

Supplementary Online Content

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eTable. Pooled and Stratified Analyses for the Effect of Oxygen Versus Room Air on Umbilical Artery pH

eFigure 1. Funnel Plot: The Effect of Maternal Oxygen Administration Versus Room Air on Umbilical Artery pH

eFigure 2. Forest Plot: Effect of Maternal Oxygen Supplementation Versus Room Air on Umbilical Artery pH <7.2

eFigure 3. Forest Plot: Effect of Maternal Oxygen Supplementation Versus Room Air on Umbilical Artery pO₂ (mmHg)

eFigure 4. Forest Plot: Effect of Maternal Oxygen Supplementation Versus Room Air on Umbilical Artery Base Excess

eFigure 5. Forest Plot: Effect of Maternal Oxygen Supplementation Versus Room Air on 1 Minute Apgar Score

eFigure 6. Forest Plot: Effect of Maternal Oxygen Supplementation Versus Room Air on 5 Minute Apgar Score

eFigure 7. Forest Plot: Effect of Maternal Oxygen Supplementation Versus Room Air on NICU Admission

eAppendix. Search Syntax

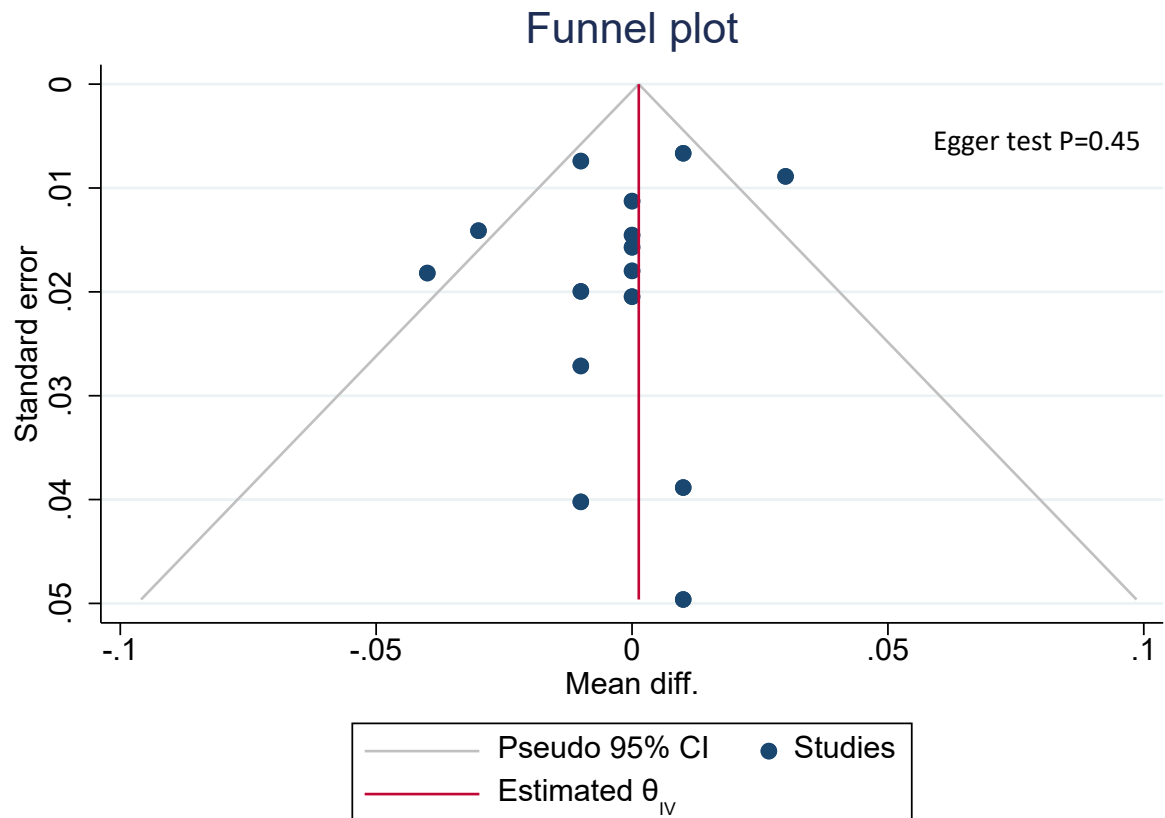
eReferences

This supplementary material has been provided by the authors to give readers additional information about their work.

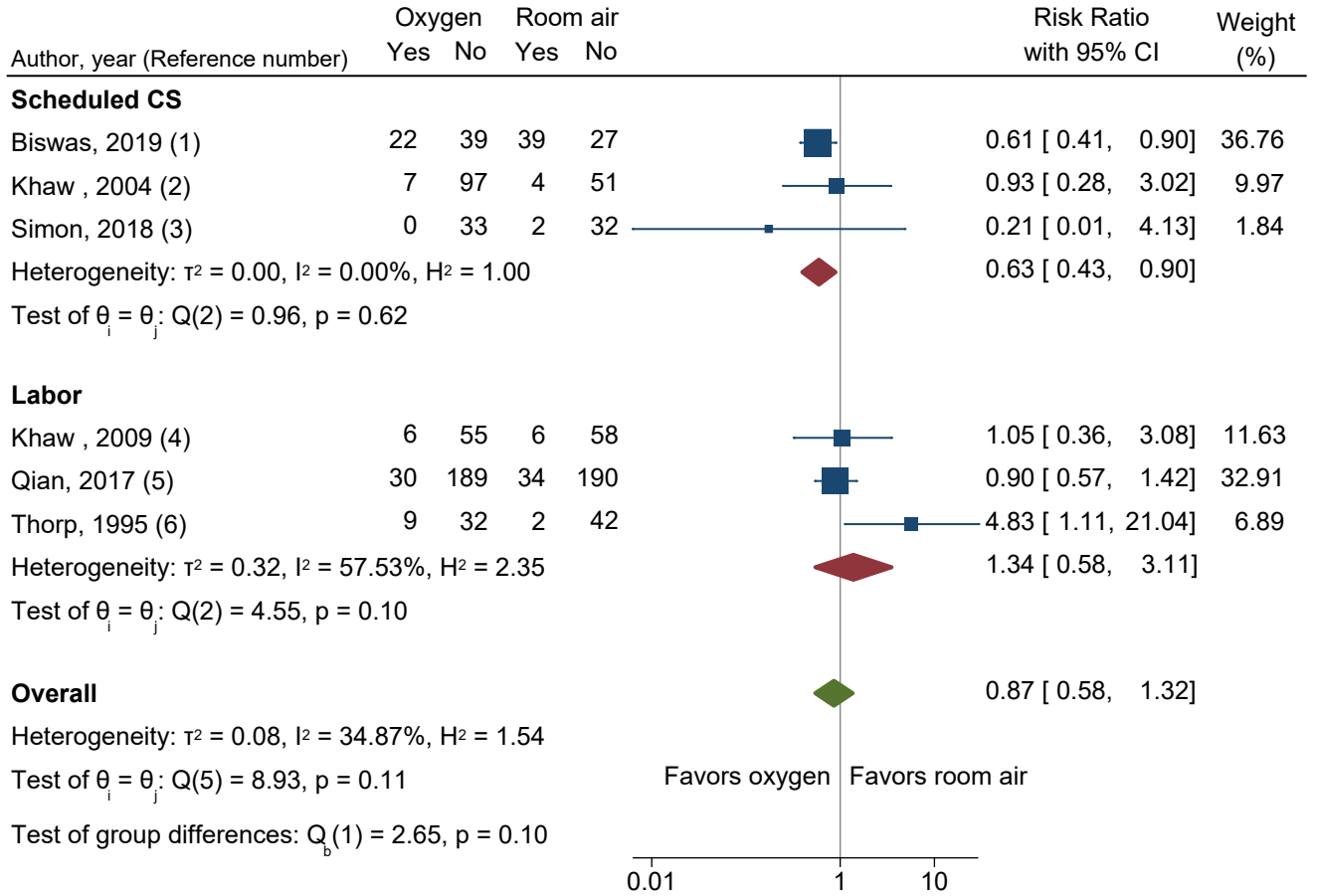
eTable: Pooled and stratified analyses for the effect of oxygen versus room air on umbilical artery pH

	Number of studies	Oxygen (n)	Room air (n)	Weighted mean difference (95% CI)	I ²	P value
Scheduled CS						
Low risk of bias	5	307	277	0.00 (-0.03, 0.02)	48.26	0.14
High risk of bias	5	303	216	0.01 (-0.01, 0.02)	63.56	0.02
High flow O ₂ device	5	248	179	-0.01 (-0.02, 0.00)	0.11	0.93
Low flow O ₂ device	5	362	314	0.00 (-0.02, 0.03)	77.26	0.01
FiO ₂ ≥60	2	52	32	0.00 (-0.04, 0.03)	0.01	0.77
FiO ₂ <60	5	302	200	-0.01 (-0.02, 0.00)	0.03	0.38
Labor						
High quality	4	338	349	-0.02 (-0.04, 0.00)	0.20	0.60
Low quality	1	57	60	0.01 (-0.07, 0.09)	--	--
High flow O ₂ device	3	135	141	0.00 (-0.03, 0.03)	0.00	0.94
Low flow O ₂ device	2	260	268	-0.02 (-0.05, 0.00)	0.13	0.41
FiO ₂ ≥60	3	146	155	-0.02 (-0.05, 0.00)	0.03	0.59
FiO ₂ <60	1	30	30	0.00 (-0.04, 0.04)	--	--

eFigure 1: Funnel Plot- The effect of maternal oxygen administration versus room air on umbilical artery pH

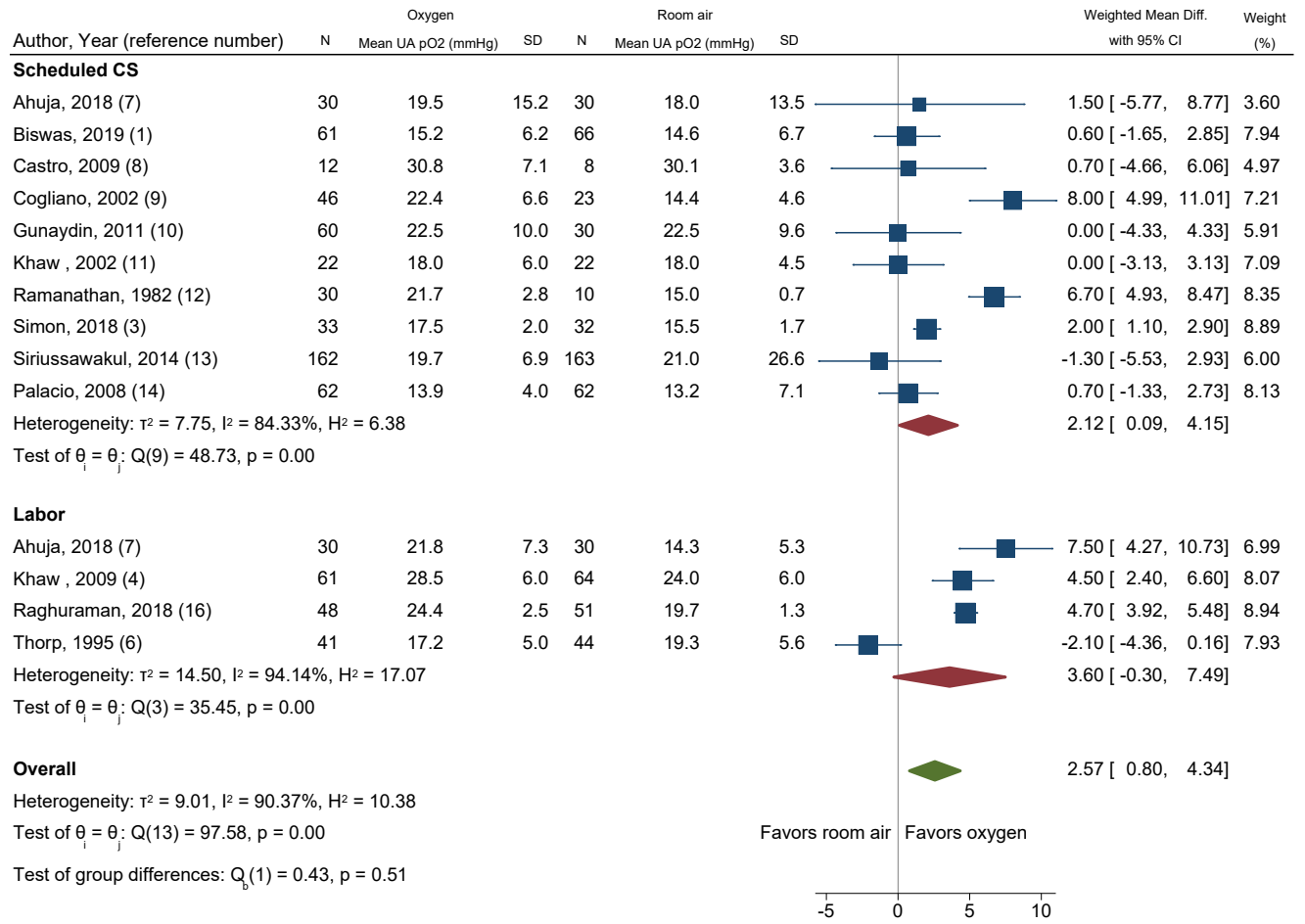


eFigure 2 : Forest plot- Effect of maternal oxygen supplementation versus room air on umbilical artery pH <7.2



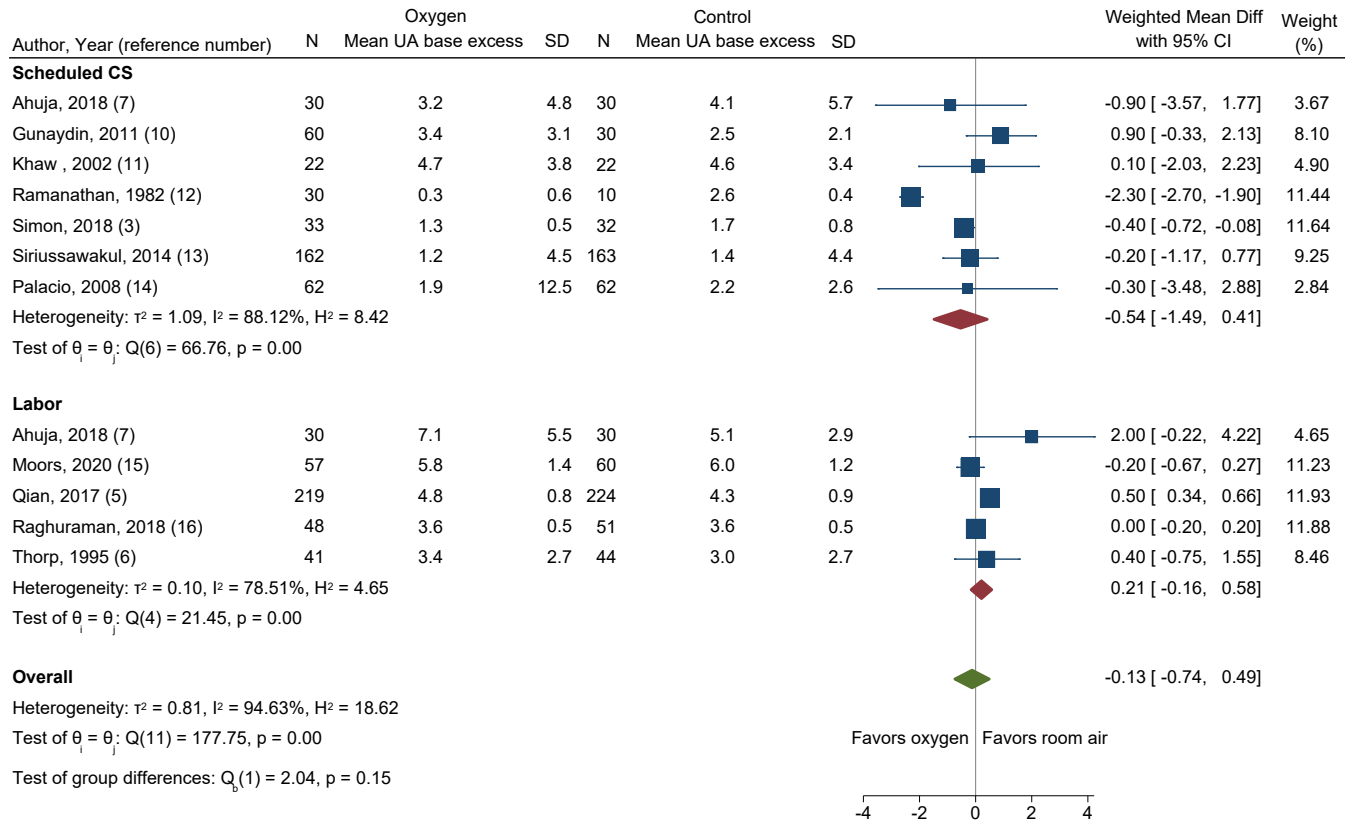
Random-effects REML model

eFigure 3: Forest Plot- Effect of maternal oxygen supplementation versus room air on umbilical artery pO₂ (mmHg)



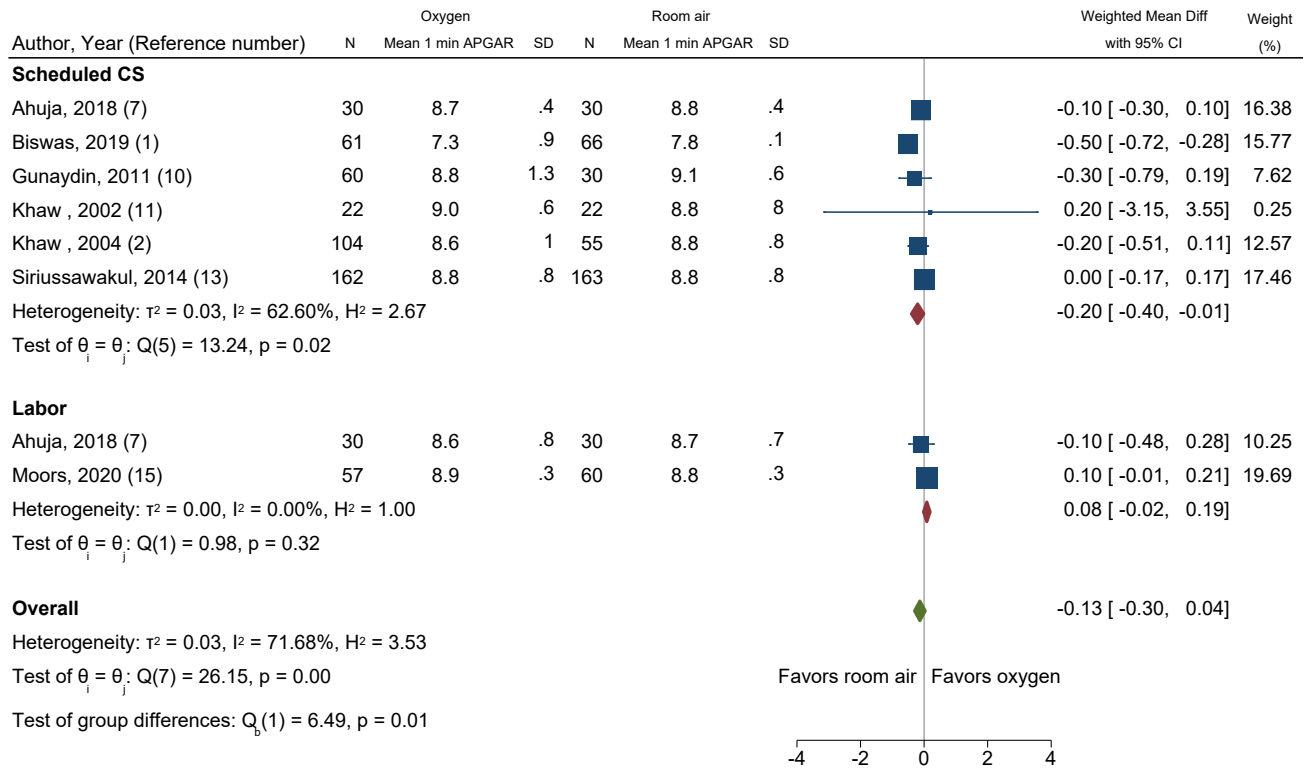
Random-effects REML model

eFigure 4: Forest plot- Effect of maternal oxygen supplementation versus room air on umbilical artery base excess



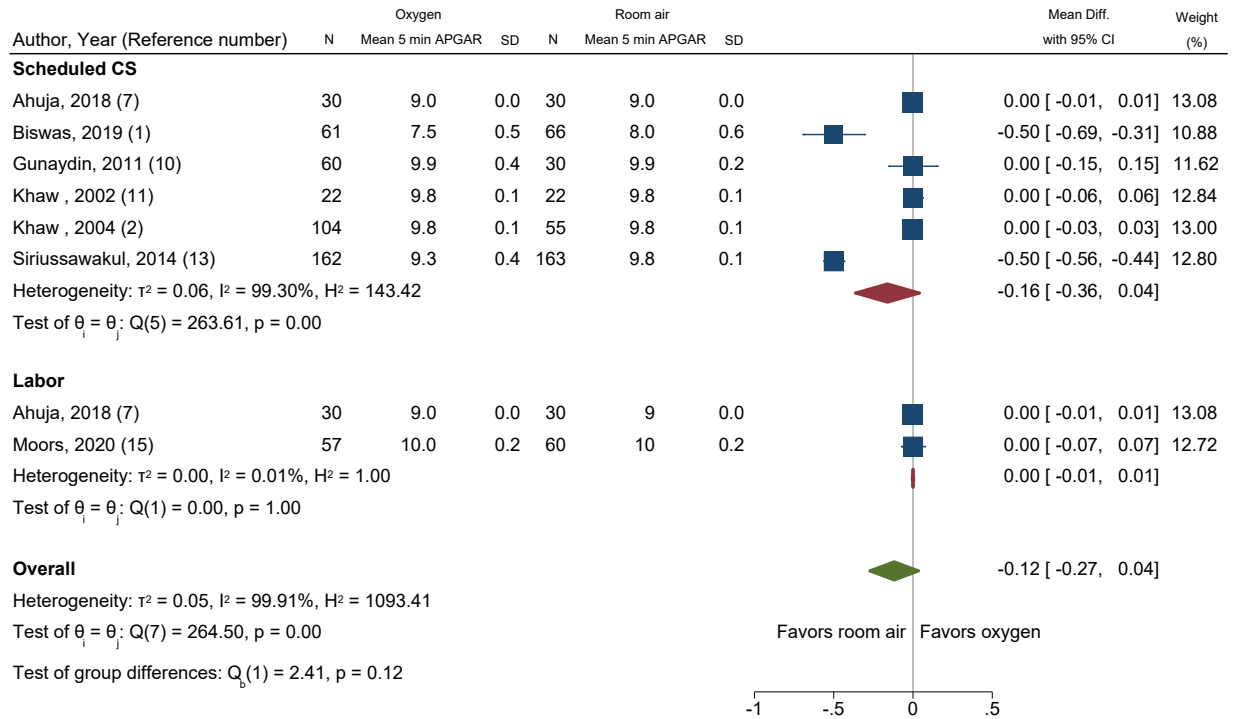
Random-effects REML model

eFigure 5: Forest Plot- Effect of maternal oxygen supplementation versus room air on 1 minute Apgar score



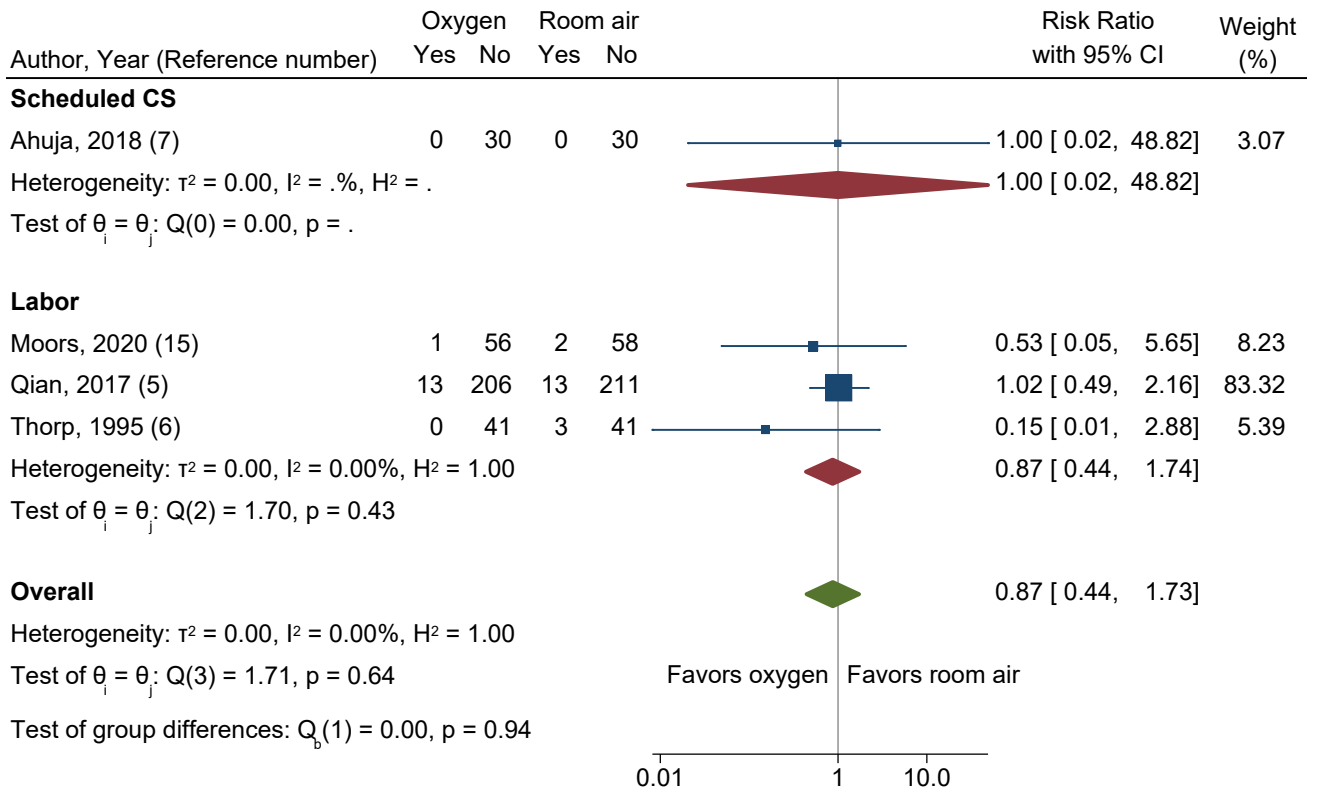
Random-effects REML model

eFigure 6: Forest Plot- Effect of maternal oxygen supplementation versus room air on 5 minute Apgar score



Random-effects REML model

eFigure 7: Forest plot- Effect of maternal oxygen supplementation versus room air on NICU admission



Random-effects REML model

eAppendix. Search Syntax

Ovid Medline

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Exp obstetric Labor/ OR Exp obstetric delivery/ OR labor.mp. OR labour.mp. OR birth.mp. OR childbirth.mp. OR cesarean*.mp. OR caesarean*.mp. or cesarian.mp. OR caesarian.mp. OR c section.mp. OR c-section.mp. OR c-sections.mp. OR sectio caesarea.mp. OR cesarotomy.mp. OR fetectomy.mp. OR intrapartum.mp. OR ((delivery OR delivering OR delivered OR deliveries) AND (newborn* OR fetus* OR fetal OR mother* OR matern* OR obstetric* OR neonat* OR vagina* or baby OR babies OR infant* OR gestation* OR pregnan* OR perinat* OR peripart* OR preterm OR "full term")).mp.

AND

(Exp oxygen inhalation therapy/ OR Exp oxygen/th OR Exp oxygen/tu OR ((oxygen OR oxygenation OR hyperoxygenation OR o2) adj5 (therapy OR administration OR insufflation OR women OR woman OR maternal OR mother*))).mp.)

AND

(Exp fetal blood/ OR Exp hydrogen-ion concentration/ OR Exp carbon dioxide/bl OR Exp bicarbonates/bl OR Exp oxygen/bl OR Exp blood gas analysis/ OR Acid-base imbalance/ OR Exp acidosis/ OR Alkalosis/ OR (hydrogen adj1 carbonate*).mp. OR acidosis.mp. OR acidemia.mp. OR alkalosis.mp. OR carobonic acid ions.mp. OR acidemia.mp. OR acidaemia.mp. OR cooximetry.mp. OR hyperoxia.mp. OR hypoxia.mp. OR ((pH OR gas OR acid* OR alkali OR lactate) adj3 (arterial OR umbilical OR cord OR funiculus)).mp. OR ((fetal OR fetus) adj3 (pH OR acid* OR base)).mp. OR ((umbilicalis OR allantoic OR umbilical OR umbilicus) adj2 (vein OR arter*).mp. OR ((blood* OR plasma) adj1 (cord OR umbilical)).mp. OR (acid base).mp. OR plasma ph.mp. OR serum ph.mp. OR ((arter* OR vein* OR blood OR plasma OR serum) adj4 (lactate OR acid* OR bas* OR ph OR bicarbonate OR oxygen* OR "carbon dioxide" OR co2 OR o2 OR pco2 OR p02)).mp. OR ((oxygen OR o2 OR po2) adj1 (affinity OR hemoglobin OR haemoglobin OR "binding capacity ")).mp.)

AND

((control adj3 group*).mp. or ((patient or healthy or volunteer or volunteers) adj3 control*).mp. or controlled clinical trial.pt. or randomized controlled trial.pt. or double-blind method/ or controlled clinical trials as topic/ or randomized controlled trials as topic/ or early termination of clinical trials as topic/ or (randomi?ed adj7 trial*).mp. or (double-blind adj1 method).mp. or (controlled adj3 trial*) or ((single or doubl* or tripl* or treb*) and (blind* or mask*)).ti,ab,kw. or 4 arm.ti,ab,kw. or four arm.ti,ab,kw.)

Embase

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('oxygen therapy'/de OR (((oxygen OR oxygenation OR hyperoxygenation OR o2) NEAR/5 (therapy OR administration OR insufflation OR women OR woman OR maternal OR mother*)):ti,ab,kw,de)) AND ('blood gas'/exp OR 'arterial ph'/exp OR 'blood ph'/exp OR

'umbilical artery'/exp OR 'blood gas analysis'/exp OR 'fetus acid base balance'/exp OR 'umbilical cord blood'/exp OR 'ph measurement'/exp OR 'disorders of acid base balance'/exp OR ((hydrogen NEAR/1 carbonate*):ti,ab,kw,de) OR acidosis:ti,ab,kw,de OR alkalosis:ti,ab,kw,de OR 'carobonic acid ions':ti,ab,kw,de OR acidemia:ti,ab,kw,de OR acidaemia:ti,ab,kw,de OR cooximetry:ti,ab,kw,de OR hyperoxia:ti,ab,kw,de OR hypoxia:ti,ab,kw,de OR (((ph OR gas OR acid* OR alkali OR lactate) NEAR/3 (arterial OR umbilical OR cord OR funiculus)):ti,ab,kw,de) OR (((fetal OR fetus) NEAR/3 (ph OR acid* OR base)):ti,ab,kw,de) OR (((umbilicalis OR allantoic OR umbilical OR umbilicus) NEAR/2 (vein OR arter*)):ti,ab,kw,de) OR (((blood* OR plasma) NEAR/1 (cord OR umbilical)):ti,ab,kw,de) OR (acid:ti,ab,kw,de AND base:ti,ab,kw,de) OR 'plasma ph':ti,ab,kw,de OR 'serum ph':ti,ab,kw,de OR (((arter* OR vein* OR blood OR plasma OR serum) NEAR/4 (lactate OR acid* OR bas* OR ph OR bicarbonate OR oxygen* OR 'carbon dioxide' OR co2 OR o2 OR pco2 OR p02)):ti,ab,kw,de) OR (((oxygen OR o2 OR po2) NEAR/1 (affinity OR hemoglobin OR haemoglobin OR 'binding capacity')):ti,ab,kw,de)) AND ((control NEAR/3 group*) OR ((patient OR healthy OR volunteer OR volunteers) NEAR/3 control*) OR 'controlled clinical trial' OR 'randomized controlled trial' OR 'double-blind method'/exp OR 'controlled clinical trials as topic'/exp OR 'randomized controlled trials as topic'/exp OR 'early termination of clinical trials as topic' OR (randomi?ed NEAR/7 trial*) OR ('double blind' NEAR/1 method) OR (controlled NEAR/3 trial*) OR ((single OR doubl* OR tripl* OR treb*) AND (blind* OR mask*)) OR '4 arm' OR 'four arm') AND ((newborn*:ti,ab,kw,de OR fetus*:ti,ab,kw,de OR fetal:ti,ab,kw,de OR mother*:ti,ab,kw,de OR matern*:ti,ab,kw,de OR obstetric*:ti,ab,kw,de OR neonat*:ti,ab,kw,de OR vagina*:ti,ab,kw,de OR baby:ti,ab,kw,de OR babies:ti,ab,kw,de OR infant*:ti,ab,kw,de OR gestation*:ti,ab,kw,de OR pregnan*:ti,ab,kw,de OR perinat*:ti,ab,kw,de OR peripart*:ti,ab,kw,de OR preterm:ti,ab,kw,de OR 'full term':ti,ab,kw,de) AND (delivery:ti,ab,kw,de OR delivering:ti,ab,kw,de OR delivered:ti,ab,kw,de OR deliveries:ti,ab,kw,de) OR 'obstetric delivery'/exp OR 'obsetric delivery' OR 'instrumental delivery'/exp OR 'intrapartum care'/exp OR labor:ti,ab,kw,de OR labour:ti,ab,kw,de OR birth:ti,ab,kw,de OR childbirth:ti,ab,kw,de OR cesarean*:ti,ab,kw,de OR caesarean*:ti,ab,kw,de OR cesarian:ti,ab,kw,de OR caesarian:ti,ab,kw,de OR 'c section':ti,ab,kw,de OR 'c-section':ti,ab,kw,de OR 'c-sections':ti,ab,kw,de OR 'sectio caesarea':ti,ab,kw,de OR cesarotom*:ti,ab,kw,de OR fetectom*:ti,ab,kw,de OR intrapartum:ti,ab,kw,de)

SCOPUS

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(((TITLE-ABS-KEY (labor)) OR (TITLE-ABS-KEY (labour)) OR (TITLE-ABS-KEY (birth)) OR (TITLE-ABS-KEY (childbirth)) OR (TITLE-ABS-KEY (cesarean*)) OR (TITLE-ABS-KEY (caesarean*)) OR (TITLE-ABS-KEY (cesarian)) OR (TITLE-ABS-KEY (caesarian)) OR (TITLE-ABS-KEY ("c section")) OR (TITLE-ABS-KEY ("c-section")) OR (TITLE-ABS-KEY ("c-sections")) OR (TITLE-ABS-KEY ("sectio caesarea")) OR (TITLE-ABS-KEY (cesarotom*)) OR (TITLE-ABS-KEY (fetectom*)) OR (TITLE-ABS-KEY (intrapartum))) OR (((TITLE-ABS-KEY (delivery OR delivering OR delivered OR deliveries))) AND ((TITLE-ABS-KEY (newborn* OR fetus* OR fetal OR mother* OR matern* OR obstetric* OR neonat* OR vagina* OR

baby OR babies OR infant* OR gestation* OR pregnan* OR perinat* OR peripart* OR preterm OR "full term")))) AND ((TITLE-ABS-KEY ((oxygen OR oxygenation OR hyperoxygenation OR o2) W/5 (therapy OR administration OR insufflation OR women OR woman OR maternal OR mother*)))) AND ((TITLE-ABS-KEY (hydrogen W/1 carbonate*)) OR (TITLE-ABS-KEY (acidosis)) OR (TITLE-ABS-KEY (acidemia)) OR (TITLE-ABS-KEY (alkalosis)) OR (TITLE-ABS-KEY ("carobonic acid ions")) OR (TITLE-ABS-KEY (acidemia)) OR (TITLE-ABS-KEY (acidaemia)) OR (TITLE-ABS-KEY (cooximetry)) OR (TITLE-ABS-KEY (hyperoxia)) OR (TITLE-ABS-KEY (hypoxia)) OR (TITLE-ABS-KEY ((ph OR gas OR acid* OR alkali OR lactate) W/3 (arterial OR umbilical OR cord OR funiculus))) OR (TITLE-ABS-KEY ((fetal OR fetus) W/3 (ph OR acid* OR base))) OR (TITLE-ABS-KEY ((umbilicalis OR allantoic OR umbilical OR umbilicus) W/2 (vein OR arter*))) OR (TITLE-ABS-KEY ((blood* OR plasma) W/1 (cord OR umbilical))) OR (TITLE-ABS-KEY ("acid base")) OR (TITLE-ABS-KEY ("plasma ph")) OR (TITLE-ABS-KEY ("serum ph")) OR (TITLE-ABS-KEY ((arter* OR vein* OR blood OR plasma OR serum) W/4 (lactate OR acid* OR bas* OR ph OR bicarbonate OR oxygen* OR "carbon dioxide" OR co2 OR o2 OR pco2 OR p02))) OR (TITLE-ABS-KEY ((oxygen OR o2 OR po2) W/1 (affinity OR hemoglobin OR haemoglobin OR "binding capacity")))) AND (((TITLE-ABS-KEY (control W/3 group*)) OR (TITLE-ABS-KEY ((patient OR healthy OR volunteer OR volunteers) W/3 control*)) OR (TITLE-ABS-KEY (randomi?ed W/7 trial*)) OR (TITLE-ABS-KEY (double-blind W/1 method)) OR (TITLE-ABS-KEY (controlled W/3 trial*)) OR (TITLE-ABS-KEY ((single OR doubl* OR tripl* OR treb*) AND (blind* OR mask*)))))) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re"))

Cochrane Central

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1. [mh "obstetric Labor"] OR [mh "obstetric delivery"] OR labor:ti,ab,kw OR labour:ti,ab,kw OR birth:ti,ab,kw OR childbirth:ti,ab,kw OR cesarean*:ti,ab,kw OR caesarean*:ti,ab,kw OR cesarian:ti,ab,kw OR caesarian:ti,ab,kw OR "c section":ti,ab,kw OR "c-section":ti,ab,kw OR "c-sections":ti,ab,kw OR "sectio caesarea":ti,ab,kw OR cesarotom*:ti,ab,kw OR fetectom*:ti,ab,kw OR intrapartum:ti,ab,kw OR ((delivery OR delivering OR delivered OR deliveries) AND (newborn* OR fetus* OR fetal OR mother* OR matern* OR obstetric* OR neonat* OR vagina* OR baby OR babies OR infant* OR gestation* OR pregnan* OR perinat* OR peripart* OR preterm OR "full term")):ti,ab,kw

2. [mh "oxygen inhalation therapy"] OR [mh oxygen/th] OR [mh oxygen/tu] OR ((oxygen OR oxygenation OR hyperoxygenation OR o2) near/5 (therapy OR administration OR insufflation OR women OR woman OR maternal OR mother*)):ti,ab,kw

3. [mh "fetal blood"] OR [mh "hydrogen-ion concentration"] OR [mh "carbon dioxide"/bl] OR [mh bicarbonates/bl] OR [mh oxygen/bl] OR [mh "blood gas analysis"] OR [mh ^"Acid-base imbalance"] OR [mh acidosis] OR [mh ^Alkalosis] OR (hydrogen near/1 carbonate*):ti,ab,kw

OR acidosis:ti,ab,kw OR acidemia:ti,ab,kw OR alkalosis:ti,ab,kw OR “carobonic acid ions”:ti,ab,kw OR acidemia:ti,ab,kw OR acidaemia:ti,ab,kw OR cooximetry:ti,ab,kw OR hyperoxia:ti,ab,kw OR hypoxia:ti,ab,kw OR ((pH OR gas OR acid* OR alkali OR lactate) near/3 (arterial OR umbilical OR cord OR funiculus)):ti,ab,kw OR ((fetal OR fetus) near/3 (pH OR acid* OR base)):ti,ab,kw OR ((umbilicalis OR allantoic OR umbilical OR umbilicus) near/2 (vein OR arter*)):ti,ab,kw OR ((blood* OR plasma) near/1 (cord OR umbilical)):ti,ab,kw OR “acid base”:ti,ab,kw OR “plasma ph”:ti,ab,kw OR “serum ph”:ti,ab,kw OR ((arter* OR vein* OR blood OR plasma or serum) near/4 (lactate OR acid* OR bas* OR ph OR bicarbonate OR oxygen* OR “carbon dioxide” OR co2 OR o2 OR pco2 or p02)):ti,ab,kw OR ((oxygen OR o2 OR po2) near/1 (affinity OR hemoglobin OR haemoglobin OR “binding capacity “)):ti,ab,kw

4. ((control near/3 group*) or ((patient or healthy or volunteer or volunteers) NEAR/3 control*) or “controlled clinical trial” or “randomized controlled trial” or “double-blind method”/exp or “controlled clinical trials as topic”/exp or “randomized controlled trials as topic”/exp or “early termination of clinical trials as topic”/exp or (randomi?ed NEAR/7 trial*) or (double-blind NEAR/1 method) or (controlled NEAR/3 trial*) or ((single or doubl* or tripl* or treb*) and (blind* or mask*)) or “4 arm” or “four arm”)

5. #1 AND #2 AND #3 AND #4

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