



## ELECTRONIC SUPPLEMENTARY MATERIAL

### **Edginton S *et al.*: Methods for determining optimal positive end-expiratory pressure in patients undergoing invasive mechanical ventilation: a scoping review**

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eAppendix PRISMA-ScR checklist

**Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist**

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	6
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	6
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6-7
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Supplement
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	7
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	7
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	8

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	8
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Fig 1
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Appendix
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	Tables 1-4
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Tables 1-4 and Appendix
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	9-12
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	13-15
Limitations	20	Discuss the limitations of the scoping review process.	16
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	16
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	17

JBIG = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

\* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. doi: [10.7326/M18-0850](https://doi.org/10.7326/M18-0850).

**eTable 1** MEDLINE search strategy

#	Query
1	end-expiratory pressure*.tw,kf,sh.
2	(positive adj5 expiratory pressure*).tw,kf,sh.
3	(positive adj2 endexpiratory pressure*).tw,kf,sh.
4	PEEP*.tw,kf.
5	(open lung adj3 (ventilat* or strateg* or approach*).tw,kf.
6	or/1-5
7	Respiratory Mechanics/
8	((high* or low* or optim* or individual* or increment* or decrement*) adj5 (strateg* or applic* or approach* or level* or trial* or titrat*).tw,kf.
9	((curve or curves or pressure or pressures) adj5 (driv* or stress* or PEEP* or oxygenat* or esophag*).tw,kf,sh.
10	((oxygenation or ventilation) adj3 (index or indexes or indices)).tw,kf.
11	ventilatory parameter*.tw,kf.
12	((high* or low* or optim* or individual* or increment* or decrement* or restricted or liberal or algorithm* or level or levels or chang*) adj3 (PEEP* or positive end expiratory pressure* or positive endexpiratory pressure*).tw,kf.
13	or/7-12
14	exp Respiration, Artificial/ or Ventilators, Mechanical/
15	((artificial* or mechanical*) adj3 (ventilat* or respirat*).tw,kf.
16	Intubation, Intratracheal/
17	(IMV or intubat*).tw,kf.
18	or/14-17
19	6 and 13 and 18
20	exp Child/ not (exp Adult/ and exp Child/)
21	exp Infant/ not (exp Adult/ and exp Infant/)
22	exp Animals/ not (exp Animals/ and Humans/)
23	or/20-22
24	19 not 23

**eTable 2** Embase search strategy

#	Query
1	positive end expiratory pressure ventilation/
2	end-expiratory pressure*.tw,kf.
3	(positive adj5 end expiratory pressure*).tw,kf.
4	(positive adj2 endexpiratory pressure*).tw,kf.
5	PEEP*.tw,kf.
6	open lung ventilation/
7	(open lung adj3 (ventilat* or strateg* or approach*)).tw,kf.
8	or/1-7
9	breathing mechanics/
10	((high* or low* or optim* or individual* or increment* or decrement*) adj5 (strateg* or applic* or approach* or trial* or titrat* or level*)).tw,kf.
11	((curve or curves or pressure or pressures) adj5 (driv* or stress* or PEEP* or oxygenat* or esophag*)).tw,kf.
12	((oxygenation or ventilation) adj3 (index or indexes or indices)).tw,kf.
13	ventilatory parameter*.tw,kf.
14	((high* or low* or optim* or individual* or increment* or decrement* or restricted or liberal or algorithm* or level or levels or chang*) adj3 (PEEP* or positive end expiratory pressure* or positive endexpiratory pressure*)).tw,kf.
15	or/9-14
16	exp artificial ventilation/ or mechanical ventilator/
17	((artificial* or mechanical*) adj3 (ventilat* or respirat*)).tw,kf.
18	endotracheal intubation/
19	(IMV or intubat*).tw,kf.
20	or/16-19
21	8 and 15 and 20
22	exp child/ not ((exp adult/ or exp aged/) and exp child/)
23	exp infant/ not ((exp adult/ or exp aged/) and exp infant/)
24	exp animals/ not (exp animals/ and humans/)
25	22 or 23 or 24
26	21 not 25

**eTable 3** CENTRAL search strategy

#	Query
1	end-expiratory pressure*.tw,hw,sh.
2	(positive adj5 end expiratory pressure*).tw,hw,sh.
3	(positive adj2 endexpiratory pressure*).tw,hw,sh.
4	(open lung adj3 (ventilat* or strateg* or approach*).tw,hw,sh.
5	PEEP*.tw,hw,sh.
6	(open lung adj3 (ventilat* or strateg* or approach*).tw,hw,sh.
7	or/2-6
8	respiratory mechanics.tw,hw,sh.
9	((high* or low* optim* or best or individual* or increment* or decrement* or open lung) adj5 (strateg* or applic* or approach* or setting* or trial* or titrat* or level*).tw,hw,sh.
10	((curve or curves or pressure or pressures) adj5 (driv* or stress* or PEEP* or oxygenat* or esophag*).tw,hw,sh.
11	((oxygenation or ventilation) adj3 (index or indexes or indices)).tw,hw,sh.
12	ventilatory parameter*.tw,hw,sh.
13	((high* or low* optim* or best or individual* or increment* or decrement* or open lung) adj3 (PEEP* or positive end expiratory pressure* or positive endexpiratory pressure*).tw,hw,sh.
14	or/8-13
15	((artificial* or mechanical*) adj3 (ventilat* or respirat*).tw,hw,sh.
16	(IMV or intubat*).tw,hw,sh.
17	15 or 16
18	7 and 14 and 17
19	exp child/ not (exp adult/ and exp child/)
20	exp infant/ not (exp adult/ and exp infant/)
21	exp animals/ not (exp animals/ and humans/)
22	or/19-21
23	18 not 22

CENTRAL = Cochrane Central Register of Controlled Trials

**eTable 4** Scopus search strategy

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(TITLE-ABS-KEY (end-expiratory-pressure* OR (positive W/5 expiratory-
pressure*) OR (positive W/2 endexpiratory-pressure*) OR peep* OR (open-
lung W/3 (ventilat* OR strateg* OR approach*)))) AND ((TITLE-ABS-
KEY (respiratory-mechanics OR ventilatory-parameter*) OR TITLE-ABS-
KEY (((high* OR low* OR optim* OR individual* OR increment* OR decrement*)
W/5 (strateg* OR applic* OR approach* OR level* OR trial* OR titrat*))) OR TITL
E-ABS-
KEY (((curve OR curves OR pressure OR pressures) W/5 (driv* OR stress* OR pee
p* OR oxygenat* OR esophag*)) .) OR TITLE-ABS-
KEY (((oxygenation OR ventilation) W/3 (index OR indexes OR indices))) OR TIT
LE-ABS-
KEY (((high* OR low* OR optim* OR individual* OR increment* OR decrement* O
R restricted OR liberal OR algorithm* OR level OR levels OR chang*) W/3 (peep* O
R positive-end-expiratory-pressure* OR positive-endexpiratory-
pressure*)))) AND ((TITLE-ABS-
KEY (((artificial* OR mechanical*) W/3 (ventilat* OR respirat*))) OR TITLE-ABS-
KEY ((imv OR intubat*)))) AND (EXCLUDE (SRCTYPE, "k") OR EXCLUDE (S
RCTYPE, "Undefined")) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-
TO (DOCTYPE, "re") OR LIMIT-TO (DOCTYPE, "cp")) AND (LIMIT-
TO (SUBJAREA, "MEDI") OR EXCLUDE (SUBJAREA, "AGRI") OR EXCLUDE (
SUBJAREA, "ARTS") OR EXCLUDE (SUBJAREA, "CENG") OR EXCLUDE (SUBJ
AREA, "CHEM") OR EXCLUDE (SUBJAREA, "COMP") OR EXCLUDE (SUBJAR
EA, "DECI") OR EXCLUDE (SUBJAREA, "DENT") OR EXCLUDE (SUBJAREA,
"EART") OR EXCLUDE (SUBJAREA, "ENGI") OR EXCLUDE (SUBJAREA, "IMM
U") OR EXCLUDE (SUBJAREA, "SOCI") OR EXCLUDE (SUBJAREA, "PSYC") O
R EXCLUDE (SUBJAREA, "ENVI") OR EXCLUDE (SUBJAREA, "VETE") OR EX
CLUDE (SUBJAREA, "MATE") OR EXCLUDE (SUBJAREA, "PHYS"))
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**eTable 5** Web of Science search strategy

<p><b>1.</b> end-expiratory pressure* OR (positive NEAR/5 expiratory pressure*) OR (positive NEAR/2 endexpiratory pressure*) OR PEEP* OR (open lung NEAR/3 (ventilat* or strateg* or approach*)) (Topic)</p>
<p><b>2.</b> TS=(((high* or low* or optim* or individual* or increment* or decrement*) NEAR/5 (strateg* or applic* or approach* or level* or trial* or titrat*))) OR TS=(((curve or curves or pressure or pressures) NEAR/5 (driv* or stress* or PEEP* or oxygenat* or esophag*))) OR TS=(((oxygenation or ventilation) NEAR/3 (index or indexes or indices))) OR TS=(ventilatory-parameter*) OR TS=(((high* or low* or optim* or individual* or increment* or decrement* or restricted or liberal or algorithm* or level or levels or chang*) NEAR/3 (PEEP* or positive-end-expiratory-pressure* or positive-endexpiratory-pressure*)))</p>
<p><b>3.</b> ((artificial* or mechanical*) NEAR/3 (ventilat* or respirat*)) (Topic) or (IMV or intubat*) (Topic)</p>
<p><b>4.</b> #1 AND #2 AND #3</p>

**eTable 6** Details of included studies

Author	Year	Sample size ( <i>n</i> )	Setting	Study design	Population	PEEP method(s)	Primary outcome (if RCT)
Abu-Khabar <sup>1</sup>	2011	20	ICU	Observational	ARDS	Dead space	N/A
Abutbul <sup>2</sup>	2014	20	ICU	Observational	Mixed	Computer-based	N/A
Acar Cinleti <sup>3</sup>	2019 <sup>a</sup>	11	ICU	Observational	Obese	Esophageal probe	N/A
Al Masry <sup>4</sup>	2012	60	ICU	RCT	ARDS	High PEEP-F <sub>I</sub> O <sub>2</sub> table, oxygenation	Physiologic measures
Albaiceta <sup>5</sup>	2005	8	ICU	Observational	ARDS	PV curves	N/A
Algera <sup>6</sup>	2020	980	ICU	RCT	Mixed	Oxygenation	VFD at 28 days
Amato <sup>7</sup>	1998	53	ICU	RCT	ARDS	PV curves	28-day mortality
Anderson <sup>8</sup>	2002	2	ICU	Observational	ARDS	Computer-based	N/A
Antonin <sup>9</sup>	2022 <sup>a</sup>	20	ICU	Crossover	ARDS, COVID-19	EIT, plateau pressure	N/A
Arellano <sup>10</sup>	2019 <sup>a</sup>	10	ICU	Observational	ARDS	EIT	N/A
Arellano <sup>11</sup>	2019 <sup>a</sup>	11	ICU	Observational	ARDS	EIT	N/A
Arnal <sup>12</sup>	2012	50	ICU	Crossover	Mixed	Computer-based	N/A
Arnal <sup>13</sup>	2013	100	ICU	Observational	ARDS, COPD, mixed	Computer-based	N/A
Arnal <sup>14</sup>	2019	255	ICU	Observational	Mixed	Computer-based	N/A
Asar <sup>15</sup>	2021	106	OR	Nonrandomized trial	Obese, OR	Compliance	N/A
Badet <sup>16</sup>	2009	12	ICU	Observational	ARDS	Oxygenation	N/A
Baedorf Kassis <sup>17</sup>	2016	56	ICU	Observational	ARDS	Esophageal balloon	N/A
Bagheri Moghaddam <sup>18</sup>	2018 <sup>a</sup>	15	ICU	Observational	ARDS	Low PEEP-F <sub>I</sub> O <sub>2</sub> table, Plateau pressure	N/A
Becher <sup>19</sup>	2015	9	ICU	Observational	ARDS	PV curves	N/A
Becher <sup>20</sup>	2021	20	ICU	Observational	ARDS	EIT, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Beitler <sup>21</sup>	2019	200	ICU	RCT	ARDS	Esophageal balloon, high PEEP-F <sub>I</sub> O <sub>2</sub> table	Composite: 28-day mortality and VFD at 28 days
Berg <sup>22</sup>	2021 <sup>a</sup>	21	ICU	Observational	Mixed	Esophageal balloon	N/A
Bergamini <sup>23</sup>	2010 <sup>a</sup>	6	ICU	Observational	ARDS	Compliance, oxygenation	N/A
Bergez <sup>24</sup>	2019	19	ICU	Crossover	ARDS	Esophageal balloon, plateau pressure	N/A
Bersten <sup>25</sup>	1998	10	ICU	Observational	ARDS	EELV	N/A
Bime <sup>26</sup>	2016	505 <sup>b</sup>	ICU	Reanalysis	ARDS, obese	High PEEP-F <sub>I</sub> O <sub>2</sub> table, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Bito <sup>27</sup>	2022	35	ICU	Nonrandomized trial	Postoperative	EIT	N/A
Blanch <sup>28</sup>	1987	13	ICU	Observational	AHRF	PV curves	N/A
Blankman <sup>29</sup>	2016	15	ICU	Observational	Postoperative	Dead space, EIT	N/A
Blecha <sup>30</sup>	2023	98	OR	RCT	Laparoscopic, normal, OR	Compliance	Spirometric measures
Boesing <sup>31</sup>	2022	40	ICU	Observational	ARDS, prone	Compliance, esophageal balloon, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Brault <sup>32</sup>	2021	27	ICU	Observational	ARDS, COVID-19	Airway opening pressure	N/A
Bronco <sup>33</sup>	2021	41	ICU	Observational	Mixed	EIT	N/A
Brower <sup>34</sup>	2004	549	ICU	RCT	ARDS	High PEEP-F <sub>I</sub> O <sub>2</sub> table, low PEEP-F <sub>I</sub> O <sub>2</sub> table	Hospital mortality
Buiteman-Kruizinga <sup>35</sup>	2021	51	ICU	Observational	ARDS, COPD	Computer-based	N/A
Buiteman-Kruizinga <sup>36</sup>	2022 <sup>a</sup>	18	ICU	Crossover	Mixed	Computer-based	N/A

Cammarota <sup>37</sup>	2020	28	OR	RCT	Laparoscopic, normal, OR	Esophageal balloon, oxygenation	Physiologic measures
Carroll <sup>38</sup>	1988	108	ICU	RCT	Postoperative	Oxygenation, shunt	ICU mortality
Carvalho <sup>39</sup>	1997	48	ICU	RCT	ARDS	PV curves	Physiologic measures
Casserly <sup>40</sup>	2015	9	ICU	Observational	ARDS	Compliance, EELV, oxygenation	N/A
Cavalcanti <sup>41</sup>	2017	1,010	ICU	RCT	ARDS	Compliance, low PEEP-F <sub>i</sub> O <sub>2</sub> table	28-day mortality
Ceruti <sup>42</sup>	2021	79	ICU	Observational	ARDS, COVID-19	Weight	N/A
Chiew <sup>43</sup>	2011	10	ICU	Observational	ARDS	Compliance	N/A
Chiew <sup>44</sup>	2015	10	ICU	Observational	ARDS	Compliance	N/A
Chimot <sup>45</sup>	2017	12	ICU	Observational	ARDS	Oxygen delivery	N/A
Chiumello <sup>46</sup>	2014	51	ICU	Crossover	ARDS	Esophageal balloon, high PEEP-F <sub>i</sub> O <sub>2</sub> table, plateau pressure, stress index	N/A
Chiumello <sup>47</sup>	2021	61	ICU	Observational	ARDS, COVID-19	High PEEP-F <sub>i</sub> O <sub>2</sub> table	N/A
Cinnella <sup>48</sup>	2015	15	ICU	Observational	ARDS	Compliance, low PEEP-F <sub>i</sub> O <sub>2</sub> table	N/A
Cole <sup>49</sup>	1984	10	ICU	Observational	Mixed	EELV	N/A
Constantin <sup>50</sup>	2019	420	ICU	RCT	ARDS	Low PEEP-F <sub>i</sub> O <sub>2</sub> table, plateau pressure	90-day mortality
Cylwik <sup>51</sup>	2021	100	OR	Observational	Normal, OR	Ultrasound	N/A
D'Antini <sup>52</sup>	2017	20	OR	Observational	Laparoscopic, normal, OR	Compliance	N/A
da Cruz <sup>53</sup>	2023	184	ICU	Observational	ARDS, COVID-19	Driving pressure, low PEEP-F <sub>i</sub> O <sub>2</sub> table	N/A
Damien <sup>54</sup>	2018 <sup>a</sup>	8	ICU	Observational	ARDS, obese	Esophageal balloon	N/A
Dara <sup>55</sup>	2022 <sup>a</sup>	20	ICU	Crossover	ARDS	Esophageal balloon	N/A
Dargvainis <sup>56</sup>	2022	30	OR	Observational	Laparoscopic, normal, OR	EIT	N/A
de Matos <sup>57</sup>	2012	51	ICU	Observational	ARDS	CT	N/A
De Santis Santiago <sup>58</sup>	2021	21	ICU	Observational	ARDS	Compliance, low PEEP-F <sub>i</sub> O <sub>2</sub> table	N/A
Depta <sup>59</sup>	2022	16	ICU	Observational	ARDS, COVID-19	Time constant	N/A
Depta <sup>60</sup>	2022	60	ICU	Observational	ARDS, COVID-19	Computer-based	N/A
Di Pierro <sup>61</sup>	2022	24	ICU	Observational	ARDS, COVID-19, ECMO	EIT	N/A
Dianti <sup>62</sup>	2022	30	ICU	Observational	AHRF, ECMO	Compliance	N/A
Douglas <sup>63</sup>	1977	54	ICU	Observational	ARDS	Shunt	N/A
Dyhr <sup>64</sup>	2002	16	ICU	RCT	Postoperative	PV curves	Physiologic measures
Eichler <sup>65</sup>	2018	37	OR	Observational	Obese, OR	Esophageal balloon	N/A
Elshazly <sup>66</sup>	2021	40	OR	RCT	Laparoscopic, obese, OR	Ultrasound	Physiologic measures
Erlandsson <sup>67</sup>	2006	15	OR	Observational	Obese, OR	EIT	N/A
Ernest <sup>68</sup>	2022 <sup>a</sup>	168	OR	RCT	Normal, OR	Driving pressure	Postoperative pulmonary complications
Eronia <sup>69</sup>	2017	16	ICU	Observational	ARDS, mixed	EIT	N/A
Estoos <sup>70</sup>	2023	69	ICU	Observational	ARDS, COVID-19, ECMO	Esophageal balloon	N/A
Falde <sup>71</sup>	2020 <sup>a</sup>	50	OR	RCT	Laparoscopic, normal, OR	Esophageal balloon	Physiologic measures
Fellahi <sup>72</sup>	1998	12	ICU	Observational	Mixed	Compliance	N/A
Fengmei <sup>73</sup>	2012	23	ICU	Observational	ARDS	Compliance, dead space	N/A
Fernandez Mondejar <sup>74</sup>	1992	14	ICU	Observational	Mixed	Auto-PEEP	N/A
Fernandez-Bustamante <sup>75</sup>	2020	37	OR	RCT	Normal, OR	Compliance, esophageal balloon	Physiologic measures

Ferrando <sup>76</sup>	2017	36	OR	RCT	Normal, OR	Compliance	Physiologic measures
Ferrando <sup>77</sup>	2018	30	OR	Observational	Laparoscopic, normal, OR	Oxygenation	N/A
Ferrando <sup>78</sup>	2018	1,012	OR	RCT	Normal, OR	Compliance	Postoperative complications
Florio <sup>79</sup>	2020	120	ICU	Nonrandomized trial	ARDS, obese	Compliance, esophageal balloon, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Franchineau <sup>80</sup>	2017	15	ICU	Observational	ARDS, ECMO	EIT	N/A
Franchineau <sup>81</sup>	2020	21	ICU	Observational	ARDS, ECMO, prone	EIT	N/A
Fumagalli <sup>82</sup>	2019	14	ICU	Observational	ARDS, obese	Compliance, esophageal balloon, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Gallagher <sup>83</sup>	1980	315	ICU	Observational	AHRF	Shunt	N/A
Gao <sup>84</sup>	2023	46	OR	RCT	Laparoscopic, normal, OR	Oxygenation	Physiologic measures
Gernoth <sup>85</sup>	2009	12	ICU	Observational	ARDS	Compliance	N/A
Gibot <sup>86</sup>	2021	17	ICU	Observational	ARDS, COVID-19	EIT, esophageal balloon, high PEEP-F <sub>I</sub> O <sub>2</sub> table, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Gil Cano <sup>87</sup>	2012	9	ICU	Observational	ARDS	Compliance	N/A
Girgis <sup>88</sup>	2006	20	ICU	Observational	ARDS	Oxygenation	N/A
Girrbach <sup>89</sup>	2020	40	OR	RCT	Laparoscopic, normal, OR	EIT	Physiologic measures
Girrbach <sup>90</sup>	2022	45 <sup>b</sup>	OR	Reanalysis	Laparoscopic, normal, OR	Compliance, EIT	N/A
Glerant <sup>91</sup>	2005	9	ICU	Observational	COPD	Auto-PEEP	N/A
Goligher <sup>92</sup>	2014	1,732 <sup>b</sup>	ICU	Reanalysis	ARDS	High PEEP-F <sub>I</sub> O <sub>2</sub> table, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Grasso <sup>93</sup>	2005	19	ICU	Observational	ARDS	High PEEP-F <sub>I</sub> O <sub>2</sub> table, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Grasso <sup>94</sup>	2007	15	ICU	Observational	ARDS	Low PEEP-F <sub>I</sub> O <sub>2</sub> table, stress index	N/A
Grasso <sup>95</sup>	2012	14	ICU	Observational	ARDS	Esophageal balloon	N/A
Grasso <sup>96</sup>	2020	8	ICU	Crossover	ARDS	Esophageal balloon	N/A
Grivans <sup>97</sup>	2022	10	ICU	Observational	AHRF	EIT, esophageal balloon	N/A
Guerin <sup>98</sup>	2005	10	ICU	Observational	COPD	Auto-PEEP	N/A
Guervilly <sup>99</sup>	2022	39	ICU	RCT	ARDS, ECMO	Esophageal balloon	Biomarkers
Halawa <sup>100</sup>	2021	58	OR	RCT	Normal, OR	Compliance	Physiologic measures
Hamama <sup>101</sup>	2021	110	ICU	RCT	ARDS	Driving pressure, low PEEP-F <sub>I</sub> O <sub>2</sub> table	28-day mortality
Hata <sup>102</sup>	2012	50	ICU	Observational	ARDS	PV curves	N/A
He <sup>103</sup>	2016	50	OR	RCT	Laparoscopic, normal, OR	Compliance, EIT	Physiologic measures
He <sup>104</sup>	2021	117	ICU	RCT	ARDS	EIT, low PEEP-F <sub>I</sub> O <sub>2</sub> table	28-day mortality
Heines <sup>105</sup>	2018	39	ICU	Observational	ARDS	EIT, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Heines <sup>106</sup>	2022	45	ICU	Observational	ARDS, post-operative	Compliance, EIT	N/A
Heines <sup>107</sup>	2022	80	ICU	Observational	AHRF, COVID-19	EIT	N/A
Herrmann <sup>108</sup>	2013 <sup>a</sup>	46 <sup>b</sup>	ICU	Reanalysis	ARDS	Esophageal balloon, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Hodgson <sup>109</sup>	2011	20	ICU	RCT	ARDS	Low PEEP-F <sub>I</sub> O <sub>2</sub> table, oxygenation	Physiologic measures
Hodgson <sup>110</sup>	2011	20	ICU	Observational	ARDS	Oxygenation	N/A
Hodgson <sup>111</sup>	2019	115	ICU	RCT	ARDS	Low PEEP-F <sub>I</sub> O <sub>2</sub> table, oxygenation	VFD at 28 days
Holzapfel <sup>112</sup>	1983	15	ICU	Observational	ARDS	Shunt	N/A
Hsu <sup>113</sup>	2021	87	ICU	RCT	ARDS	EIT, PV curves	Physiologic measures
Huang <sup>114</sup>	2013	30	ICU	Observational	ARDS	Compliance, oxygenation, PV curves, stress index	N/A

Huh <sup>115</sup>	2009	57	ICU	RCT	ARDS	Compliance, low PEEP-F <sub>1</sub> O <sub>2</sub> table	Physiologic measures
Ibrahim <sup>116</sup>	2021	62	ICU	Observational	Postoperative	Compliance, esophageal balloon, oxygenation	N/A
Imanaka <sup>117</sup>	2010	40	ICU	Nonrandomized trial	Postoperative	Oxygenation	N/A
Jardin <sup>118</sup>	1981	17	ICU	Observational	Mixed	Compliance	N/A
Jimenez <sup>119</sup>	2023	16	ICU	Crossover	ARDS	EIT, high PEEP-F <sub>1</sub> O <sub>2</sub> table	N/A
Jin <sup>120</sup>	2022	78	OR	RCT	Normal, OR, prone	Driving pressure	Post-operative pulmonary complications
Jolliet <sup>121</sup>	2003	10	ICU	Nonrandomized trial	COPD	Auto-PEEP	N/A
Jonkman <sup>122</sup>	2023	108	ICU	Observational	ARDS, COVID-19	EIT	N/A
Kacmarek <sup>123</sup>	2016	200	ICU	RCT	ARDS	Compliance, low PEEP-F <sub>1</sub> O <sub>2</sub> table	60-day mortality
Kanus <sup>124</sup>	2011 <sup>a</sup>	41	ICU	Observational	ARDS	Compliance, oxygenation	N/A
Karsten <sup>125</sup>	2015	20	ICU	Observational	Post-operative	Compliance, EIT	N/A
Karsten <sup>126</sup>	2018	15	ICU	Observational	Mixed	Compliance, EIT	N/A
Khan <sup>127</sup>	2018	490	ICU	RCT	ARDS	Compliance, low PEEP-F <sub>1</sub> O <sub>2</sub> table	28-day mortality
Kirby <sup>128</sup>	1975	28	ICU	Observational	ARDS	Shunt	N/A
Knothe <sup>129</sup>	2000	18	ICU	Observational	Mixed, polytrauma	Oxygenation	N/A
Kong <sup>130</sup>	2001	10	ICU	Observational	COPD	Auto-PEEP	N/A
Krebs <sup>131</sup>	2018	13	ICU	Nonrandomized trial	ARDS	Compliance, low PEEP-F <sub>1</sub> O <sub>2</sub> table	N/A
Kuckelt <sup>132</sup>	1981	13	ICU	Observational	ARDS	Compliance	N/A
Kung <sup>133</sup>	2019	120	ICU	RCT	ARDS	Compliance, low PEEP-F <sub>1</sub> O <sub>2</sub> table	28-day mortality
Lam <sup>134</sup>	2019	66	ICU	RCT	ARDS, burns	Compliance, low PEEP-F <sub>1</sub> O <sub>2</sub> table	N/A
Li <sup>135</sup>	2022	120	OR	RCT	Laparoscopic, normal, OR	Compliance	Physiologic measures
Liang <sup>136</sup>	2018	10	ICU	Observational	COPD	Plateau pressure	N/A
Liou <sup>137</sup>	2022	29	ICU	Observational	ARDS, obese	Esophageal balloon	N/A
Liu <sup>138</sup>	2019	120	OR	RCT	Laparoscopic, normal, OR	Compliance	Physiologic measures
Liu <sup>139</sup>	2020	96	OR	RCT	Normal, OR	Compliance	Physiologic measures
Liu <sup>140</sup>	2020	87	OR	RCT	Laparoscopic, normal, OR	Compliance	Physiologic measures
Liu <sup>141</sup>	2022	27	ICU	Observational	ARDS, COPD	EIT, low PEEP-F <sub>1</sub> O <sub>2</sub> table	N/A
Long <sup>142</sup>	2015	18	ICU	Observational	ARDS	EIT	N/A
Lopez-Herrera <sup>143</sup>	2022	32	OR	Crossover	Normal, OR	Compliance	N/A
Lowhagen <sup>144</sup>	2011	16	ICU	Observational	ARDS	Compliance, oxygenation, shunt	N/A
Mahto <sup>145</sup>	2013	24	ICU	RCT	ARDS	Compliance, oxygenation	Physiologic measures
Maisch <sup>146</sup>	2008	20	OR	Observational	Normal, OR	Compliance, dead space	N/A
Mancebo <sup>147</sup>	2000	20	ICU	Observational	COPD, weaning	Airway occlusion pressure (P0.1)	N/A
Mazzinari <sup>148</sup>	2020	30	OR	Observational	Laparoscopic, normal, OR	Intra-abdominal pressure	N/A
Meade <sup>149</sup>	2008	983	ICU	RCT	ARDS	High PEEP-F <sub>1</sub> O <sub>2</sub> table, low PEEP-F <sub>1</sub> O <sub>2</sub> table	Hospital mortality
Mercado <sup>150</sup>	2018	20	ICU	Nonrandomized trial	ARDS	Compliance, oxygenation	N/A
Mercat <sup>151</sup>	2008	767	ICU	RCT	ARDS	Plateau pressure	28-day mortality
Mezidi <sup>152</sup>	2017 <sup>a</sup>	32	ICU	Crossover	ARDS, prone	Esophageal balloon, low PEEP-F <sub>1</sub> O <sub>2</sub> table	N/A
Mezidi <sup>153</sup>	2020	15	ICU	Observational	ARDS, COVID-19, obese	Esophageal balloon	N/A
Miller <sup>154</sup>	1992	40	ICU	Observational	ARDS	Shunt	N/A

Mini <sup>155</sup>	2021	82	OR	RCT	Normal, OR	Driving pressure	Atelectasis by ultrasound
Mittermaier <sup>156</sup>	2020	23	ICU	Observational	ARDS, COVID-19	Oxygenation	N/A
Mlček <sup>157</sup>	2021	5	ICU	Observational	ARDS, COVID-19	EIT	N/A
Moghaddas-Ghahfarrokhi <sup>158</sup>	2022	41	ICU	RCT	AHRF	Oxygenation	Not reported
Mohamed <sup>159</sup>	2023	52	ICU	Observational	ARDS	Ultrasound	N/A
Monge Garcia <sup>160</sup>	2012	21	ICU	Observational	AHRF	Compliance	N/A
Moran <sup>161</sup>	2011	13	ICU	Observational	ARDS	Oxygenation	N/A
Mrochen <sup>162</sup>	1982	15	ICU	Observational	Mixed	Computer-based	N/A
Munoz <sup>163</sup>	1993	12	ICU	Observational	Mixed	Auto-PEEP	N/A
Nakazawa <sup>164</sup>	2022	14	OR	Observational	Laparoscopic, normal, OR	Esophageal balloon	N/A
Nelson <sup>165</sup>	1987	38	ICU	RCT	AHRF	Oxygenation, shunt	Not reported
Nestler <sup>166</sup>	2017	50	OR	RCT	Laparoscopic, obese, OR	EIT	Physiologic measures
Obi <sup>167</sup>	2018	25	ICU	RCT	Obese	Compliance, esophageal balloon	Percentage vent-free at 28 days, duration of mechanical ventilation
Oczenski <sup>168</sup>	2004	30	ICU	Observational	ARDS	Oxygenation	N/A
Oller-Sanchez <sup>169</sup>	2021 <sup>a</sup>	15	ICU	Observational	ARDS, COVID-19	Plateau pressure	N/A
Otahal <sup>170</sup>	2022	10	ICU	Observational	ARDS, COVID-19, prone	EIT	N/A
Pan <sup>171</sup>	2021	20	ICU	Observational	ARDS, COVID-19	Compliance, low PEEP-F <sub>I</sub> O <sub>2</sub> table, oxygenation	N/A
Pan <sup>172</sup>	2022	60	OR	RCT	Laparoscopic, normal, OR	EIT	Postoperative pulmonary complications
Passath <sup>173</sup>	2010	20	ICU	Observational	Mixed	NAVA	N/A
Pereira <sup>174</sup>	2019	40	OR	RCT	Laparoscopic, normal, OR	EIT	Physiologic measures
Perier <sup>175</sup>	2020	17	ICU	Nonrandomized trial	ARDS, COVID-19	EIT	N/A
Persson <sup>176</sup>	2018	24	OR	Observational	Normal, OR	Compliance, esophageal balloon	N/A
Persson <sup>177</sup>	2022	24 <sup>b</sup>	OR	Reanalysis	Normal, OR	EELV	N/A
Pestana <sup>178</sup>	2003	27	ICU	Observational	ARDS	PV curves	N/A
Peyton <sup>179</sup>	2022	70	OR	RCT	Laparoscopic, normal, OR	Compliance	Physiologic measures
Pintado <sup>180</sup>	2013	70	ICU	RCT	ARDS	Compliance, low PEEP-F <sub>I</sub> O <sub>2</sub> table	Physiologic measures
Pintado <sup>181</sup>	2016	159 <sup>b</sup>	ICU	Reanalysis	ARDS	Compliance, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Piriyapatsom <sup>182</sup>	2020	44	OR	RCT	Laparoscopic, normal, OR	Esophageal balloon	Physiologic measures
Pirrone <sup>183</sup>	2016	14	ICU	Observational	Obese	Driving pressure, esophageal balloon	N/A
Povoa <sup>184</sup>	2004	8	ICU	Observational	ARDS	Oxygenation	N/A
Puel <sup>185</sup>	2020	15	ICU	Observational	ARDS, ECMO	EIT	N/A
Putensen <sup>186</sup>	1993	10	ICU	Observational	AHRF	PV curves	N/A
Qian <sup>187</sup>	2021	80	OR	RCT	Normal, OR, prone	Compliance	Physiologic measures
Radwan <sup>188</sup>	2021	120	ICU	Nonrandomized trial	ARDS	Oxygenation, ultrasound	N/A
Rafat <sup>189</sup>	2022 <sup>a</sup>	65	ICU	Nonrandomized trial	ARDS	Oxygenation, ultrasound	N/A
Ranieri <sup>190</sup>	1999	44	ICU	RCT	ARDS	PV curves	Biomarkers
Regli <sup>191</sup>	2018	15	ICU	Crossover	Mixed	Intra-abdominal pressure	N/A
Reilkoff <sup>192</sup>	2022 <sup>a</sup>	9	ICU	Observational	Obese	Esophageal balloon	N/A
Rezaiguia-Delclaux <sup>193</sup>	2022	122	ICU	Observational	ARDS	Driving pressure, oxygenation	N/A

Richard <sup>194</sup>	2001	15	ICU	Observational	ARDS	PV curves	N/A
Richard <sup>195</sup>	2003	15	ICU	Observational	ARDS	Plateau pressure, PV curves	N/A
Rode <sup>196</sup>	2012	17	ICU	Observational	ARDS	PV curves, ultrasound	N/A
Rodriguez <sup>197</sup>	2011 <sup>a</sup>	11	ICU	Observational	ARDS	Dead space, esophageal balloon	N/A
Rohrs <sup>198</sup>	2019 <sup>a</sup>	18	ICU	Observational	Obese	Esophageal balloon	N/A
Rollas <sup>199</sup>	2022	22	ICU	RCT	ARDS	EELV, oxygenation	N/A
Rossi <sup>200</sup>	1994	8	ICU	Crossover	COPD	Auto-PEEP	N/A
Rotman <sup>201</sup>	2016	15	ICU	Nonrandomized trial	ARDS	Low PEEP-F <sub>I</sub> O <sub>2</sub> table, oxygenation	N/A
Rowley <sup>202</sup>	2021	20	ICU	Observational	Obese	Esophageal balloon	N/A
Ruszkai <sup>203</sup>	2021	39	OR	RCT	Normal, OR	Compliance	Physiologic measures
Sahetya <sup>204</sup>	2020	10	ICU	Observational	ARDS	Driving pressure, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Salem <sup>205</sup>	2020	60	ICU	RCT	ARDS	Low PEEP-F <sub>I</sub> O <sub>2</sub> table, ultrasound	Physiologic measures
Samadder <sup>206</sup>	2020 <sup>a</sup>	30	ICU	RCT	ARDS	High PEEP-F <sub>I</sub> O <sub>2</sub> table, ultrasound	Physiologic measures
Sanchez Giralto <sup>207</sup>	2020 <sup>a</sup>	19	ICU	Observational	ARDS, COVID-19	Compliance, EIT	N/A
Sanchez Galindo <sup>208</sup>	2021 <sup>a</sup>	7	ICU	Observational	ARDS, COVID-19, obese	Esophageal balloon	N/A
Sang <sup>209</sup>	2021	20	ICU	Observational	ARDS, COVID-19	Compliance	N/A
Sarge <sup>210</sup>	2021	200 <sup>b</sup>	ICU	Reanalysis	ARDS	Esophageal balloon, high PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Saxena <sup>211</sup>	2020	60	ICU	RCT	ARDS	PV curves	Physiologic measures
Scaramuzzo <sup>212</sup>	2020	20	ICU	Crossover	ARDS	EIT, esophageal balloon	N/A
Schmitt <sup>213</sup>	2001	16	ICU	Observational	ARDS	Compliance, PV curves	N/A
Schulz <sup>214</sup>	2018 <sup>a</sup>	18	OR	Observational	Normal, OR	EIT	N/A
Simon <sup>215</sup>	2021	40 <sup>b</sup>	OR	Reanalysis	Obese, OR	EIT	N/A
Singer <sup>216</sup>	1989	10	ICU	Observational	AHRF	Oxygen delivery	N/A
Slobod <sup>217</sup>	2022	3	ICU	Observational	AHRF	EIT, esophageal balloon	N/A
Somhorst <sup>218</sup>	2022	75	ICU	Observational	ARDS, COVID-19	EIT, high PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Soroksky <sup>219</sup>	2015	6	ICU	Observational	ARDS	Esophageal balloon	N/A
Soule <sup>220</sup>	2021	23	ICU	Observational	ECMO	EIT	N/A
Stefanidis <sup>221</sup>	2011	10	ICU	Nonrandomized trial	ARDS	Ultrasound	N/A
Su <sup>222</sup>	2018	23	ICU	Observational	ARDS	EIT	N/A
Su <sup>223</sup>	2021	8	ICU	Observational	ARDS	Compliance, EIT	N/A
Suh <sup>224</sup>	2003	17	ICU	Observational	ARDS	Oxygenation	N/A
Suter <sup>225</sup>	1975	15	ICU	Observational	ARDS	Compliance	N/A
Szlavec <sup>226</sup>	2014	2	ICU	Observational	Mixed	Computer-based	N/A
Taenaka <sup>227</sup>	2023	43	ICU	Observational	ARDS, COVID-19	R/I ratio	N/A
Talmor <sup>228</sup>	2008	61	ICU	RCT	ARDS	Esophageal balloon, low PEEP-F <sub>I</sub> O <sub>2</sub> table	Physiologic measures
Tang <sup>229</sup>	2017	40	ICU	Observational	ARDS	Oxygenation, ultrasound	N/A
Teggie Droghi <sup>230</sup>	2018 <sup>a</sup>	17	ICU	Observational	ARDS, obese	Compliance, esophageal probe	N/A
Theerawit <sup>231</sup>	2023	12	ICU	Observational	ARDS	EIT, ultrasound	N/A
Timenetsky <sup>232</sup>	2017 <sup>a</sup>	7	ICU	Observational	Mixed	EIT	N/A
Tomicic Flores <sup>233</sup>	2007	27	ICU	Observational	ARDS	PV curves	N/A

Tonelotto <sup>234</sup>	2020	18	OR	Observational	Normal, OR	EIT, ultrasound	N/A
Toth <sup>235</sup>	2007	18	ICU	Observational	ARDS	Oxygenation	N/A
Tremper <sup>236</sup>	1981	15	ICU	Observational	Post-operative	Oxygenation	N/A
Tsai-Fen <sup>237</sup>	2017 <sup>a</sup>	68	ICU	Observational	ARDS	EIT, PV curves	N/A
Tugrul <sup>238</sup>	2005	25	ICU	Observational	ARDS	PV curves	N/A
Turani <sup>239</sup>	2009 <sup>a</sup>	20	ICU	Observational	ARDS	EELV	N/A
Tusman <sup>240</sup>	2014	20	OR	Observational	Laparoscopic, obese, OR	Dead space, oxygenation	N/A
Tusman <sup>241</sup>	2019	12	OR	Observational	Obese, OR	Esophageal balloon	N/A
Tusman <sup>242</sup>	2022	40	OR	Observational	Laparoscopic, normal, OR	EELV	N/A
Tzoufi <sup>243</sup>	2005	10	ICU	Observational	COPD	Auto-PEEP	N/A
Valentini <sup>244</sup>	2015	20	ICU	Observational	ARDS	Compliance, low PEEP-F <sub>I</sub> O <sub>2</sub> table, plateau pressure	N/A
Valk <sup>245</sup>	2021	933	ICU	Observational	ARDS, COVID-19	High PEEP-F <sub>I</sub> O <sub>2</sub> table, low PEEP-F <sub>I</sub> O <sub>2</sub> table	N/A
Van Der Zee <sup>246</sup>	2019 <sup>a</sup>	8	ICU	Observational	ARDS	Esophageal balloon	N/A
Van Hecke <sup>247</sup>	2019	100	OR	RCT	Laparoscopic, obese, OR	Compliance	Postoperative complications
Veiga <sup>248</sup>	2020 <sup>a</sup>	28	ICU	RCT	ARDS	Compliance, EIT, esophageal balloon, low PEEP-F <sub>I</sub> O <sub>2</sub> table	Physiologic measures
Venus <sup>249</sup>	1979	15	ICU	Observational	ARDS	Shunt	N/A
Villar <sup>250</sup>	2006	103	ICU	RCT	ARDS	PV curves	ICU mortality
Vimpere <sup>251</sup>	2018 <sup>a</sup>	10	ICU	Observational	ARDS, obese	Esophageal balloon, plateau pressure	N/A
Walkinshaw <sup>252</sup>	1980	11	ICU	Observational	ARDS	Shunt	N/A
Wang <sup>253</sup>	2019	23	ICU	RCT	ARDS	Esophageal balloon, low PEEP F <sub>I</sub> O <sub>2</sub> table	Physiologic measures
Wang <sup>254</sup>	2020	104	ICU	RCT	ARDS, ECMO	Esophageal balloon	Weaning from ECMO
Wang <sup>255</sup>	2022	120	OR	RCT	Laparoscopic, normal, OR	Compliance	Physiologic measures
Wang <sup>256</sup>	2023	40	OR	RCT	Laparoscopic, normal, OR	Compliance	Physiologic measures
Weber <sup>257</sup>	2020	60	OR	RCT	Normal, OR	Compliance	Physiologic measures
Wu <sup>258</sup>	2015	12	ICU	Observational	ARDS	Esophageal balloon, intra-abdominal pressure	N/A
Xu <sup>259</sup>	2022	51	OR	RCT	Laparoscopic, normal, OR	Driving pressure	Atelectasis by ultrasound
Yang <sup>260</sup>	2013	15	ICU	Crossover	ARDS	Esophageal balloon, intra-abdominal pressure	N/A
Yeremenko <sup>261</sup>	2022	40	ICU	RCT	Postoperative	Computer-based	Time spent manipulating ventilator
Yin <sup>262</sup>	2020	43	ICU	Nonrandomized trial	ARDS, ECMO	Compliance, PV curves	N/A
Yoon <sup>263</sup>	2021	60	OR	RCT	Laparoscopic, normal, OR	Compliance	Atelectasis by ultrasound
Yun <sup>264</sup>	2016	20	ICU	Observational	ARDS	Oxygenation	N/A
Zhang <sup>265</sup>	2021	148	OR	RCT	Normal, OR	Driving pressure	Postoperative complications
Zhang <sup>266</sup>	2022	48	OR	RCT	Laparoscopic, normal, OR	Driving pressure	EIT measurement
Zhao <sup>267</sup>	2010	10	OR	Observational	Normal, OR	Compliance, EIT	N/A
Zhao <sup>268</sup>	2019	55	ICU	Nonrandomized trial	ARDS	EIT, PV curves	N/A
Zhao <sup>269</sup>	2019	30	ICU	Observational	ARDS	EIT	N/A
Zhao <sup>270</sup>	2022	42	ICU	Observational	ARDS	EIT	N/A
Zhou <sup>271</sup>	2021	89	OR	RCT	Laparoscopic, normal, OR	Compliance, oxygenation	Physiologic measures



<sup>a</sup>Published conference abstract

<sup>b</sup>Secondary analysis so sample size does not count towards total

AHRF = acute hypoxemic respiratory failure; ARDS = acute respiratory distress syndrome; COPD = chronic obstructive pulmonary disease; CT = computed tomography; ECMO = extracorporeal membrane oxygenation; EELV = end-expiratory lung volume; EIT = electrical impedance tomography; ICU = intensive care unit; NAVA = neurally adjusted ventilatory assist; OR = operating room; PEEP = positive end-expiratory pressure; PV = pressure-volume; R/I = recruitment to inflation; RCT = randomized controlled trial; VFD = ventilator-free days

**eTable 7** Specific modalities of imaging-based methods of determining optimal positive end-expiratory pressure

Imaging modality	Setting			
	Overall ( <i>N</i> = 271), <i>n</i> (%)	ICU ( <i>N</i> = 216), <i>n</i> (%) <sup>a</sup>	OR ( <i>N</i> = 55), <i>n</i> (%) <sup>a</sup>	RCTs ( <i>N</i> = 73), <i>n</i> (%) <sup>a</sup>
EIT	54 (20%)	42 (19%)	12 (22%)	8 (11%)
Ultrasound	12 (4%)	9 (4%)	3 (5%)	3 (4%)
CT	1 (0.4%)	1 (0.5%)	0 (0%)	0 (0%)

<sup>a</sup>Percentages are for total studies within given column

CT = computed tomography; EIT = electrical impedance tomography; ICU = intensive care unit; OR = operating room; PEEP = positive end-expiratory pressure

**eTable 8** Publishing journals of randomized controlled trials

Journal name	Overall (n)	Setting	
		ICU (n)	OR (n)
JAMA	6	6	0
Abstract	4	2	2
Critical Care	4	4	0
Critical Care Medicine	4	4	0
British Journal of Anesthesia	3	0	3
Journal of Clinical Medicine	3	1	2
NEJM	3	3	0
AJRCCM	2	2	0
BMC Anesthesiology	2	0	2
Egyptian Journal of Anesthesia	2	2	0
Journal of Clinical Monitoring and Computing	2	0	2
Lancet Respiratory Medicine	2	1	1
Respiratory Care	2	1	1
Acta Anaesthesiologica Scandinavia	1	1	0
American Journal of Translational Research	1	0	1
Anaesthesia & Intensive Care	1	0	1
Anesthesia & Analgesia	1	0	1
Anesthesia Essays and Researches	1	1	0
Anesthesiology	1	0	1
Annals of Translational Medicine	1	0	1
Brazilian Journal of Medical and Biological Research	1	0	1
Burns	1	1	0
Chest	1	1	0
Chinese Medical Journal	1	0	1
Clinical Medicine Insights	1	1	0
Clinical Neurology and Neurosurgery	1	0	1
Computational and Mathematical Methods in Medicine	1	0	1
European Journal of Anesthesiology	1	0	1
Experimental & Clinical Transplantation	1	0	1
Experimental & Therapeutic Medicine	1	0	1
Experimental Lung Research	1	1	0
General Reanimatology	1	1	0
Heart & Lung	1	0	1
Indian Journal of Respiratory Care	1	1	0
Journal of Investigative Surgery	1	0	1
Journal of Isfahan Medical School	1	1	0
Journal of the Egyptian Society of Parasitology	1	1	0
Medical Forum Monthly	1	1	0
Medicine	1	0	1
Obesity Surgery	1	0	1
Physiological Measurement	1	1	0
PLOS One	1	0	1
Scientific Reports	1	0	1
Surgery	1	0	1
Surgery for Obesity and Related Diseases	1	0	1
Technology & Health Care	1	1	0
Trials	1	0	1

AJRCCM = American Journal of Respiratory and Critical Care Medicine; BMC = BioMed Central; ICU = intensive care unit; JAMA = *Journal of the American Medical Association*; NEJM = *New England Journal of Medicine*; OR = operating room; PLOS = Public Library of Science

**eTable 9** Countries participating in randomized controlled trials

Country	Overall ( <i>n</i> )	Setting	
		ICU ( <i>n</i> )	OR ( <i>n</i> )
China	18	3	15
USA	9	7	2
Brazil	7	6	1
Spain	7	5	2
Egypt	5	3	2
India	5	3	2
Australia	4	3	1
Germany	4	0	4
South Korea	4	3	1
France	3	2	0
Italy	3	2	1
Canada	2	2	0
Saudi Arabia	2	2	0
Taiwan	2	2	0
Argentina	1	1	0
Belgium	1	0	1
Chile	1	1	0
Colombia	1	1	0
Denmark	1	1	0
Hungary	1	0	1
Iran	1	1	0
Malaysia	1	1	0
Netherlands	1	1	0
New Zealand	1	1	0
Pakistan	1	1	0
Peru	1	1	0
Poland	1	1	0
Portugal	1	1	0
Russia	1	1	0
Switzerland	1	1	0
Thailand	1	0	1
Turkey	1	1	0
UK	1	1	0
Uruguay	1	1	0
Vietnam	1	1	0

ICU = intensive care unit; OR = operating room

**eTable 10** Number of randomized controlled trials with significant differences in primary endpoint

Study characteristic	Overall, <i>n</i> (%)	Primary endpoint <i>P</i> < 0.05, <i>n</i> (%) <sup>b</sup>	Setting, <i>n</i> (%) <sup>a</sup>			
			ICU	Primary endpoint <i>P</i> < 0.05, <i>n</i> (%) <sup>b</sup>	OR	Primary endpoint <i>P</i> < 0.05, <i>n</i> (%) <sup>b</sup>
Overall	<i>N</i> = 73	42 (58%)	<i>N</i> = 39	16 (41%)	<i>N</i> = 34	26 (76%)
Study design						
Multicentered	14 (19%)	4 (29%)	12 (31%)	3 (25%)	2 (6%)	1 (50%)
Multinational	6 (8%)	2 (33%)	6 (15%)	2 (33%)	0 (0%)	n/a
Patient population						
ARDS	32 (44%)	13 (41%)	32 (82%)	13 (41%)	0 (0%)	n/a
Normal	31 (42%)	24 (77%)	0 (0%)	n/a	31 (91%)	24 (77%)
Laparoscopic	22 (30%)	17 (77%)	0 (0%)	n/a	22 (65%)	17 (77%)
Obese	4 (5%)	2 (50%)	1 (3%)	0 (0%)	3 (9%)	2 (67%)
Postoperative	3 (4%)	3 (100%)	3 (8%)	3 (100%)	0 (0%)	n/a
AHRF	2 (3%)	0 (0%)	2 (5%)	0 (0%)	0 (0%)	n/a
ECMO	2 (3%)	1 (50%)	2 (5%)	1 (50%)	0 (0%)	n/a
Mixed	2 (3%)	0 (0%)	2 (5%)	0 (0%)	0 (0%)	n/a
PEEP method						
Compliance	29 (40%)	15 (52%)	10 (26%)	2 (20%)	19 (56%)	13 (68%)
PEEP-F <sub>I</sub> O <sub>2</sub> table	21 (29%)	8 (38%)	21 (54%)	8 (38%)	0 (0%)	n/a
Oxygenation	12 (16%)	5 (42%)	9 (23%)	2 (22%)	3 (9%)	3 (100%)
Imaging-based	11 (15%)	7 (64%)	5 (13%)	2 (40%)	6 (18%)	5 (83%)
Esophageal probe	11 (15%)	6 (55%)	7 (18%)	3 (43%)	4 (12%)	3 (75%)
Driving pressure	7 (10%)	6 (86%)	1 (3%)	1 (100%)	6 (18%)	5 (83%)
Pressure-volume curves	7 (10%)	5 (71%)	7 (18%)	5 (71%)	0 (0%)	n/a
Shunt	2 (3%)	1 (50%)	2 (5%)	1 (50%)	0 (0%)	n/a
Plateau pressure	2 (3%)	0 (0%)	2 (5%)	0 (0%)	0 (0%)	n/a
Computer-based	1 (1%)	1 (100%)	1 (3%)	1 (100%)	0 (0%)	n/a
EELV/FRC	1 (1%)	0 (0%)	1 (3%)	0 (0%)	0 (0%)	n/a
Primary outcomes						
Physiologic	39 (53%)	27 (69%)	16 (41%)	8 (50%)	23 (68%)	19 (83%)
Oxygenation	27 (37%)	20 (74%)	12 (31%)	7 (58%)	15 (44%)	13 (87%)
Compliance	12 (16%)	6 (75%)	4 (10%)	3 (75%)	8 (24%)	6 (75%)
Mortality	14 (19%)	5 (36%)	14 (36%)	5 (36%)	0 (0%)	n/a
Other	8 (11%)	7 (87.5%)	4 (10%)	3 (75%)	4 (12%)	4 (100%)
Post-op complication	6 (8%)	3 (50.0%)	0 (0%)	n/a	6 (18%)	3 (50%)
Ventilator-free days	4 (5%)	0 (0.0%)	4 (10%)	0 (0%)	0 (0%)	n/a
Not reported	2 (3%)	n/a	2 (5%)	n/a	0 (0%)	n/a
Duration of ventilation	1 (1%)	0 (0.0%)	1 (3%)	0 (0%)	0 (0%)	n/a

<sup>a</sup>Percentages are for total studies within given column

<sup>b</sup>Percentages are for total studies within given category

AHRF = hypoxemic respiratory failure; ARDS = acute respiratory distress syndrome; ECMO = extracorporeal membrane oxygenation; EELV = end-expiratory lung volume; FRC = functional residual capacity; ICU = intensive care unit; n/a = not applicable; OR = operating room; PEEP = positive end-expiratory pressure

**eTable 11** Clinical outcomes from randomized controlled trials

Outcome	Overall ( <i>N</i> = 73), <i>n</i> (%)	Setting, <i>n</i> (%) <sup>a</sup>	
		ICU ( <i>N</i> = 39)	OR ( <i>N</i> = 34)
Mortality	36 (49%)	30 (77%)	6 (18%)
28-day mortality	21 (29%)	19 (49%)	2 (6%)
Hospital mortality	19 (26%)	16 (41%)	3 (9%)
ICU mortality	15 (21%)	15 (38%)	0 (0%)
60-day mortality	8 (11%)	8 (21%)	0 (0%)
180-day mortality	6 (8%)	6 (15%)	0 (0%)
90-day mortality	4 (5%)	3 (8%)	1 (3%)
Ventilation	48 (66%)	30 (77%)	18 (53%)
Duration of ventilation	34 (47%)	16 (41%)	18 (53%)
Vent-free days – 28 days	16 (22%)	16 (41%)	0 (0%)
% Vent-free – 28 days	3 (4%)	3 (8%)	0 (0%)
Vent-free days – 60 days	1 (1%)	1 (3%)	0 (0%)
Length of stay	37 (51%)	24 (62%)	13 (38%)
ICU LOS	31 (42%)	24 (62%)	7 (21%)
Hospital LOS	29 (40%)	16 (41%)	13 (38%)
Safety	52 (71%)	28 (72%)	24 (71%)
Hemodynamic instability	36 (49%)	12 (31%)	24 (71%)
Barotrauma	26 (36%)	26 (67%)	0 (0%)

<sup>a</sup>Percentages are for total studies within given column

ICU = intensive care unit; LOS = length of stay; OR = operating room

**eTable 12** List of citations that could not be translated or retrieved

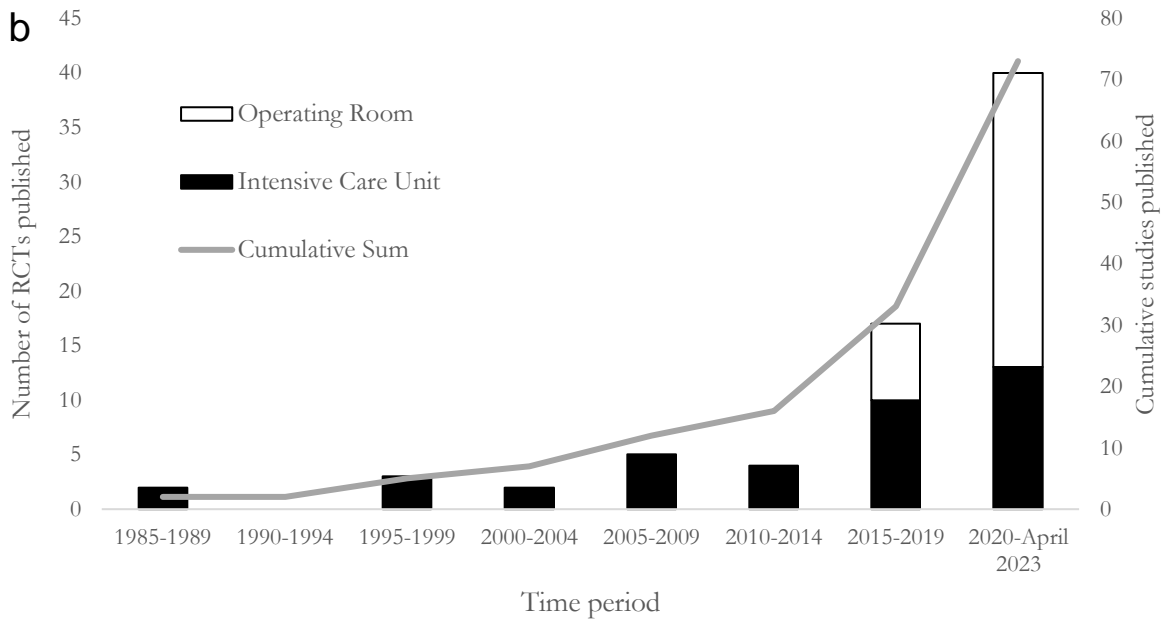
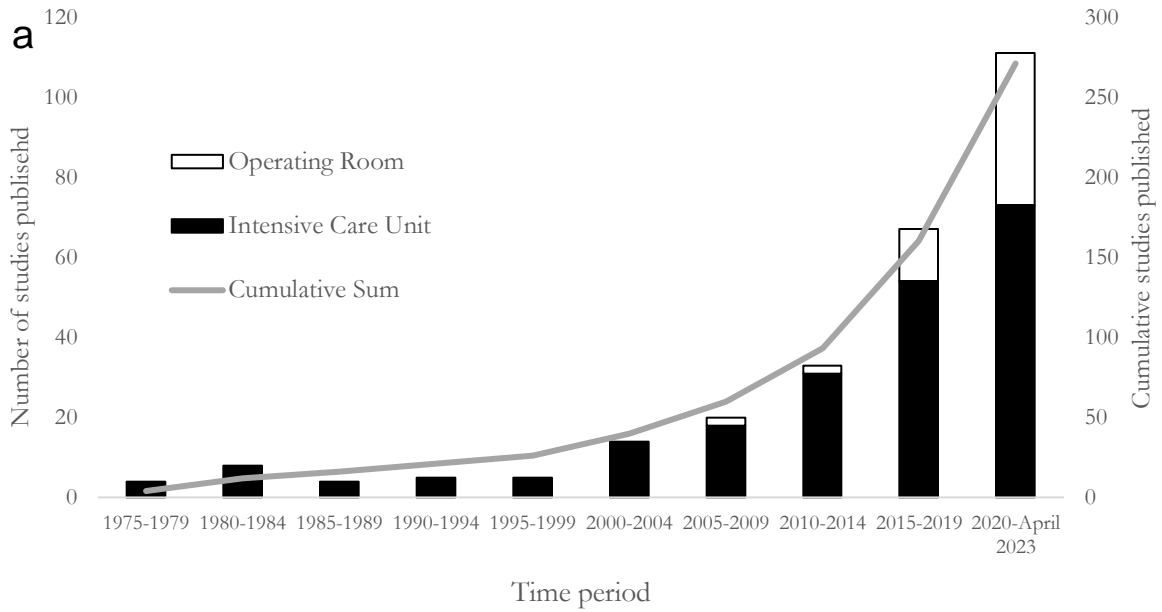
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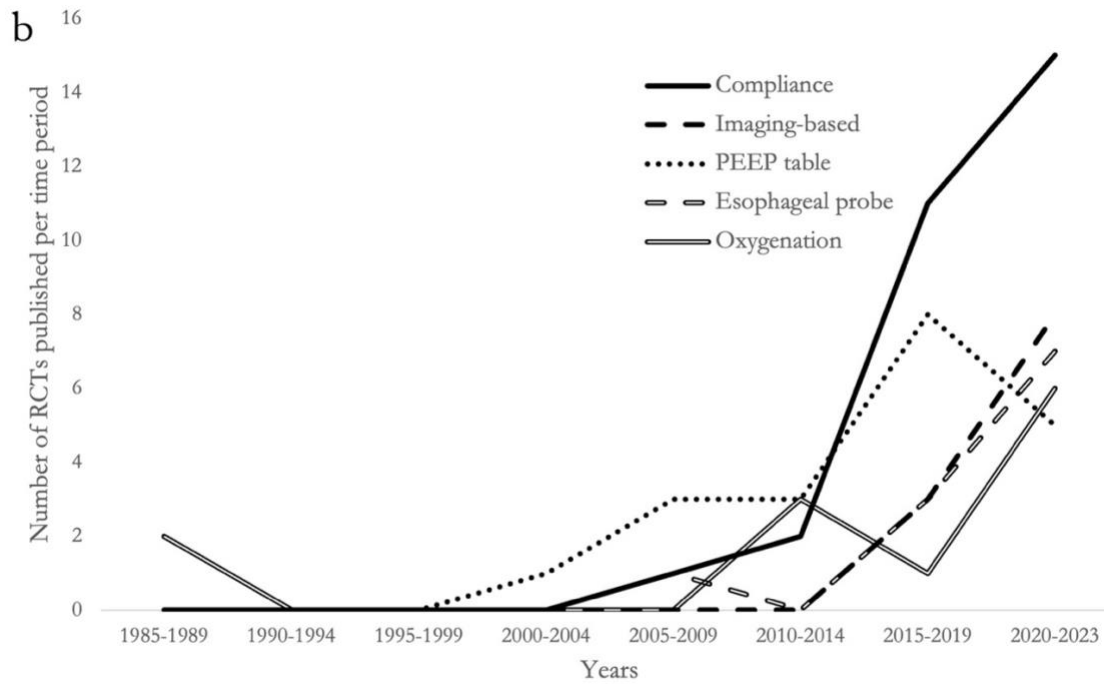
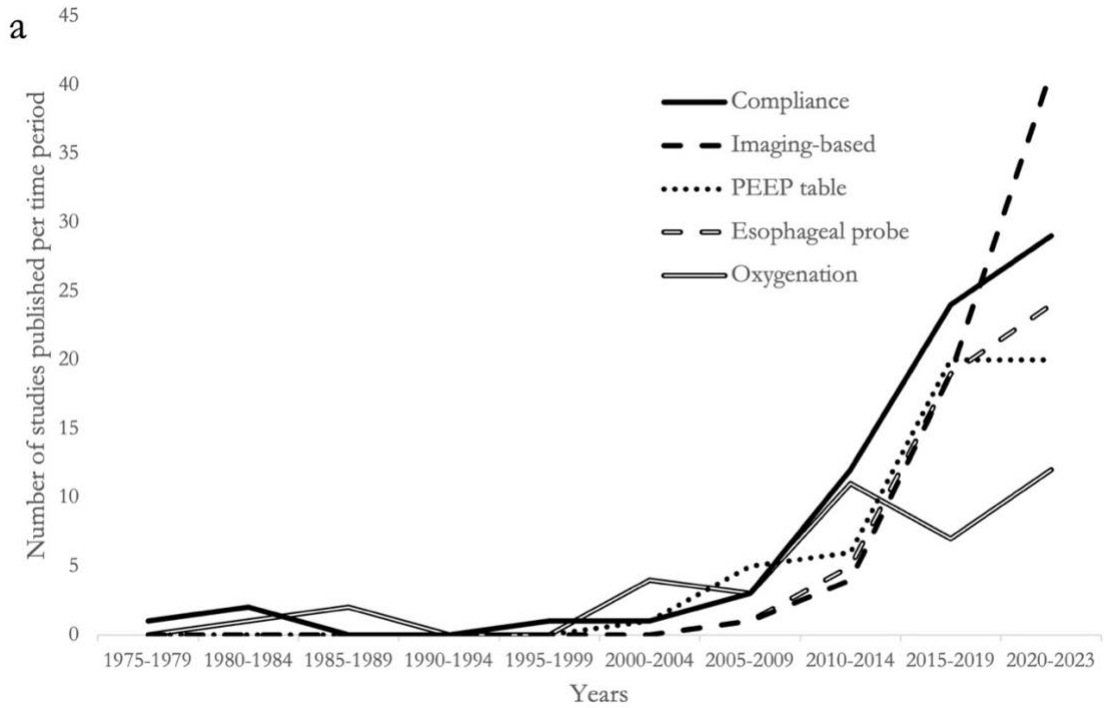
**eFig. 1** Articles studying methods of determining optimal positive end-expiratory pressure published by five-year interval



a) overall and b) randomized controlled trials

RCT = randomized controlled trial

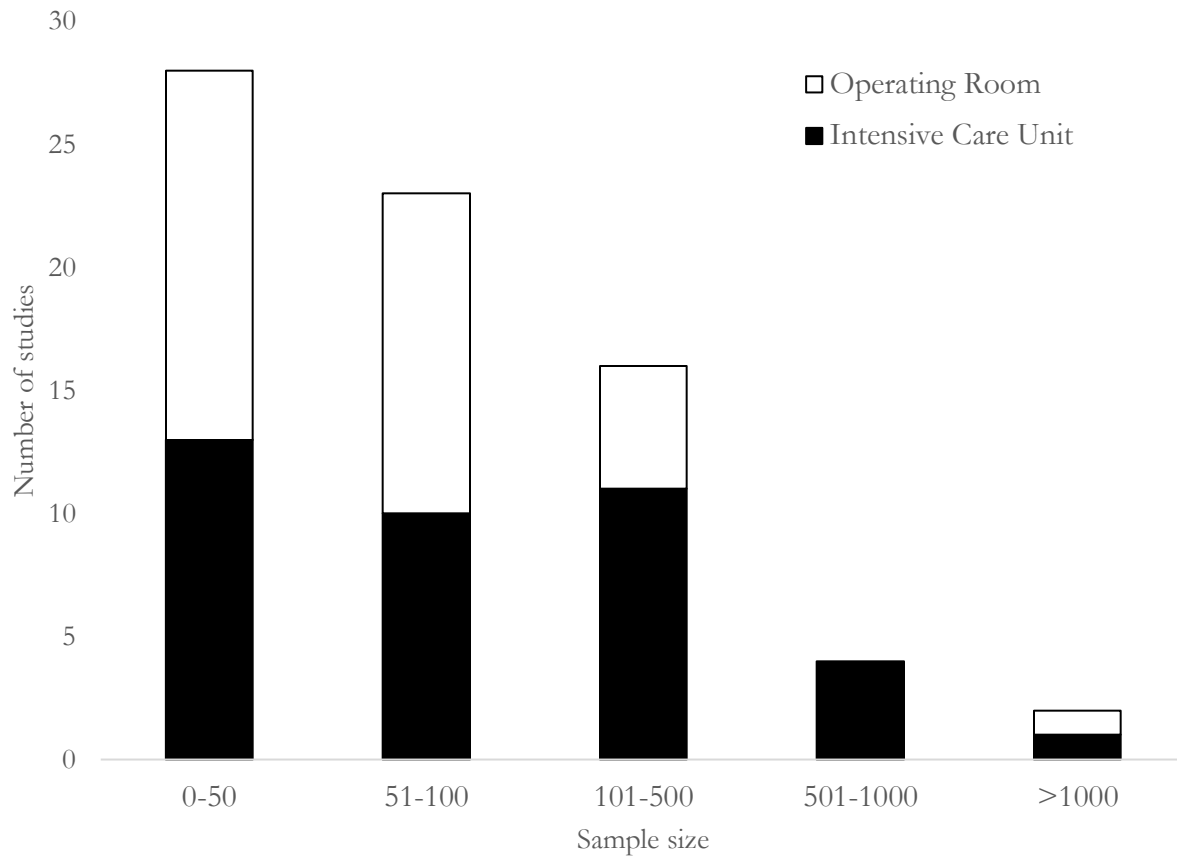
**eFig. 2** Number of studies assessing methods of determining optimal positive end expiratory pressure published by five-year time period



Stratified by method a) overall number of studies published b) randomized controlled trials published

PEEP = positive end-expiratory pressure

**eFig. 3** Number of participants in randomized controlled trials assessing methods of determining optimal positive end-expiratory pressure



Stratified by intensive care unit or operating room setting

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