2"/	126. mortality/ or fatal outcome/ or death/ or death, sudden/ or death, sudden, cardiac/
12. upper-airway-surger*.mp.	55. insulins/	127. or/126 [mortality]
13. nasal surgical procedures/	56. biphasic insulins/	128. airway-obstruct*.mp.
14. nose-surger*.mp.	57. insulin, long-acting/	129. airway management/ or intubation, intratracheal/ or laryngeal masks/ or "rapid sequence induction and intubation"/ or respiration, artificial/ or one-lung ventilation/ or positive-pressure respiration/ or tracheostomy/ or intubation/ or heimlich maneuver/ or respiratory aspiration/ or "respiratory-aspiration-of-gastric-contents"/
15. nasopharyngeal-surger*.mp.	58. insulin, short-acting/	130. Code blue.mp.
16. rhinoplasty/	59. or/52-58 [DM/insulin]	131. or/128-130 [airway/breathing]
17. septoplasty.mp.	60. lung diseases, obstructive/	132. Crash.mp.
18. septal-reconstruc*.mp.	61. asthma/	133. heart arrest/ or death, sudden, cardiac/ or out-of-hospital cardiac arrest/ or myocardial ischemia/ or acute coronary syndrome/ or myocardial infarction/ or resuscitation/ or cardiopulmonary resuscitation/ or advanced cardiac life support/ or resuscitation orders/ or infarction/ or brain infarction/ or myocardial infarction/ or pulmonary infarction/
19. turbin*.mp.	62. pulmonary disease, chronic obstructive/	134. or/132-133 [CPR/arrest]
20. antrostom*.mp.	63. bronchitis, chronic/	135. bleed.mp.
21. FESS.mp.	64. pulmonary emphysema/	136. hemorrhage/ or blood loss, surgical/ or epistaxis/ or exsanguination/ or oral hemorrhage/ or postoperative hemorrhage/ or shock, hemorrhagic/ or hypovolemia/ or catheterization, central venous/ or catheterization, peripheral/ or hemostatic techniques/ or embolization, therapeutic/ or chemoembolization, therapeutic/ or hemostasis, endoscopic/ or hemostasis, surgical/ or shock, surgical/ or vasoplegia/ or shock/ or multiple organ failure/ or shock, cardiogenic/ or shock, traumatic/ or systemic inflammatory response syndrome/ or shock, septic/
22. endoscopic-sinus-surger*.mp.	65. or/60-64 [COPD/asthma]	137. or/135-136 [circulation]
23. functional-endoscopic-sinus-surger*.mp.	66. difficult-airway.mp.	138. 125 or 127 or 131 or 134 or 137
24. nasal-polypectomy.mp.	67. difficult-intubation.mp.	116. Complicat*.ti.
25. or/13-24	68. or/66-67 [difficult tube]	117. critical care/ or postoperative period/ or reoperation/ or patient readmission/ or clinical deterioration/ or morbidity/ or emergency treatment/ or intraoperative complications/ or postoperative complications/
26. ((concha# or polyp or sphenoid* or maxilla or frontal-sinus) adj surg*).mp.	69. ((duration or length or time or prolonged) adj1 (operat\$ or surg\$ or case or theatre or procedure)).mp. [long case]	118. Return-to-theatre.mp.
27. 25 or 26 [nose procedures]	70. ((pain or pain-management or analgesia) adj2 (significant or high or increase* or uncontrol*)).mp.	119. Return-to-hospital.mp.
28. oropharyngeal-surger*.mp.	71. analgesia, patient-controlled/	120. Emergency.mp.
29. throat-surger*.mp.	72. or/70-71 [high analgesic requirement]	121. Re-operat*.mp.
30. tonsillectomy/	73. cardiovascular diseases/	122. Intensive.mp.
31. tonsillectom*.mp.	74. heart diseases/	123. ICU.mp.
32. tonsil?-remov*.mp.	75. heart failure/	124. ITU.mp.
33. adenotonsillectom*.mp.	76. heart valve diseases/	125. or/116-124 [morbidity]
34. tongue-channeling.mp.	77. myocardial ischemia/	126. mortality/ or fatal outcome/ or death/ or death, sudden/ or death, sudden, cardiac/
35. tongue-coablation.mp.	78. ventricular dysfunction/	127. or/126 [mortality]
36. UPPP.mp.	79. ventricular outflow obstruction/	128. airway-obstruct*.mp.
37. uvulopalatopharyngoplasty.mp.	80. vascular diseases/	129. airway management/ or intubation, intratracheal/ or laryngeal masks/ or "rapid sequence induction and intubation"/ or respiration, artificial/ or one-lung ventilation/ or positive-pressure respiration/ or tracheostomy/ or intubation/ or heimlich maneuver/ or respiratory aspiration/ or "respiratory-aspiration-of-gastric-contents"/
38. pharyngoplasty.mp.	81. hypertension/	130. Code blue.mp.
39. tongue-base-surger*.mp.	82. essential hypertension/	131. or/128-130 [airway/breathing]
40. base-of-tongue-surger*.mp.	83. angina pectoris/	132. Crash.mp.
41. lingual-tonsillectom*.mp.	84. angina, unstable/	133. heart arrest/ or death, sudden, cardiac/ or out-of-hospital cardiac arrest/ or myocardial ischemia/ or acute coronary syndrome/ or myocardial infarction/ or resuscitation/ or cardiopulmonary resuscitation/ or advanced cardiac life support/ or resuscitation orders/ or infarction/ or brain infarction/ or myocardial infarction/ or pulmonary infarction/
42. or/28-41 [throat procedures]	85. angina, stable/	134. or/132-133 [CPR/arrest]
43. (1 or 12 or 27 or 42) not 11	86. microvascular angina/	135. bleed.mp.
	87. coronary disease/	136. hemorrhage/ or blood loss, surgical/ or epistaxis/ or exsanguination/ or oral hemorrhage/ or postoperative hemorrhage/ or shock, hemorrhagic/ or hypovolemia/ or catheterization, central venous/ or catheterization, peripheral/ or hemostatic techniques/ or embolization, therapeutic/ or chemoembolization, therapeutic/ or hemostasis, endoscopic/ or hemostasis, surgical/ or shock, surgical/ or vasoplegia/ or shock/ or multiple organ failure/ or shock, cardiogenic/ or shock, traumatic/ or systemic inflammatory response syndrome/ or shock, septic/
	88. coronary artery disease/	137. or/135-136 [circulation]
	89. peripheral vascular diseases/	138. 125 or 127 or 131 or 134 or 137
	90. peripheral arterial disease/	116. Complicat*.ti.
	91. or/73-90 [vascular]	117. critical care/ or postoperative period/ or reoperation/ or patient readmission/ or clinical deterioration/ or morbidity/ or emergency treatment/ or intraoperative complications/ or postoperative complications/
	92. bariatrics/	118. Return-to-theatre.mp.
	93. obesity/	119. Return-to-hospital.mp.
	94. obesity, morbid/	120. Emergency.mp.
	95. ((high or increase*) adj (BMI or body-mass-index)).mp.	121. Re-operat*.mp.
	96. overweight.mp.	122. Intensive.mp.
	97. weight.mp.	123. ICU.mp.
	98. body habitus.mp.	124. ITU.mp.
	99. adipos*.mp.	125. or/116-124 [morbidity]
	100. ((neck or waist) adj circumference).mp.	126. mortality/ or fatal outcome/ or death/ or death, sudden/ or death, sudden, cardiac/
	101. or/92-94,95-99,100 [obesity]	127. or/126 [mortality]
	102. aged/	128. airway-obstruct*.mp.
	103. "aged, 80 and over"/	129. airway management/ or intubation, intratracheal/ or laryngeal masks/ or "rapid sequence induction and intubation"/ or respiration, artificial/ or one-lung ventilation/ or positive-pressure respiration/ or tracheostomy/ or intubation/ or heimlich maneuver/ or respiratory aspiration/ or "respiratory-aspiration-of-gastric-contents"/
	104. frail elderly/	130. Code blue.mp.
	105. age.ti.	131. or/128-130 [airway/breathing]
	106. older-age.mp.	132. Crash.mp.
	107. geriatrics/	133. heart arrest/ or death, sudden, cardiac/ or out-of-hospital cardiac arrest/ or myocardial ischemia/ or acute coronary syndrome/ or myocardial infarction/ or resuscitation/ or cardiopulmonary resuscitation/ or advanced cardiac life support/ or resuscitation orders/ or infarction/ or brain infarction/ or myocardial infarction/ or pulmonary infarction/
	108. elderly.mp.	134. or/132-133 [CPR/arrest]
	109. octogenarian.mp.	135. bleed.mp.
	110. or/102-109 [age]	136. hemorrhage/ or blood loss, surgical/ or epistaxis/ or exsanguination/ or oral hemorrhage/ or postoperative hemorrhage/ or shock, hemorrhagic/ or hypovolemia/ or catheterization, central venous/ or catheterization, peripheral/ or hemostatic techniques/ or embolization, therapeutic/ or chemoembolization, therapeutic/ or hemostasis, endoscopic/ or hemostasis, surgical/ or shock, surgical/ or vasoplegia/ or shock/ or multiple organ failure/ or shock, cardiogenic/ or shock, traumatic/ or systemic inflammatory response syndrome/ or shock, septic/
	111. multiple-medications. mp. or (American Society of Anesthesiologists).mp or ASA.mp.	137. or/135-136 [circulation]
	112. polypharmacy/	138. 125 or 127 or 131 or 134 or 137
	113. or/111-112 [polypharmacy]	
	114. risk factors/	
	115. 48 or 51 or 59 or 65 or 68 or 69 or 72 or 91 or 101 or 110 or 113 or 114	
Combining:		
139. 43 and 115 and 138		
140. limit 139 to yr="1996 -Current"		
141. 140 not transsphenoidal.ti. not pituitary.ti. not epiglot*.ti. not (tonsilotomy or tonsilomy).ti. not (sleep-apnea or sleep-apnoea).ti. not pharyngoplasty.ti. not syndrome.ti. not adenoidectomy.ti. [exclusions]		

Population	Intervention/comparison	Outcome
1. ear nose throat surgery/ or exp endoscopic sinus surgery/ or exp ethmoidectomy/ or exp nose surgery/ or exp throat surgery/	5. smoking/ or cigar smoking/ or cigarette smoking/ or smoking habit/	32. Complicat*.ti. or Return-to-theatre.mp. or Return-to-hospital.mp. or Emergency.mp. or Re-operat*.mp. or Intensive.mp. or ICU.mp. or ITU.mp. or airway-obstruct*.mp. or Code blue.mp. or Crash.mp. or bleed.mp.
2. exp ear surgery/	6. (sleep apnoea or sleep apnea).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	33. mortality/ or all cause mortality/ or cardiovascular mortality/ or hospital mortality/ or mortality rate/ or surgical mortality/
3. (nose-surger* or nasopharyngeal-surger* or rhinoplasty or septoplasty or septal-reconstruc* or turbin* or antrostom* or FESS or endoscopic-sinus-surger* or functional-endoscopic-sinus-surger* or nasal-polypectomy or ((concha# or polyp or sphenoid* or maxilla or frontal-sinus) adj surg*) or oropharyngeal-surger* or throat-surger*).mp. or exp tonsillectomy/ or tonsillectom*.mp. or tonsil?-remov*.mp. or adenotonsillectom*.mp. or tongue-channeling.mp. or tongue-coablation.mp. or UPPP.mp. or exp uvulopalatopharyngoplasty/ or pharyngoplasty.mp. or tongue-base-surger*.mp. or base-of-tongue-surger*.mp. or lingual-tonsillectom*.mp.	7. sleep disordered breathing/	34. respiration control/ or artificial ventilation/ or assisted ventilation/
4. (1 or 3) not 2	8. non insulin dependent diabetes mellitus/ or diabetes mellitus/	35. endotracheal intubation/
	9. insulin dependent diabetes mellitus/	36. anesthesia induction/ or rapid sequence induction.mp.
	10. insulin treatment/	37. aspiration pneumonia/ or recurrent aspiration/ or foreign body aspiration/
	11. chronic obstructive lung disease/	38. heart arrest/ or cardiopulmonary arrest/ or "out of hospital cardiac arrest"/ or sudden cardiac death/
	12. asthma/	39. cerebrovascular accident/ or cardioembolic stroke/ or lacunar stroke/
	13. lung emphysema/	40. lung infarction/
	14. chronic bronchitis/	41. bleeding/ or epistaxis/ or exsanguination/ or hematemesis/ or hemorrhagic hypotension/ or hemorrhagic shock/ or injection site bleeding/ or mucosal bleeding/ or oral bleeding/ or pharynx hemorrhage/ or postoperative hemorrhage/
	15. (difficult-airway or difficult-intubation).mp.	42. hemostasis/
	16. ((duration or length or time or prolonged) adj1 (operat\$ or surg\$ or case or theatre or procedure)).mp.	43. artificial embolization/ or arterial embolization/ or chemoembolization/ or coil embolization/ or radioembolization/
	17. ((pain or pain-management or analgesia) adj2 (significant or high or increase* or uncontrol*)).mp.	44. shock/ or cardiogenic shock/ or hemorrhagic shock/ or hypovolemic shock/ or septic shock/ or toxic shock syndrome/
	18. patient controlled analgesia/	45. or/32-44
	19. cardiovascular disease/ or abnormal blood pressure/ or heart disease/ or vascular disease/	
	20. heart failure/ or heart ventricle remodeling/ or ischemic heart disease/ or valvular heart disease/	
	21. vascular disease/ or coronary artery disease/ or exp peripheral vascular disease/	
	22. obesity/ or morbid obesity/	
	23. bariatrics/	
	24. (((high or increase*) adj (BMI or body-mass-index)) or overweight or weight or body habitus or adipos* or ((neck or waist) adj circumference)).mp.	
	25. aged/ or aged hospital patient/ or frail elderly/ or institutionalized elderly/ or very elderly/	
	26. geriatrics/	
	27. age.ti. or older-age.mp. or elderly.mp. or octogenarian.mp.	
	28. polypharmacy/	
	29. multiple-medications.mp or (American Society of Anesthesiologists).mp or ASA.mp.	
	30. risk factor/	
	31. or/5-30	
Combining:		
46. 4 and 31 and 45		
47. limit 46 to yr="1996 -Current"		
48. 47 not transsphenoidal.ti. not pituitary.ti. not epiglot*.ti. not (tonsillotomy or tonsilotomy).ti. not (sleep-apnea or sleep-apnoea).ti. not pharyngoplasty.ti. not syndrome.ti. not adenoidectomy.ti. not odontoid*.ti. not cancer.ti. not cancers.ti. not carcinoma.ti. not carcinomas.ti. not tumour.ti. not tumours.ti. not tumor.ti. not tumors.ti. not skull-base.ti. not rhinosinusitis.ti. not sinusitis.ti. not adrenaline.ti. not vs.ti. not versus.ti. not long-term.ti. not nasoseptal-flap.ti. not craniopharyngioma.ti. not lesion.ti. not lesions.ti. not larynx*.ti. not inverted-papilloma.ti. not novel.ti.		