**Appendix - Database Search Strategies**

**Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily  
Run October 29, 2019**

|  |  |
| --- | --- |
| 1 | [orcid.org/0000-0001-6744-3517] |
| 2 | [Intraoperative Monitoring] |
| 3 | Monitoring, Intraoperative/ |
| 4 | Intraoperative Care/ |
| 5 | Intraoperative Period/ |
| 6 | Surgical Procedures, Operative/ |
| 7 | Operating Rooms/ or (operating adj2 (room\* or theater\* or theatre\*)).ti,ab,kf. |
| 8 | (intraoper\* or intra-oper\*).ti,ab,kf. |
| 9 | (peroper\* or per-oper\*).ti,ab,kf. |
| 10 | ((during or undergoing or while) adj3 (operation\* or repair\* or procedure\* or transplant\* or surg\*)).ti,ab,kw. |
| 11 | (anesthetized or anesthetised).ti,ab,kf. |
| 12 | (anesthesia or anaesthesia).ti,ab,kf. |
| 13 | or/3-12 |
| 14 | [Trans-thoracic Echocardiography] |
| 15 | echocardiography/ or echocardiography, doppler/ or echocardiography, doppler, color/ or echocardiography, doppler, pulsed/ or echocardiography, stress/ or echocardiography, three-dimensional/ or echocardiography, four-dimensional/ |
| 16 | ultrasonography/ or ultrasonography, doppler/ or ultrasonography, doppler, duplex/ or ultrasonography, doppler, color/ or ultrasonography, doppler, pulsed/ or ultrasonography, interventional/ |
| 17 | (transthoracic or trans-thoracic).ti,ab,kf. |
| 18 | (TTE or "T.T.E.").ti,ab,kf. |
| 19 | bedside.ti,ab,kf. |
| 20 | Point-of-Care Systems/ or (point of care or POCUS or POCU).ti,ab,kf. |
| 21 | cardiopulmonary.ti,ab,kf. |
| 22 | cardiovascular.ti,ab,kf. |
| 23 | cardiac.ti,ab,kf. |
| 24 | heart.ti,ab,kf. |
| 25 | 15 and (or/17-20) |
| 26 | 16 and (or/17-24) |
| 27 | ((echocardiogra\* or echo-cardiogra\* or ultraso\* or ultraso\* or sonogra\* or echoso\* or echoscop\* or echotomogra\* or echo-tomogra\* orechogra\* or tomoechogra\* or tomo-echogra\* or doppler) adj3 (transthoracic or TTE or "T.T.E." or bedside or noninvasive or non-invasive or point of care or POCU or POCUS or rescue or cardiac or cardiopulmonary or heart)).ti,ab,kf. |
| 28 | or/25-27 |
| 29 | [Hemodynamics] |
| 30 | exp Hemodynamics/ or (hemodynamic\* or haemodynamic\*).ti,ab,kf. |
| 31 | Hypovolemia/di or hypovolemia\*.ti,ab,kf. |
| 32 | Hypotension/di or hypotension.ti,ab,kf. |
| 33 | (((blood or plasma) adj3 volume) or volume status).ti,ab,kf. |
| 34 | Stroke Volume/ or (ejection fraction\* or LVEF or Ventricular End-Diastolic Volume or Ventricular End-Systolic Volume).ti,ab,kf. |
| 35 | Ventricular Outflow Obstruction/di or (left ventricular outflow adj2 obstruct\*).ti,ab,kf. |
| 36 | Ventricular Dysfunction, Right/di or (right ventricular adj2 (fail\* or dysfunct\*)).ti,ab,kf. |
| 37 | Pericardial Effusion/di or pericaridal effusion\*.ti,ab,kf. |
| 38 | Aortic Valve Insufficiency/di or exp Aortic Valve Stenosis/di or ((aortic or aorta) adj2 (disease or insufficien\* or stenosis)).ti,ab,kf. |
| 39 | hemopneumothorax/di or hemothorax/di or hydropneumothorax/di or hydrothorax/di or exp pleural effusion/di or pneumothorax/di |
| 40 | (haemopneumothorax or haemothorax or hemopneumothorax or hemothorax or hydropneumothorax or hydrothorax or hypopneumothorax or pleural effusion\* or pneumothorax).ti,ab,kf. |
| 41 | Embolism, Air/di or air emboli\*.ti,ab,kf. or (intracardiac adj3 air).ti,ab,kf. |
| 42 | Pulmonary Embolism/di or (pulmonary emboli\* or lung emboli\* or pulmonary thromboemboli\* or lung thromboemboli\*).ti,ab,kf. |
| 43 | Mitral Valve Insufficiency/di or Mitral Valve Stenosis/di or (mitral valve adj2 (disease or insufficien\* or regurgitat\* or stenosis)).ti,ab,kf. |
| 44 | (cardiac function\* or heart function\*).ti,ab,kf. |
| 45 | (cardiac monitor\* or heart monitor\*).ti,ab,kf. |
| 46 | or/30-45 |
| 47 | 13 and 28 and 46 |
| 48 | [Randomized Clinical Trials: Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE\_ sensitivity- and precision-maximizing version \_2008 revisionhttp://handbook-5-1.cochrane.org/chapter\_6/box\_6.4.d\_cochrane\_hsss\_2008\_sensprec\_ovid.htm] |
| 49 | randomized controlled trial.pt. |
| 50 | controlled clinical trial.pt. |
| 51 | randomized.ab. |
| 52 | placebo.ab. |
| 53 | clinical trials as topic.sh. |
| 54 | randomly.ab. |
| 55 | trial.ti. |
| 56 | 49 or 50 or 51 or 52 or 53 or 54 or 55 |
| 57 | [BMJ Medline cohort, case-control, case series, and case study strategyhttps://bestpractice.bmj.com/info/toolkit/learn-ebm/study-design-search-filters] |
| 58 | exp cohort studies/ |
| 59 | cohort$.tw. |
| 60 | controlled clinical trial.pt. |
| 61 | epidemiologic methods/ |
| 62 | limit 61 to yr=1966-1989 |
| 63 | exp case-control studies/ |
| 64 | (case$ and control$).tw. |
| 65 | (case$ and series).tw. |
| 66 | case reports.pt. |
| 67 | (case$ adj2 report$).tw. |
| 68 | (case$ adj2 stud$).tw. |
| 69 | 58 or 59 or 60 or 62 or 63 or 64 or 65 or 66 or 67 or 68 |
| 70 | 56 or 69 |
| 71 | [humans studies filter] |
| 72 | exp animals/ not humans.sh. |
| 73 | 70 not 72 |
| 74 | 47 and 73 |
|  |  |

**Embase (Elsevier Embase.com)  
Run October 29, 2019**

((('intraoperative monitoring'/de OR 'peroperative care'/de OR 'intraoperative period'/de OR 'surgery'/de OR 'abdominal surgery'/exp OR 'ambulatory surgery'/de OR 'breast surgery'/exp OR 'cancer surgery'/exp OR 'ear nose throat surgery'/exp OR 'emergency surgery'/exp OR 'endocrine surgery'/exp OR 'eye surgery'/exp OR 'general surgery'/exp OR 'geriatric surgery'/exp OR 'head and neck surgery'/exp OR 'neurosurgery'/exp OR 'orthopedic surgery'/exp OR 'pelvis surgery'/exp OR 'plastic surgery'/exp OR 'reconstructive surgery'/exp OR 'esophagus surgery'/exp OR 'lung surgery'/exp OR 'pleurectomy'/de OR 'thymus surgery'/exp OR 'trachea surgery'/exp OR 'operating room'/de OR ((operating NEXT/2 (room\* OR theater\* OR theatre\*)):ti,ab,kw) OR intraoper\*:ti,ab,kw OR 'intra oper\*':ti,ab,kw OR peroper\*:ti,ab,kw OR 'per oper\*':ti,ab,kw OR (((during OR undergoing OR while) NEXT/3 (operation\* OR repair\* OR procedure\* OR transplant\* OR surg\*)):ti,ab,kw) OR anesthetized:ti,ab,kw OR anesthetised:ti,ab,kw OR anesthesia:ti,ab,kw OR anaesthesia:ti,ab,kw) AND ('transthoracic echocardiography'/de OR (('echocardiography'/de OR 'echography'/de OR 'doppler ultrasonography'/exp OR 'real time echography'/de) AND (transthoracic:ti,ab,kw OR 'trans thoracic':ti,ab,kw OR tte:ti,ab,kw OR 't.t.e.':ti,ab,kw OR 'point of care system'/de OR (point:ti,ab,kw AND of:ti,ab,kw AND care:ti,ab,kw) OR pocus:ti,ab,kw OR pocu:ti,ab,kw)) OR (((echocardiogra\* OR 'echo cardiogra\*' OR ultraso\* OR sonogra\* OR echoso\* OR echoscop\* OR echotomogra\* OR 'echo tomogra\*' OR echogra\* OR tomoechogra\* OR 'tomo echogra\*' OR doppler) NEXT/3 (transthoracic OR tte OR 't.t.e.' OR noninvasive OR 'non invasive' OR 'point of care' OR pocu OR pocus OR rescue)):ti,ab,kw)) AND ('hemodynamics'/exp OR hemodynamic\*:ti,ab,kw OR haemodynamic\*:ti,ab,kw OR 'hypovolemia'/exp/dm\_di OR hypovolemia\*:ti,ab,kw OR 'hypotension'/exp/dm\_di OR hypotension:ti,ab,kw OR (((((blood OR plasma) NEXT/3 volume):ti,ab,kw) OR volume:ti,ab,kw) AND status:ti,ab,kw) OR 'heart stroke volume'/de OR (((ejection:ti,ab,kw AND fraction\*:ti,ab,kw OR lvef:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end diastolic':ti,ab,kw AND volume:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end systolic':ti,ab,kw AND volume:ti,ab,kw) OR 'heart left ventricle outflow tract obstruction'/exp/dm\_di OR ((('left ventricular outflow' NEXT/2 obstruct\*):ti,ab,kw) AND 'diagnosis'/lnk) OR (('heart right ventricle function'/exp OR ('right ventricular' NEXT/2 (fail\* OR dysfunct\*))) AND 'diagnosis'/lnk) OR 'pericardial effusion'/dm\_di OR ('pericaridal effusion\*':ti,ab,kw AND 'diagnosis'/lnk) OR 'aortic regurgitation'/dm\_di OR 'aortic valve stenosis'/dm\_di OR ((((aortic OR aorta) NEXT/2 (disease OR insufficien\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'pneumothorax'/exp/dm\_di OR 'hematothorax'/dm\_di OR 'hydrothorax'/exp/dm\_di OR 'pleura effusion'/dm\_di OR ((haematopneumothorax:ti,ab,kw OR haemopneumothorax:ti,ab,kw OR haemothorax:ti,ab,kw OR hematothorax:ti,ab,kw OR hemopleura:ti,ab,kw OR hemopneumothorax:ti,ab,kw OR hemothorax:ti,ab,kw OR hydropneumothorax:ti,ab,kw OR hydrothorax:ti,ab,kw OR hypopneumothorax:ti,ab,kw OR 'pleural effusion\*':ti,ab,kw OR pneumothorax:ti,ab,kw) AND 'diagnosis'/lnk) OR 'air embolism'/dm\_di OR (('air emboli\*':ti,ab,kw OR ((intracardiac NEXT/3 air):ti,ab,kw)) AND 'diagnosis'/lnk) OR 'lung embolism'/dm\_di OR ((((pulmonary:ti,ab,kw AND emboli\*:ti,ab,kw OR lung:ti,ab,kw) AND emboli\*:ti,ab,kw OR pulmonary:ti,ab,kw) AND thromboemboli\*:ti,ab,kw OR lung:ti,ab,kw) AND thromboemboli\*:ti,ab,kw AND 'diagnosis'/lnk) OR 'mitral valve regurgitation'/exp/dm\_di OR 'mitral valve stenosis'/exp/dm\_di OR ((('mitral valve' NEXT/2 (disease OR insufficien\* OR regurgitat\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'cardiac function\*':ti,ab,kw OR 'heart function\*':ti,ab,kw OR 'cardiac monitor\*':ti,ab,kw OR 'heart monitor\*':ti,ab,kw) OR ('peroperative echography'/de AND ('hemodynamics'/exp OR hemodynamic\*:ti,ab,kw OR haemodynamic\*:ti,ab,kw OR 'hypovolemia'/exp/dm\_di OR hypovolemia\*:ti,ab,kw OR 'hypotension'/exp/dm\_di OR hypotension:ti,ab,kw OR (((((blood OR plasma) NEXT/3 volume):ti,ab,kw) OR volume:ti,ab,kw) AND status:ti,ab,kw) OR 'heart stroke volume'/de OR (((ejection:ti,ab,kw AND fraction\*:ti,ab,kw OR lvef:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end diastolic':ti,ab,kw AND volume:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end systolic':ti,ab,kw AND volume:ti,ab,kw) OR 'heart left ventricle outflow tract obstruction'/exp/dm\_di OR ((('left ventricular outflow' NEXT/2 obstruct\*):ti,ab,kw) AND 'diagnosis'/lnk) OR (('heart right ventricle function'/exp OR ('right ventricular' NEXT/2 (fail\* OR dysfunct\*))) AND 'diagnosis'/lnk) OR 'pericardial effusion'/dm\_di OR ('pericaridal effusion\*':ti,ab,kw AND 'diagnosis'/lnk) OR 'aortic regurgitation'/dm\_di OR 'aortic valve stenosis'/dm\_di OR ((((aortic OR aorta) NEXT/2 (disease OR insufficien\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'pneumothorax'/exp/dm\_di OR 'hematothorax'/dm\_di OR 'hydrothorax'/exp/dm\_di OR 'pleura effusion'/dm\_di OR ((haematopneumothorax:ti,ab,kw OR haemopneumothorax:ti,ab,kw OR haemothorax:ti,ab,kw OR hematothorax:ti,ab,kw OR hemopleura:ti,ab,kw OR hemopneumothorax:ti,ab,kw OR hemothorax:ti,ab,kw OR hydropneumothorax:ti,ab,kw OR hydrothorax:ti,ab,kw OR hypopneumothorax:ti,ab,kw OR 'pleural effusion\*':ti,ab,kw OR pneumothorax:ti,ab,kw) AND 'diagnosis'/lnk) OR 'air embolism'/dm\_di OR (('air emboli\*':ti,ab,kw OR ((intracardiac NEXT/3 air):ti,ab,kw)) AND 'diagnosis'/lnk) OR 'lung embolism'/dm\_di OR ((((pulmonary:ti,ab,kw AND emboli\*:ti,ab,kw OR lung:ti,ab,kw) AND emboli\*:ti,ab,kw OR pulmonary:ti,ab,kw) AND thromboemboli\*:ti,ab,kw OR lung:ti,ab,kw) AND thromboemboli\*:ti,ab,kw AND 'diagnosis'/lnk) OR 'mitral valve regurgitation'/exp/dm\_di OR 'mitral valve stenosis'/exp/dm\_di OR ((('mitral valve' NEXT/2 (disease OR insufficien\* OR regurgitat\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'cardiac function\*':ti,ab,kw OR 'heart function\*':ti,ab,kw OR 'cardiac monitor\*':ti,ab,kw OR 'heart monitor\*':ti,ab,kw))) AND ('crossover procedure':de OR 'double-blind procedure':de OR 'randomized controlled trial':de OR 'single-blind procedure':de OR random\*:de,ab,ti OR factorial\*:de,ab,ti OR crossover\*:de,ab,ti OR ((cross NEXT/1 over\*):de,ab,ti) OR placebo\*:de,ab,ti OR ((doubl\* NEAR/1 blind\*):de,ab,ti) OR ((singl\* NEAR/1 blind\*):de,ab,ti) OR assign\*:de,ab,ti OR allocat\*:de,ab,ti OR volunteer\*:de,ab,ti) OR ((('intraoperative monitoring'/de OR 'peroperative care'/de OR 'intraoperative period'/de OR 'surgery'/de OR 'abdominal surgery'/exp OR 'ambulatory surgery'/de OR 'breast surgery'/exp OR 'cancer surgery'/exp OR 'ear nose throat surgery'/exp OR 'emergency surgery'/exp OR 'endocrine surgery'/exp OR 'eye surgery'/exp OR 'general surgery'/exp OR 'geriatric surgery'/exp OR 'head and neck surgery'/exp OR 'neurosurgery'/exp OR 'orthopedic surgery'/exp OR 'pelvis surgery'/exp OR 'plastic surgery'/exp OR 'reconstructive surgery'/exp OR 'esophagus surgery'/exp OR 'lung surgery'/exp OR 'pleurectomy'/de OR 'thymus surgery'/exp OR 'trachea surgery'/exp OR 'operating room'/de OR ((operating NEXT/2 (room\* OR theater\* OR theatre\*)):ti,ab,kw) OR intraoper\*:ti,ab,kw OR 'intra oper\*':ti,ab,kw OR peroper\*:ti,ab,kw OR 'per oper\*':ti,ab,kw OR (((during OR undergoing OR while) NEXT/3 (operation\* OR repair\* OR procedure\* OR transplant\* OR surg\*)):ti,ab,kw) OR anesthetized:ti,ab,kw OR anesthetised:ti,ab,kw OR anesthesia:ti,ab,kw OR anaesthesia:ti,ab,kw) AND ('transthoracic echocardiography'/de OR (('echocardiography'/de OR 'echography'/de OR 'doppler ultrasonography'/exp OR 'real time echography'/de) AND (transthoracic:ti,ab,kw OR 'trans thoracic':ti,ab,kw OR tte:ti,ab,kw OR 't.t.e.':ti,ab,kw OR 'point of care system'/de OR (point:ti,ab,kw AND of:ti,ab,kw AND care:ti,ab,kw) OR pocus:ti,ab,kw OR pocu:ti,ab,kw)) OR (((echocardiogra\* OR 'echo cardiogra\*' OR ultraso\* OR sonogra\* OR echoso\* OR echoscop\* OR echotomogra\* OR 'echo tomogra\*' OR echogra\* OR tomoechogra\* OR 'tomo echogra\*' OR doppler) NEXT/3 (transthoracic OR tte OR 't.t.e.' OR noninvasive OR 'non invasive' OR 'point of care' OR pocu OR pocus OR rescue)):ti,ab,kw)) AND ('hemodynamics'/exp OR hemodynamic\*:ti,ab,kw OR haemodynamic\*:ti,ab,kw OR 'hypovolemia'/exp/dm\_di OR hypovolemia\*:ti,ab,kw OR 'hypotension'/exp/dm\_di OR hypotension:ti,ab,kw OR (((((blood OR plasma) NEXT/3 volume):ti,ab,kw) OR volume:ti,ab,kw) AND status:ti,ab,kw) OR 'heart stroke volume'/de OR (((ejection:ti,ab,kw AND fraction\*:ti,ab,kw OR lvef:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end diastolic':ti,ab,kw AND volume:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end systolic':ti,ab,kw AND volume:ti,ab,kw) OR 'heart left ventricle outflow tract obstruction'/exp/dm\_di OR ((('left ventricular outflow' NEXT/2 obstruct\*):ti,ab,kw) AND 'diagnosis'/lnk) OR (('heart right ventricle function'/exp OR ('right ventricular' NEXT/2 (fail\* OR dysfunct\*))) AND 'diagnosis'/lnk) OR 'pericardial effusion'/dm\_di OR ('pericaridal effusion\*':ti,ab,kw AND 'diagnosis'/lnk) OR 'aortic regurgitation'/dm\_di OR 'aortic valve stenosis'/dm\_di OR ((((aortic OR aorta) NEXT/2 (disease OR insufficien\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'pneumothorax'/exp/dm\_di OR 'hematothorax'/dm\_di OR 'hydrothorax'/exp/dm\_di OR 'pleura effusion'/dm\_di OR ((haematopneumothorax:ti,ab,kw OR haemopneumothorax:ti,ab,kw OR haemothorax:ti,ab,kw OR hematothorax:ti,ab,kw OR hemopleura:ti,ab,kw OR hemopneumothorax:ti,ab,kw OR hemothorax:ti,ab,kw OR hydropneumothorax:ti,ab,kw OR hydrothorax:ti,ab,kw OR hypopneumothorax:ti,ab,kw OR 'pleural effusion\*':ti,ab,kw OR pneumothorax:ti,ab,kw) AND 'diagnosis'/lnk) OR 'air embolism'/dm\_di OR (('air emboli\*':ti,ab,kw OR ((intracardiac NEXT/3 air):ti,ab,kw)) AND 'diagnosis'/lnk) OR 'lung embolism'/dm\_di OR ((((pulmonary:ti,ab,kw AND emboli\*:ti,ab,kw OR lung:ti,ab,kw) AND emboli\*:ti,ab,kw OR pulmonary:ti,ab,kw) AND thromboemboli\*:ti,ab,kw OR lung:ti,ab,kw) AND thromboemboli\*:ti,ab,kw AND 'diagnosis'/lnk) OR 'mitral valve regurgitation'/exp/dm\_di OR 'mitral valve stenosis'/exp/dm\_di OR ((('mitral valve' NEXT/2 (disease OR insufficien\* OR regurgitat\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'cardiac function\*':ti,ab,kw OR 'heart function\*':ti,ab,kw OR 'cardiac monitor\*':ti,ab,kw OR 'heart monitor\*':ti,ab,kw) OR ('peroperative echography'/de AND ('hemodynamics'/exp OR hemodynamic\*:ti,ab,kw OR haemodynamic\*:ti,ab,kw OR 'hypovolemia'/exp/dm\_di OR hypovolemia\*:ti,ab,kw OR 'hypotension'/exp/dm\_di OR hypotension:ti,ab,kw OR (((((blood OR plasma) NEXT/3 volume):ti,ab,kw) OR volume:ti,ab,kw) AND status:ti,ab,kw) OR 'heart stroke volume'/de OR (((ejection:ti,ab,kw AND fraction\*:ti,ab,kw OR lvef:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end diastolic':ti,ab,kw AND volume:ti,ab,kw OR ventricular:ti,ab,kw) AND 'end systolic':ti,ab,kw AND volume:ti,ab,kw) OR 'heart left ventricle outflow tract obstruction'/exp/dm\_di OR ((('left ventricular outflow' NEXT/2 obstruct\*):ti,ab,kw) AND 'diagnosis'/lnk) OR (('heart right ventricle function'/exp OR ('right ventricular' NEXT/2 (fail\* OR dysfunct\*))) AND 'diagnosis'/lnk) OR 'pericardial effusion'/dm\_di OR ('pericaridal effusion\*':ti,ab,kw AND 'diagnosis'/lnk) OR 'aortic regurgitation'/dm\_di OR 'aortic valve stenosis'/dm\_di OR ((((aortic OR aorta) NEXT/2 (disease OR insufficien\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'pneumothorax'/exp/dm\_di OR 'hematothorax'/dm\_di OR 'hydrothorax'/exp/dm\_di OR 'pleura effusion'/dm\_di OR ((haematopneumothorax:ti,ab,kw OR haemopneumothorax:ti,ab,kw OR haemothorax:ti,ab,kw OR hematothorax:ti,ab,kw OR hemopleura:ti,ab,kw OR hemopneumothorax:ti,ab,kw OR hemothorax:ti,ab,kw OR hydropneumothorax:ti,ab,kw OR hydrothorax:ti,ab,kw OR hypopneumothorax:ti,ab,kw OR 'pleural effusion\*':ti,ab,kw OR pneumothorax:ti,ab,kw) AND 'diagnosis'/lnk) OR 'air embolism'/dm\_di OR (('air emboli\*':ti,ab,kw OR ((intracardiac NEXT/3 air):ti,ab,kw)) AND 'diagnosis'/lnk) OR 'lung embolism'/dm\_di OR ((((pulmonary:ti,ab,kw AND emboli\*:ti,ab,kw OR lung:ti,ab,kw) AND emboli\*:ti,ab,kw OR pulmonary:ti,ab,kw) AND thromboemboli\*:ti,ab,kw OR lung:ti,ab,kw) AND thromboemboli\*:ti,ab,kw AND 'diagnosis'/lnk) OR 'mitral valve regurgitation'/exp/dm\_di OR 'mitral valve stenosis'/exp/dm\_di OR ((('mitral valve' NEXT/2 (disease OR insufficien\* OR regurgitat\* OR stenosis)):ti,ab,kw) AND 'diagnosis'/lnk) OR 'cardiac function\*':ti,ab,kw OR 'heart function\*':ti,ab,kw OR 'cardiac monitor\*':ti,ab,kw OR 'heart monitor\*':ti,ab,kw))) AND ('clinical study'/de OR 'case control study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR ('prospective study'/de NOT 'randomized controlled trial (topic)'/exp) OR 'cohort analysis'/de OR (cohort NEXT/1 (study OR studies)) OR (('case control' NEXT/1 (study OR studies)):ti,ab) OR (('follow up' NEXT/1 (study OR studies)):ti,ab) OR ((observational NEXT/1 (study OR studies)):ti,ab) OR ((epidemiologic\* NEXT/1 (study OR studies)):ti,ab) OR (('cross sectional' NEXT/1 (study OR studies)):ti,ab)))) NOT ((rat:ti OR rats:ti OR mouse:ti OR mice:ti OR swine:ti OR porcine:ti OR murine:ti OR sheep:ti OR lambs:ti OR pigs:ti OR piglets:ti OR rabbit:ti OR rabbits:ti OR cat:ti OR cats:ti OR dog:ti OR dogs:ti OR cattle:ti OR bovine:ti OR monkey:ti OR monkeys:ti OR trout:ti OR marmoset$:ti) AND 'animal experiment'/de OR ('animal experiment'/de NOT ('human experiment'/de OR 'human'/de)))

**Cochrane Library CENTRAL (Wiley)  
Run October 29, 2019**

|  |  |
| --- | --- |
| #1 | orcid.org/0000-0001-6744-3517] |
| #2 | [mh ^"Monitoring, Intraoperative"] |
| #3 | [mh "Intraoperative Care"] |
| #4 | [mh "Intraoperative Period"] |
| #5 | [mh ^"surgical procedures, operative"] |
| #6 | [mh ^"anastomosis, surgical"] |
| #7 | [mh ^"anastomosis, roux-en-y"] |
| #8 | [mh "cerebrospinal fluid shunts"] |
| #9 | [mh ^cholecystostomy] |
| #10 | [mh ^choledochostomy] |
| #11 | [mh ^"endolymphatic shunt"] |
| #12 | [mh ^gastroenterostomy] |
| #13 | [mh ^"jejunoileal bypass"] |
| #14 | [mh ^pancreaticojejunostomy] |
| #15 | [mh ^"portoenterostomy, hepatic"] |
| #16 | [mh ^salpingostomy] |
| #17 | [mh ^vasovasostomy] |
| #18 | [mh ^"anterior temporal lobectomy"] |
| #19 | [mh "bariatric surgery"] |
| #20 | [mh biopsy] |
| #21 | [mh curettage] |
| #22 | [mh ^"cytoreduction surgical procedures"] |
| #23 | [mh ^debridement] |
| #24 | [mh "decompression, surgical"] |
| #25 | [mh "deep brain stimulation"] |
| #26 | [mh "device removal"] |
| #27 | [mh "digestive system surgical procedures"] |
| #28 | [mh dissection] |
| #29 | [mh drainage] |
| #30 | [mh "endocrine surgical procedures"] |
| #31 | [mh ^fasciotomy] |
| #32 | [mh keratectomy] |
| #33 | [mh ^laparotomy] |
| #34 | [mh ^ligation] |
| #35 | [mh "lymph node excision"] |
| #36 | [mh mastectomy] |
| #37 | [mh ^metastasectomy] |
| #38 | [mh microsurgery] |
| #39 | [mh ^"minimally invasive surgical procedures"] |
| #40 | [mh endoscopy] |
| #41 | [mh arthroscopy] |
| #42 | [mh ^bronchoscopy] |
| #43 | [mh ^colposcopy] |
| #44 | [mh ^"conversion to open surgery"] |
| #45 | [mh ^culdoscopy] |
| #46 | [mh ^cystoscopy] |
| #47 | [mh "endoscopy, digestive system"] |
| #48 | [mh ^fetoscopy] |
| #49 | [mh ^hysteroscopy] |
| #50 | [mh laparoscopy] |
| #51 | [mh ^laryngoscopy] |
| #52 | [mh ^mediastinoscopy] |
| #53 | [mh "natural orifice endoscopic surgery"] |
| #54 | [mh ^neuroendoscopy] |
| #55 | [mh thoracoscopy] |
| #56 | [mh ^ureteroscopy] |
| #57 | [mh ^"video-assisted surgery"] |
| #58 | [mh ^"minor surgical procedures"] |
| #59 | [mh myotomy] |
| #60 | [mh "obstetric surgical procedures"] |
| #61 | [mh "neurosurgical procedures"] |
| #62 | [mh "ophthalmologic surgical procedures"] |
| #63 | [mh "oral surgical procedures"] |
| #64 | [mh "orthopedic procedures"] |
| #65 | [mh ostomy] |
| #66 | [mh "otorhinolaryngologic surgical procedures"] |
| #67 | [mh ^"pelvic exenteration"] |
| #68 | [mh ^pneumonectomy] |
| #69 | [mh "prophylactic surgical procedures"] |
| #70 | [mh ^"prosthesis implantation"] |
| #71 | [mh "arthroplasty, replacement"] |
| #72 | [mh ^"auditory brain stem implantation"] |
| #73 | [mh ^"blood vessel prosthesis implantation"] |
| #74 | [mh ^"breast implantation"] |
| #75 | [mh ^"cochlear implantation"] |
| #76 | [mh "dental implantation"] |
| #77 | [mh "maxillofacial prosthesis implantation"] |
| #78 | [mh ^"ossicular replacement"] |
| #79 | [mh ^"penile implantation"] |
| #80 | [mh "reconstructive surgical procedures"] |
| #81 | [mh ^splenectomy] |
| #82 | [mh “surgery, computer-assisted”] |
| #83 | [mh ^symphysiotomy] |
| #84 | [mh ^"thoracic surgical procedures"] |
| #85 | [mh ^sternotomy] |
| #86 | [mh ^thoracoplasty] |
| #87 | [mh ^thoracostomy] |
| #88 | [mh ^thoracotomy] |
| #89 | [mh ^thymectomy] |
| #90 | [mh ^tracheostomy] |
| #91 | [mh ^tracheotomy] |
| #92 | [mh ^transplantation] |
| #93 | [mh "cell transplantation"] |
| #94 | [mh ^"organ transplantation"] |
| #95 | [mh ^"kidney transplantation"] |
| #96 | [mh ^"liver transplantation"] |
| #97 | [mh "lung transplantation"] |
| #98 | [mh ^"pancreas transplantation"] |
| #99 | [mh "vascularized composite allotransplantation"] |
| #100 | [mh replantation] |
| #101 | [mh "tissue transplantation"] |
| #102 | [mh ^"transplantation, autologous"] |
| #103 | [mh ^"transplantation, heterologous"] |
| #104 | [mh ^"transplantation, heterotopic"] |
| #105 | [mh "transplantation, homologous"] |
| #106 | [mh "urogenital surgical procedures"] |
| #107 | [mh "operating rooms"] |
| #108 | (operating NEAR/2 (room\* or theater\* or theatre\*)):ti,ab |
| #109 | (intraoper\* or intra-oper\*):ti,ab |
| #110 | (peroper\* or per-oper\*):ti,ab |
| #111 | (during or undergoing or while) NEXT/3 (operation\* or repair\* or procedure\* or transplant\* or surg\*) |
| #112 | (anesthetized or anesthetised):ti,ab |
| #113 | (anesthesia or anaesthesia):ti,ab |
| #114 | {OR #2-#113} |
| #115 | [mh ^echocardiography] or [mh ^"echocardiography, doppler"] or [mh ^"echocardiography, doppler, color"] or [mh ^"echocardiography, doppler, pulsed"] |
| #116 | [mh ^"echocardiography, three-dimensional"] |
| #117 | [mh ^"echocardiography, four-dimensional"] |
| #118 | #116 or #117 |
| #119 | [mh ^ultrasonography] or [mh ^"ultrasonography, doppler"] or [mh ^"ultrasonography, doppler, duplex"] or [mh ^"ultrasonography, doppler, color"] or [mh ^"ultrasonography, doppler, pulsed"] or [mh ^"ultrasonography, interventional"] |
| #120 | {OR #115-#119} |
| #121 | (transthoracic or trans-thoracic):ti,ab,kw |
| #122 | (TTE or "T.T.E."):ti,ab,kw |
| #123 | [mh ^"Point-of-Care Systems"] |
| #124 | (point of care or POCUS or POCU):ti,ab,kw |
| #125 | {OR #121-#124} |
| #126 | #120 AND #125 |
| #127 | ((echocardiogra\* or echo-cardiogra\* or ultraso\* or sonogra\* or echoso\* or echoscop\* or echotomogra\* or echo-tomogra\* or orechogra\* or tomoechogra\* or tomo-echogra\* or doppler) NEAR/3 (transthoracic or TTE or "T.T.E." or noninvasive or non-invasive or point of care or POCU or POCUS )):ti,ab |
| #128 | #126 or #127 |
| #129 | [mh Hemodynamics] or (hemodynamic\* or haemodynamic\*):ti,ab |
| #130 | [mh ^Hypovolemia/DI] or hypovolemia\*:ti,ab |
| #131 | [mh ^Hypotension/DI] or hypotension:ti,ab |
| #132 | (((blood or plasma) NEAR/3 volume) or volume status):ti,ab |
| #133 | [mh ^"Stroke Volume"] OR ((ventric\* NEAR/3 ejection fraction\*) OR LVEF OR "Ventricular End-Diastolic Volume" or "Ventricular End-Systolic Volume"):ti,ab |
| #134 | [mh ^"Ventricular Outflow Obstruction"/DI] or ("left ventricular outflow" NEAR/2 obstruct\*):ti,ab |
| #135 | [mh ^"Ventricular Dysfunction, Right"/DI] or "right ventricular" NEAR/2 (fail\* or dysfunct\*):ti,ab |
| #136 | [mh ^"Pericardial Effusion"/di] OR (pericaridal NEXT effusion\*):ti,ab |
| #137 | [mh ^"Aortic Valve Insufficiency"/DI] OR [mh "Aortic Valve Stenosis"/DI] OR ((aortic or aorta) NEAR/2 (disease or insufficien\* or stenosis)):ti,ab |
| #138 | [mh ^Hemopneumothorax/DI] OR [mh ^Hemothorax/DI] OR [mh ^Hydropneumothorax/DI] OR [mh ^Hydrothorax/di] OR [mh "Pleural effusion"/DI] or [mh ^Pneumothorax/DI] |
| #139 | (haemopneumothorax OR haemothorax OR hemopneumothorax OR hemothorax OR hydropneumothorax OR hydrothorax OR hypopneumothorax OR pleural NEXT effusion\* OR pneumothorax):ti,ab |
| #140 | [mh ^"Embolism, Air"/DI] OR air NEXT emboli\*:ti,ab or (intracardiac NEXT/3 air):ti,ab |
| #141 | [mh ^"Pulmonary Embolism"/DI] or ((pulmonary NEXT emboli\*) or (lung NEXT emboli\*) or (pulmonary NEXT thromboemboli\*) or (lung NEXT thromboemboli\*)):ti,ab |
| #142 | [mh ^"Mitral Valve Insufficiency"/DI] or [mh ^"Mitral Valve Stenosis"/DI] or ("mitral valve" NEAR/2 (disease or insufficien\* or regurgitat\* or stenosis)):ti,ab |
| #143 | (cardiac NEXT function\* or heart NEXT function\*):ti,ab |
| #144 | (cardiac NEXT monitor\* or heart NEXT monitor\*):ti,ab |
| #145 | {OR #129-#144} |
| #146 | #114 AND #128 AND #145 in Trials |

**CINAHL Plus with Full Text (Ebsco)  
Run October 29, 2019**

|  |  |
| --- | --- |
| S63 | s59 NOT S62 |
| S62 | S60 NOT S61 |
| S61 | (MH "Human") |
| S60 | (MH "Animals+") |
| S59 | (S49 OR S57) AND (S37 AND S58) |
| S58 | S49 OR S57 |
| S57 | S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S56 |
| S56 | observational N1 study |
| S55 | cohort N1 study |
| S54 | (MH "Cross Sectional Studies") |
| S53 | (MH "Nonconcurrent Prospective Studies") |
| S52 | (MH "Correlational Studies") |
| S51 | (MH "Case Control Studies+") |
| S50 | (MH "Prospective Studies") |
| S49 | S12 S38 or S39 or S40 or S41 or S42 or S43 or S44 or S45 or S46 or S47 or S48 |
| S48 | TX allocat\* random\* |
| S47 | (MH "Quantitative Studies") |
| S46 | (MH "Placebos") |
| S45 | TX placebo\* |
| S44 | TX random\* allocat\* |
| S43 | MH "Random Assignment") |
| S42 | TX randomi\* control\* trial\* |
| S41 | TX ( (singl\* n1 blind\*) or (singl\* n1 mask\*) ) or TX ( (doubl\* n1 blind\*) or (doubl\* n1 mask\*) ) or TX ( (tripl\* n1 blind\*) or (tripl\* n1 mask\*) ) or TX ( (trebl\* n1 blind\*) or (trebl\* n1 mask\*) ) |
| S40 | TX clinic\* n1 trial\* |
| S39 | PT Clinical trial |
| S38 | MH "Clinical Trials+") |
| S37 | S12 AND S19 AND S36 |
| S36 | S34 OR S35 |
| S35 | S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 |
| S34 | S32 AND S33 |
| S33 | MW “DI” |
| S32 | TI ( hypovolemia\* or hypotension or (left ventricular outlow N2 obstruct\*) or (right ventricular N2 (fail\* or dysfunct\*)) or pericaridal effusion\* OR ((aortic or aorta) N2 (disease or insufficien\* or stenosis)) OR haematopneumothorax or haemopneumothorax or haemothorax or hematothorax or hemopleura or hemopneumothorax or hemothorax or hydropneumothorax or hydrothorax or hypopneumothorax or pleural effusion\* or pneumothorax ) OR AB ( hypovolemia\* or hypotension or (left ventricular outlow N2 obstruct\*) or (right ventricular N2 (fail\* or dysfunct\*)) or pericaridal effusion\* OR ((aortic or aorta) N2 (disease or insufficien\* or stenosis)) OR haematopneumothorax or haemopneumothorax or haemothorax or hematothorax or hemopleura or hemopneumothorax or hemothorax or hydropneumothorax or hydrothorax or hypopneumothorax or pleural effusion\* or pneumothorax ) |
| S31 | (MH "Mitral Valve Insufficiency/DI") OR (MH "Mitral Valve Stenosis/DI") |
| S30 | (MH "Pulmonary Embolism/DI") OR (MH "Embolism, Air/DI") |
| S29 | (MH "Pneumothorax/DI") OR (MH "Hemothorax/DI") OR (MH "Pleural Effusion+/DI") |
| S28 | (MH "Aortic Valve Stenosis/DI") |
| S27 | (MH "Aortic Valve Insufficiency/DI") |
| S26 | (MH "Pericardial Effusion/DI") |
| S25 | (MH "Ventricular Dysfunction, Right/DI") |
| S24 | (MH "Ventricular Outflow Obstruction/DI") |
| S23 | (MH "Hypotension/DI") |
| S22 | (MH "Stroke Volume+") OR TI ( ejection fraction\* or LVEF or Ventricular End-Diastolic Volume or Ventricular End-Systolic Volume ) OR AB ( ejection fraction\* or LVEF or Ventricular End-Diastolic Volume or Ventricular End-Systolic Volume ) |
| S21 | TI ( ((blood or plasma) N3 volume) or volume status ) OR AB ( ((blood or plasma) N3 volume) or volume status ) |
| S20 | (MH "Hemodynamics+") OR TI ( hemodynamic\* or haemodynamic\* ) OR AB ( hemodynamic\* or haemodynamic\* ) |
| S19 | S17 OR S18 |
| S18 | TI ( (echocardiogra\* or echo-cardiogra\* or ultraso\* or sonogra\* or echoso\* or echoscop\* or echotomogra\* or echo-tomogra\* orechogra\* or tomoechogra\* or tomo-echogra\* or doppler) N3 (transthoracic or TTE or "T.T.E." or bedside or noninvasive or non-invasive or point of care or POCU or POCUS or rescue) ) OR AB ( (echocardiogra\* or echo-cardiogra\* or ultraso\* or sonogra\* or echoso\* or echoscop\* or echotomogra\* or echo-tomogra\* orechogra\* or tomoechogra\* or tomo-echogra\* or doppler) N3 (transthoracic or TTE or "T.T.E." or bedside or noninvasive or non-invasive or point of care or POCU or POCUS or rescue ) ) |
| S17 | S13 AND S16 |
| S16 | S14 OR S15 |
| S15 | (MH "Point-of-Care Testing") OR TI ( point of care or POCUS or POCU or rescue ) OR AB ( point of care or POCUS or POCU or rescue ) |
| S14 | TI ( transthoracic or trans-thoracic or TTE or T.T.E. ) OR AB ( transthoracic or trans-thoracic or TTE or T.T.E. ) |
| S13 | (MH "Echocardiography") OR (MH "Echocardiography, Three-Dimensional") OR (MH "Echocardiography, Four-Dimensional") OR (MH "Ultrasonography") OR (MH "Endosonography") OR (MH "Ultrasonography, Doppler") OR (MH "Ultrasonography, Doppler, Duplex+") OR (MH "Ultrasonography, Doppler, Pulsed+") |
| S12 | S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 |
| S11 | TI ( anesthesia or anaesthesia ) OR AB ( anesthesia or anaesthesia ) |
| S10 | TI ( anesthetized or anesthetised ) OR AB ( anesthetized or anesthetised ) |
| S9 | TI ( during or undergoing or while) N3 (operation\* or repair\* or procedure\* or transplant\* or surg\* ) OR AB ( during or undergoing or while) N3 (operation\* or repair\* or procedure\* or transplant\* or surg\* ) |
| S8 | TI ( peroper\* or per-oper\* ) OR AB ( peroper\* or per-oper\* ) |
| S7 | TI ( intraoper\* or intra-oper\* ) OR AB ( intraoper\* or intra-oper\* ) |
| S6 | TI ( operating N2 (room\* or theater\* or theatre\* ) OR AB ( operating N2 (room\* or theater\* or theatre\* ) |
| S5 | (MH "Operating Rooms") |
| S4 | (MH "Surgery, Operative") OR (MH "Ablation Techniques+") OR (MH "Anastomosis, Surgical+") OR (MH "Biopsy+") OR (MH "Blood Salvage+") OR (MH "Bloodless Medical and Surgical Procedures") OR (MH "Cryosurgery") OR (MH "Curettage+") OR (MH "Cytoreduction Surgical Procedures") OR (MH "Debridement+") OR (MH "Decompression, Surgical+") OR (MH "Deep Brain Stimulation") OR (MH "Device Removal+") OR (MH "Diagnosis, Surgical") OR (MH "Dissection") OR (MH "Drainage+") OR (MH "Extracorporeal Circulation+") OR (MH "Fetal Surgery") OR (MH "Foreign-Body Removal") OR (MH "Hemostasis, Surgical+") OR (MH "Laparotomy") OR (MH "Ligation") OR (MH "Limb Salvage") OR (MH "Lymph Node Excision+") OR (MH "Mastectomy+") OR (MH "Microsurgery+") OR (MH "Minimally Invasive Procedures+") OR (MH "Neurosurgery+") OR (MH "Orthopedic Surgery+") OR (MH "Ostomy+") OR (MH "Paracentesis+") OR (MH "Pediatric Surgery") OR (MH "Pelvic Exenteration") OR (MH "Blood Vessel Prosthesis") OR (MH "Breast Implants") OR (MH "Cochlear Implant") OR (MH "Dental Implants") OR (MH "Eye, Artificial") OR (MH "Internal Fixators+") OR (MH "Larynx, Artificial+") OR (MH "Lenses, Intraocular") OR (MH "Lung, Artificial") OR (MH "Maxillofacial Prosthesis") OR (MH "Orthopedic Prosthesis+") OR (MH "Palatal Obturators") OR (MH "Penile Prosthesis") OR (MH "Stents+") OR (MH "Radiotherapy, Intraoperative") OR (MH "Repeat Procedures+") OR (MH "Revascularization+") OR (MH "Shunts, Surgical+") OR (MH "Surgery, Computer-Assisted+") OR (MH "Vascular Surgery+") OR (MH "Surgery, Digestive System+") OR (MH "Surgery, Elective+") OR (MH "Surgery, Endocrine+") OR (MH "Eye Surgery+") OR (MH "Surgery, Laparoscopic+") OR (MH "Surgery, Minor") OR (MH "Surgery, Ob-Gyn+") OR (MH "Surgery, Oral+") OR (MH "Surgery, Otorhinolaryngologic+") OR (MH "Surgery, Plastic+") OR (MH "Surgery, Podiatric+") OR (MH "Surgery, Prophylactic+") OR (MH "Surgery, Reconstructive+") OR (MH "Surgery, Urogenital+") OR (MH "Thoracic Surgery") OR (MH "Cricothyrotomy") OR (MH "Surgery, Lung+") OR (MH "Thoracostomy+") OR (MH "Thoracotomy") OR (MH "Tracheostomy") OR (MH "Transplantation+") OR (MH "Cell Transplantation+") OR (MH "Organ Transplantation") OR (MH "Bone Transplantation") OR (MH "Facial Transplantation") OR (MH "Kidney Transplantation+") OR (MH "Liver Transplantation") OR (MH "Lung Transplantation") OR (MH "Pancreas Transplantation") OR (MH "Replantation+") OR (MH "Tissue Transplantation+") |
| S3 | (MH "Intraoperative Period") |
| S2 | (MH "Intraoperative Care") |
| S1 | (MH "Intraoperative Monitoring") |

**Scopus (Elsevier.com)  
Run October 29, 2019**

TITLE-ABS-KEY ( intraoperative OR intra-operative OR ( operating W/2 room\* OR theater\* OR theatre\* ) OR peroper\* OR ( during OR undergoing OR while ) W/4 ( operation\* OR repair\* OR procedure\* OR transplant\* OR surg\* ) OR anesthetized OR anesthetised OR anesthesia OR anaesthesia ) AND TITLE-ABS-KEY ( echocardiogra\* OR echo-cardiogra\* OR ultraso\* OR sonogra\* OR echoso\* OR echoscop\* OR echotomogra\* OR echo-tomogra\* OR echogra\* OR tomoechogra\* OR tomo-echogra\* OR doppler ) W/3 TITLE-ABS-KEY ( transthoracic OR tte OR "T.T.E." OR bedside OR noninvasive OR non-invasive OR "point of care" OR pocu OR pocus OR rescue OR cardiac OR cardiopulmonary OR heart ) AND TITLE-ABS-KEY ( hemodynamic\* OR haemodynamic\* OR ( ( blood OR plasma ) W/3 volume ) OR "ejection fraction\*" OR lvef OR "Ventricular End-Diastolic Volume" OR "Ventricular End-Systolic Volume" OR hypovolemia\* OR hypotension OR ( "left ventricular outflow" W/2 obstruct\* ) OR ( "right ventricular" W/2 ( fail\* OR dysfunct\* ) ) OR "pericaridal effusion\*" OR ( ( aortic OR aorta ) W/2 ( disease OR insufficien\* OR stenosis ) ) OR haematopneumothorax OR haemopneumothorax OR haemothorax OR hematothorax OR hemopleura OR hemopneumothorax OR hemothorax OR hydropneumothorax OR hydrothorax OR hypopneumothorax OR "pleural effusion\*" OR pneumothorax OR air AND emboli\* OR ( intracardiac W/3 air ) OR "pulmonary emboli\*" OR "lung emboli\*" OR "pulmonary thromboemboli\*" OR "lung thromboemboli\*" OR ( "mitral valve" W/2 ( disease OR insufficien\* OR regurgitat\* OR stenosis ) ) OR "cardiac function\*" OR "heart function\*" OR "cardiac monitor\*" OR "heart monitor\*" ) AND ( EXCLUDE ( DOCTYPE , "ch" ) OR EXCLUDE ( DOCTYPE , "ed" ) OR EXCLUDE ( DOCTYPE , "sh" ) )

**World Health Organization/Pan American Health Organization Virtual Health Library  
Databases: LILACS, IBECS, WHO-IRIS, BINACIS, CUMED, PAHO, BBO, PAHO-IRIS, BDNEF, MedCarib, CVSP-Brazil, VHLMINSA, Sec. Est. Saúde SP (São Paulo State Department of Health)   
Run October 29, 2019**

tw:((tw:(tw:((tw:(intraoper\* OR intra-oper\* OR peroper\* OR per-oper\*)) AND (tw:((transthoracic OR trans-thoracic) AND (echocardiogra\* OR echo-cardiogra\* OR ultraso\* OR sonogra\* OR echoso\* OR echoscop\* OR echotomogra\* OR echo-tomogra\* OR echogra\* OR tomoechogra\* OR tomo-echogra\* OR doppler))) AND (tw:(hemodynamic\* OR haemodynamic\* OR hypovolemia\* OR hypotension OR "volume status" OR "ejection fraction\*" OR lvef OR "Ventricular End-Diastolic Volume" OR "Ventricular End-Systolic Volume" OR "left ventricular outflow obstruct\*" OR "right ventricular fail\*" OR "right ventricular disfunct\*" OR "Aortic Valve Insufficiency" OR "Aortic Valve Stenosis" OR haematopneumothorax OR haemopneumothorax OR haemothorax OR hematothorax OR hemopleura OR hemopneumothorax OR hemothorax OR hydropneumothorax OR hydrothorax OR hypopneumothorax OR "pleural effusion\*" OR pneumothorax OR "air emboli\*" OR "pulmonary emboli\*" OR "lung emboli\*" OR "pulmonary thromboemboli\*" OR "lung thromboemboli\*" OR "Mitral Valve Insufficien\*" OR "Mitral Valve Stenosis" OR "mitral valve regurgitat\*" ))) AND ( db:("LILACS" OR "IBECS" OR "SES-SP" OR "BINACIS" OR "MedCarib"))))) AND ( la:("en"))