SUPPLEMENTARY MATERIAL

## Contents

# Supplementary Tables

## Supplementary Table 1: Search terms

*Cochrane Central Register of Controlled Trials (CENTRAL) via Cochrane Library. Issue 10 of 12, October 2021. Search made on 2021-11-17*

| Search number | Terms | References in Trials |
|---|---|---|
| #1 | MeSH descriptor: [Infant, Newborn] explode all trees | 16150 |
| #2 | MeSH descriptor: [Infant] explode all trees | 32726 |
| #3 | MeSH descriptor: [Intensive Care Units, Neonatal] explode all trees | 728 |
| #4 | (Infant* OR Newborn* OR Neonat* OR fetal OR foetal OR baby OR babies OR Neonatal ICU* OR Newborn ICU* OR NICU OR “Newborn Intensive Care Units” OR “Neonatal Intensive Care Units” OR "new born*" OR "newly born*"):ti,ab,kw | 84830 |
| #5 | #1 OR #2 OR #3 OR #4 | 84830 |
| #6 | MeSH descriptor: [Hypoxia-Ischemia, Brain] explode all trees | 228 |
| #7 | (Hypoxia-ischemia* OR Hypoxia Ischemia* OR Ischemia-Hypoxia* OR Hypoxic-ischemic OR Hypoxic-ischaemic OR Hypoxic Ischemic OR Ischemic-Hypoxic OR encephalopat* OR HIE):ti,ab,kw | 4141 |
| #8 | #6 OR #7 | 4141 |
| #9 | (afghanistan OR albania OR algeria OR american samoa OR angola OR antigua OR barbuda OR argentina OR armenia OR armenian OR aruba OR azerbaijan OR bahrain OR bangladesh OR barbados OR belarus OR byelarus OR belorussia OR byelorussian OR belize OR british honduras OR benin OR dahomey OR bhutan OR bolivia OR bosnia OR herzegovina OR botswana OR bechuanaland OR brazil OR brasil OR bulgaria OR burkina faso OR burkina fasso OR upper volta OR burundi OR urundi OR cabo verde OR cape verde OR cambodia OR kampuchea OR khmer republic OR cameroon OR cameron OR cameroun OR central african republic OR ubangi shari OR chad OR chile OR china OR colombia OR comoros OR comoro islands OR mayotte OR congo OR zaire OR costa rica OR cote d'ivoire OR cote d'ivoire OR cote d'ivoire OR ivory coast OR croatia OR cuba OR cyprus OR czech republic OR czechoslovakia OR djibouti OR french somaliland OR dominica OR dominican republic OR ecuador OR egypt OR united arab republic OR el salvador OR equatorial guinea OR spanish guinea OR eritrea OR estonia OR eswatini OR swaziland OR ethiopia OR fiji OR gabon OR gabonese republic OR gambia OR georgia OR georgian OR ghana OR gold coast OR gibraltar OR greece OR grenada OR guam OR guatemala OR guinea OR guyana OR guiana OR haiti OR hispaniola OR | 292061 (LMIC filter) |

| | | |
|---|---|---|
| | honduras OR hungary OR india OR indonesia OR timor OR iran OR iraq OR isle of man OR jamaica OR jordan OR kazakhstan OR kazakh OR kenya OR korea OR kosovo OR kyrgyzstan OR kirghizia OR kirgizstan OR kyrgyz republic OR kirghiz OR laos OR lao pdr OR lao people's democratic republic OR latvia OR lebanon OR lesotho OR basutoland OR liberia OR libya OR libyan arab jamahiriya OR lithuania OR macau OR macao OR macedonia OR madagascar OR malagasy republic OR malawi OR nyasaland OR malaysia OR maldives OR indian ocean OR mali OR malta OR micronesia OR kiribati OR marshall islands OR nauru OR northern mariana islands OR palau OR tuvalu OR mauritania OR mauritius OR mexico OR moldova OR moldovian OR mongolia OR montenegro OR morocco OR ifni OR mozambique OR portuguese east africa OR myanmar OR burma OR namibia OR nepal OR netherlands antilles OR nicaragua OR niger OR nigeria OR oman OR muscat OR pakistan OR panama OR papua new guinea OR paraguay OR peru OR philippines OR philipines OR phillipines OR phillippines OR poland OR polish people's republic OR portugal OR portuguese republic OR puerto rico OR romania OR russia OR russian federation OR ussr OR soviet union OR union of soviet socialist republics OR rwanda OR ruanda OR samoa OR pacific islands OR polynesia OR samoan islands OR sao tome and principe OR saudi arabia OR senegal OR serbia OR seychelles OR sierra leone OR slovakia OR slovak republic OR slovenia OR melanesia OR solomon island OR solomon islands OR norfolk island OR somalia OR south africa OR south sudan OR sri lanka OR ceylon OR saint kitts and nevis OR st kitts and nevis OR saint lucia OR st lucia OR saint vincent OR st vincent OR grenadines OR sudan OR suriname OR surinam OR syria OR syrian arab republic OR tajikistan OR tadjikistan OR tadzhikistan OR tadzhik OR tanzania OR tanganyika OR thailand OR siam OR timor leste OR east timor OR togo OR togolese republic OR tonga OR trinidad OR tobago OR tunisia OR turkey OR turkmenistan OR turkmen OR uganda OR ukraine OR uruguay OR uzbekistan OR uzbek OR vanuatu OR new hebrides OR venezuela OR vietnam OR viet nam OR middle east OR west bank OR gaza OR palestine OR yemen OR yugoslavia OR zambia OR zimbabwe OR northern rhodesia OR global south OR africa south of the sahara OR sub saharan africa OR subsaharan africa OR central africa OR north africa OR northern africa OR magreb OR maghrib OR sahara OR southern africa OR east africa OR eastern africa OR west africa OR western africa OR west indies OR indian ocean islands OR caribbean OR central america OR latin america OR south america OR central asia OR north asia OR northern asia OR southeastern asia OR south eastern asia OR southeast asia OR south east asia OR western asia OR east europe OR eastern europe OR developing country OR developing countries OR developing nation | |

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|---|---|---|
| | OR developing nations OR developing population OR developing populations OR developing world OR less developed country OR less developed countries OR less developed nation OR less developed nations OR less developed world OR lesser developed countries OR lesser developed nations OR under developed country OR under developed countries OR under developed nations OR under developed world OR underdeveloped country OR underdeveloped countries OR underdeveloped nation OR underdeveloped nations OR underdeveloped population OR underdeveloped populations OR underdeveloped world OR middle income country OR middle income countries OR middle income nation OR middle income nations OR middle income population OR middle income populations OR low income country OR low income countries OR low income nation OR low income nations OR low income population OR low income populations OR lower income country OR lower income countries OR lower income nations OR lower income population OR lower income populations OR underserved countries OR underserved nations OR underserved population OR underserved populations OR under served population OR under served populations OR deprived countries OR deprived population OR deprived populations OR poor country OR poor countries OR poor nation OR poor nations OR poor population OR poor populations OR poor world OR poorer countries OR poorer nations OR poorer population OR poorer populations OR developing economy OR developing economies OR less developed economy OR less developed economies OR underdeveloped economies OR middle income economy OR middle income economies OR low income economy OR low income economies OR lower income economies OR low gdp OR low gnp OR low gross domestic OR low gross national OR lower gdp OR lower gross domestic OR lmic OR lmics OR third world OR lami country OR lami countries OR transitional country OR transitional countries OR emerging economies OR emerging nation OR emerging nations) | |
| #10 | #5 AND #8 AND #9 | 230 |
| #11 | #10 with Cochrane Library publication date from Nov 2009 to present | 174 |

*Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions(R) 1946 to November 16, 2021*

| Search number | Search terms | References |
|---|---|---|
| 1 | ("Infant, Newborn" or Infant or "Intensive Care Units, Neonatal").sh. | 1193982 |
| 2 | (Infant* or Newborn* or Neonat* or fetal or foetal or baby or babies or Neonatal ICU* or Newborn ICU* or NICU or Newborn Intensive Care Units or Neonatal Intensive Care Units or new born* or newly born*).ab,ti. | 961183 |
| 3 | 1 OR 2 | 1685533 |
| 4 | Hypoxia-Ischemia, Brain.sh. | 6295 |
| 5 | (Hypoxia-ischemia* or Hypoxia Ischemia* or Ischemia-Hypoxia* or Hypoxic-ischemic or Hypoxic-ischaemic or Hypoxic Ischemic or Ischemic-Hypoxic or encephalopat* or HIE).ab,ti. | 61035 |
| 6 | 4 OR 5 | 62605 |
| 7 | (afghanistan or albania or algeria or american samoa or angola or "antigua and barbuda" or antigua or barbuda or argentina or armenia or armenian or aruba or azerbaijan or bahrain or bangladesh or barbados or republic of belarus or belarus or byelarus or belorussia or byelorussian or belize or british honduras or benin or dahomey or bhutan or bolivia or "bosnia and herzegovina" or bosnia or herzegovina or botswana or bechuanaland or brazil or brasil or bulgaria or burkina faso or burkina fasso or upper volta or burundi or urundi or cabo verde or cape verde or cambodia or kampuchea or khmer republic or cameroon or cameron or cameroun or central african republic or ubangi shari or chad or chile or china or colombia or comoros or comoro islands or iles comores or mayotte or democratic republic of the congo or democratic republic congo or congo or zaire or costa rica or "cote d'ivoire" or "cote d' ivoire" or cote divoire or cote d ivoire or ivory coast or croatia or cuba or cyprus or czech republic or czechoslovakia or djibouti or french somaliland or dominica or dominican republic or ecuador or egypt or united arab republic or el salvador or equatorial guinea or spanish guinea or eritrea or estonia or eswatini or swaziland or ethiopia or fiji or gabon or gabonese republic or gambia or "georgia (republic)" or georgian or ghana or gold coast or gibraltar or greece or grenada or guam or guatemala or guinea or guinea bissau or guyana or british guiana or haiti or hispaniola or honduras or hungary or india or indonesia or timor or iran or iraq or isle of man or jamaica or jordan or kazakhstan or kazakh or kenya or "democratic people's republic of korea" or republic of korea or north korea or south korea or korea or kosovo or kyrgyzstan or kirghizia or kirgizstan or kyrgyz republic or kirghiz or laos or lao pdr or "lao people's democratic republic" or latvia or lebanon or lebanese republic or lesotho or basutoland or liberia or libya or libyan arab jamahiriya or lithuania or macau or macao or "macedonia (republic)" or macedonia or madagascar or malagasy republic or malawi or nyasaland or malaysia or malay federation or malaya federation or maldives or indian ocean islands or indian ocean or mali or malta or micronesia or federated states of micronesia or kiribati or marshall islands or nauru or northern mariana islands or palau or tuvalu or mauritania or mauritius or mexico or moldova or moldovian or mongolia or montenegro or morocco or ifni or mozambique or portuguese east africa or myanmar or burma or namibia or nepal or netherlands antilles or nicaragua or niger or nigeria or oman or muscat or pakistan or panama or papua new guinea or new guinea or paraguay or peru or philippines or philipines or phillipines or phillippines or poland or "polish people's republic" or portugal or portuguese republic or puerto rico or romania or russia or russian federation or ussr or soviet union or union of soviet socialist republics or rwanda or ruanda or samoa or pacific islands or polynesia or samoan islands or navigator island or navigator islands or "sao tome and principe" or saudi arabia or senegal or serbia or seychelles or sierra leone or slovakia or slovak republic or slovenia or melanesia or solomon island or solomon islands or norfolk island or norfolk islands or somalia or south africa or south sudan or sri lanka or ceylon or "saint kitts and nevis" or "st. kitts and nevis" or saint lucia or "st. lucia" or "saint vincent and the grenadines" or saint vincent or "st. vincent" or grenadines or sudan or suriname or surinam or dutch | 1841501 |

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| | guiana or netherlands guiana or syria or syrian arab republic or tajikistan or tadjikistan or tadzhikistan or tadzhik or tanzania or tanganyika or thailand or siam or timor leste or east timor or togo or togolese republic or tonga).ab,kf,sh,ti. | |
| | | |
| 8 | ("trinidad and tobago" or trinidad or tobago or tunisia or turkey or "turkey (republic)" or turkmenistan or turkmen or uganda or ukraine or uruguay or uzbekistan or uzbek or vanuatu or new hebrides or venezuela or vietnam or viet nam or middle east or west bank or gaza or palestine or yemen or yugoslavia or zambia or zimbabwe or northern rhodesia or global south or africa south of the sahara or sub-saharan africa or subsaharan africa or africa, central or central africa or africa, northern or north africa or northern africa or magreb or maghrib or sahara or africa, southern or southern africa or africa, eastern or east africa or eastern africa or africa, western or west africa or western africa or west indies or indian ocean islands or caribbean or central america or latin america or "south and central america" or south america or asia, central or central asia or asia, northern or north asia or northern asia or asia, southeastern or southeastern asia or south eastern asia or southeast asia or south east asia or asia, western or western asia or europe, eastern or east europe or eastern europe or developing country or developing countries or developing nation? or developing population? or developing world or less developed countr* or less developed nation? or less developed population? or less developed world or lesser developed countr* or lesser developed nation? or lesser developed population? or lesser developed world or under developed countr* or under developed nation? or under developed population? or under developed world or underdeveloped countr* or underdeveloped nation? or underdeveloped population? or underdeveloped world or middle income countr* or middle income nation? or middle income population? or low income countr* or low income nation? or low income population? or lower income countr* or lower income nation? or lower income population? or underserved countr* or underserved nation? or underserved population? or underserved world or under served countr* or under served nation? or under served population? or under served world or deprived countr* or deprived nation? or deprived population? or deprived world or poor countr* or poor nation? or poor population? or poor world or poorer countr* or poorer nation? or poorer population? or poorer world or developing econom* or less developed econom* or lesser developed econom* or under developed econom* or underdeveloped econom* or middle income econom* or low income econom* or lower income econom* or low gdp or low gnp or low gross domestic or low gross national or lower gdp or lower gnp or lower gross domestic or lower gross national or lmic or lmics or third world or lami countr* or transitional countr* or emerging economies or emerging nation?).ab,kf,sh,ti. | 480260 |
| 9 | 7 OR 8 | 2136183 |
| 10 | 3 AND 6 AND 9 | 1013 |
| 11 | 10 AND 2009:2022.(sa_year). | 715 |

https://ovidsp.ovid.com/ovidweb.cgi?T=JS&NEWS=N&PAGE=main&SHAREDSEARCHID=2OYrWdhIFjlLn8QXwfcL11nmTNUxsnSd4z15zo9KzJIPlMAEAfP6wFou5hMt7vFjK

*Web of Science Core Collection 2021-11-17*

| **Search number** | **Search terms** | **References** | **Comments** |
|---|---|---|---|
| 1 | **TOPIC:** (Infant* OR Newborn* OR Neonat* OR fetal OR foetal OR baby OR babies OR Neonatal ICU* OR Newborn ICU* OR NICU OR "Newborn Intensive Care Units" OR "Neonatal Intensive Care Units" OR "new born*" OR "newly born*") | 1,050,712 | |
| 2 | **TOPIC:** (Hypoxia-ischemia* OR Hypoxia Ischemia* OR Ischemia-Hypoxia* OR Hypoxic-ischemic OR Hypoxic-ischaemic OR Hypoxic Ischemic OR Ischemic-Hypoxic OR encephalopat* OR HIE) | 93,585 | |

| | | | |
|---|---|---|---|
| 3 | **TOPIC:** (afghanistan OR albania OR algeria OR american samoa OR angola OR antigua OR barbuda OR argentina OR armenia OR armenian OR aruba OR azerbaijan OR bahrain OR bangladesh OR barbados OR belarus OR byelarus OR belorussia OR byelorussian OR belize OR british honduras OR benin OR dahomey OR bhutan OR bolivia OR bosnia OR herzegovina OR botswana OR bechuanaland OR brazil OR brasil OR bulgaria OR burkina faso OR burkina fasso OR upper volta OR burundi OR urundi OR cabo verde OR cape verde OR cambodia OR kampuchea OR khmer republic OR cameroon OR cameron OR cameroun OR central african republic OR ubangi shari OR chad OR chile OR china OR colombia OR comoros OR comoro islands OR mayotte OR congo OR zaire OR costa rica OR cote d'ivoire OR cote d'ivoire OR cote d'ivoire OR ivory coast OR croatia OR cuba OR cyprus OR czech republic OR czechoslovakia OR djibouti OR french somaliland OR dominica OR dominican republic OR ecuador OR egypt OR united arab republic OR el salvador OR equatorial guinea OR spanish guinea OR eritrea OR estonia OR eswatini OR swaziland OR ethiopia OR fiji OR gabon OR gabonese republic OR gambia OR georgia OR georgian OR ghana OR gold coast OR gibraltar OR greece OR grenada OR guam OR guatemala OR guinea OR guyana OR guiana OR haiti OR hispaniola OR honduras OR hungary OR india OR indonesia OR timor OR iran OR iraq OR isle of man OR jamaica OR jordan OR kazakhstan OR kazakh OR kenya OR korea OR kosovo OR kyrgyzstan OR kirghizia OR kirgizstan OR kyrgyz republic OR kirghiz OR laos OR lao pdr OR lao people's democratic republic OR latvia OR lebanon OR lesotho OR basutoland OR liberia OR libya OR libyan arab jamahiriya OR lithuania OR macau OR macao OR macedonia OR madagascar OR malagasy republic OR malawi OR nyasaland OR malaysia OR maldives OR indian ocean OR mali OR malta OR micronesia OR kiribati OR marshall islands OR nauru OR northern mariana islands OR palau OR tuvalu OR mauritania OR mauritius OR mexico OR moldova OR moldovian OR mongolia OR montenegro OR morocco OR ifni OR mozambique OR portuguese east africa OR myanmar OR burma OR namibia OR nepal OR netherlands antilles OR nicaragua OR niger OR nigeria OR oman OR muscat OR pakistan OR panama OR papua new guinea OR paraguay OR peru OR philippines OR philipines OR phillipines OR phillippines OR poland OR | 5,180,415 | LMIC filter |

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|---|---|---|---|
| | polish people's republic OR portugal OR portuguese republic OR puerto rico OR romania OR russia OR russian federation OR ussr OR soviet union OR union of soviet socialist republics OR rwanda OR ruanda OR samoa OR pacific islands OR polynesia OR samoan islands OR sao tome and principe OR saudi arabia OR senegal OR serbia OR seychelles OR sierra leone OR slovakia OR slovak republic OR slovenia OR melanesia OR solomon island OR solomon islands OR norfolk island OR somalia OR south africa OR south sudan OR sri lanka OR ceylon OR saint kitts and nevis OR st kitts and nevis OR saint lucia OR st lucia OR saint vincent OR st vincent OR grenadines OR sudan OR suriname OR surinam OR syria OR syrian arab republic OR tajikistan OR tadjikistan OR tadzhikistan OR tadzhik OR tanzania OR tanganyika OR thailand OR siam OR timor leste OR east timor OR togo OR togolese republic OR tonga OR trinidad OR tobago OR tunisia OR turkey OR turkmenistan OR turkmen OR uganda OR ukraine OR uruguay OR uzbekistan OR uzbek OR vanuatu OR new hebrides OR venezuela OR vietnam OR viet nam OR middle east OR west bank OR gaza OR palestine OR yemen OR yugoslavia OR zambia OR zimbabwe OR northern rhodesia OR global south OR africa south of the sahara OR sub saharan africa OR subsaharan africa OR central africa OR north africa OR northern africa OR magreb OR maghrib OR sahara OR southern africa OR east africa OR eastern africa OR west africa OR western africa OR west indies OR indian ocean islands OR caribbean OR central america OR latin america OR south america OR central asia OR north asia OR northern asia OR southeastern asia OR south eastern asia OR southeast asia OR south east asia OR western asia OR east europe OR eastern europe OR developing country OR developing countries OR developing nation OR developing nations OR developing population OR developing populations OR developing world OR less developed country OR less developed countries OR less developed nation OR less developed nations OR less developed world OR lesser developed countries OR lesser developed nations OR under developed country OR under developed countries OR under developed nations OR under developed world OR underdeveloped country OR underdeveloped countries OR underdeveloped nation OR underdeveloped nations OR underdeveloped population OR underdeveloped populations OR underdeveloped world OR middle income country OR middle income countries OR middle income | | |

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|---|---|---|---|
| | nation OR middle income nations OR middle income population OR middle income populations OR low income country OR low income countries OR low income nation OR low income nations OR low income population OR low income populations OR lower income country OR lower income countries OR lower income nations OR lower income population OR lower income populations OR underserved countries OR underserved nations OR underserved population OR underserved populations OR under served population OR under served populations OR deprived countries OR deprived population OR deprived populations OR poor country OR poor countries OR poor nation OR poor nations OR poor population OR poor populations OR poor world OR poorer countries OR poorer nations OR poorer population OR poorer populations OR developing economy OR developing economies OR less developed economy OR less developed economies OR underdeveloped economies OR middle income economy OR middle income economies OR low income economy OR low income economies OR lower income economies OR low gdp OR low gnp OR low gross domestic OR low gross national OR lower gdp OR lower gross domestic OR lmic OR lmics OR third world OR lami country OR lami countries OR transitional country OR transitional countries OR emerging economies OR emerging nation OR emerging nations) | | |
| 4 | #1 AND #2 AND #3 | 1,142 | |
| 5 | #4 AND Timespan =2009-11-01 to 2021-12-31 (Publication date) | 851 | |

https://www.webofscience.com/wos/woscc/summary/cfdfa4bb-9dff-498d-b10f-c58c86cfa220-139ffd17/relevance/1

*WHO Global Index Medicus 2021-11-17: All indices*

| Search number | Search terms | References | Comments |
|---|---|---|---|
| 1 | Infant* OR Newborn* OR Neonat* OR fetal OR foetal OR baby OR babies OR Neonatal ICU* OR Newborn ICU* OR NICU OR "Newborn Intensive Care Units" OR "Neonatal Intensive Care Units" OR new born* OR newly born* [Title, Abstract, Subject] | 639 | DeCS/MeSH works only for material written in limited number of languages and was therefore not used |
| 2 | Hypoxia-ischemia* OR Hypoxia Ischemia* OR Ischemia-Hypoxia* OR Hypoxic-ischemic OR Hypoxic-ischaemic OR Hypoxic Ischemic OR Ischemic-Hypoxic OR encephalopat* OR HIE [Title, Abstract, Subject] | 51110 | |
| 3 | Infant* OR Newborn* OR Neonat* OR fetal OR foetal OR baby OR babies OR Neonatal ICU* OR Newborn ICU* OR NICU OR "Newborn Intensive Care Units" OR "Neonatal Intensive Care Units" OR new born* OR newly born* [Title, Abstract, Subject]<br><br>**AND**<br><br>Hypoxia-ischemia* OR Hypoxia Ischemia* OR Ischemia-Hypoxia* OR Hypoxic-ischemic OR Hypoxic-ischaemic OR Hypoxic Ischemic OR Ischemic-Hypoxic OR encephalopat* OR HIE [Title, Abstract, Subject] | 16 | |
| 4 | Year range: 2009 to 2022 | 10 | |

Supplementary Table 2: Reasons for study exclusion in full text screening phase

One record could have several reasons for exclusion, but only the first reason for exclusion in the order of screening is reported here (see Supplemetary Figure 2 for screening flow-chart).

| **Author, year** | **Reason(s) for exclusion** |
|---|---|
| (Abdallah et al., 2016) | Timing of NE diagnosis unclear |
| (AbdelAziz et al., 2017) | No valid clinical NE diagnosis (diagnosis by imaging) |
| (Abdel-Aziz et al., 2021) | No useful outcome |
| (Abdulqawi K et al., 2011) | Not LMIC |
| (Abiodun and Oluwafemi, 2017) | Timing of NE diagnosis unclear |
| (Abo et al., 2017) | Timing of NE diagnosis unclear |
| (Abo Shady et al., 2018) | Conference abstract |
| (Adhikari and Rao, 2017) | Timing of NE diagnosis unclear |
| (Adhikari and Paudel, 2020) | Timing of NE diagnosis unclear |
| (Agarwal et al., 2016) | Hypoxia diagnosis does not match |
| (Ahmad et al., 2018) | Included children ≥ 34 weeks of gestation |
| (Aker et al., 2019) | Same data as another included report (Aker 2021) |
| (Al Yazidi et al., 2015) | Not LMIC |
| (Alaro et al., 2014) | Hypoxia diagnosis does not match (Apgar < 7 at 5 min), also no useful outcome |
| (Aliyu et al., 2017) | Full text not found |
| (Allanson et al., 2018) | Not NE |
| (Alp et al., 2011) | No useful outcome |
| (Antil et al., 2020) | Not NE |
| (Anwar et al., 2021) | No valid clinical NE diagnosis |
| (Apaydın et al., 2021) | Hypoxia diagnosis does not match, no useful outcome as mortality not reported |
| (Arshad et al., 2018) | No valid clinical NE diagnosis |
| (Ashraf et al., 2016) | No valid clinical NE diagnosis |
| (Aslam et al., 2017) | Timing of NE diagnosis unclear |
| (Atici et al., 2015) | Likely same data as another included report (Celik 2015) |
| (Avasiloaiei et al., 2013) | No valid clinical NE diagnosis |
| (Baguiya et al., 2021) | Not NE |
| (Bahatkar and Aundhakar, 2021) | Timing of NE diagnosis unclear |
| (BAI Wen-Juan et al., 2021) | Hypoxia diagnosis does not match, not all were evaluated for NE within 24hrs |
| (Balestri et al., 2013) | Conference abstract |
| (Barrera-de Leon et al., 2013) | Timing of NE diagnosis within 48 hrs |
| (Barta et al., 2021) | Not LMIC |
| (Barycheva et al., 2021) | No valid clinical NE diagnosis |
| (Baştuğ et al., 2021) | No useful outcome |

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|---|---|
| (Basys et al., 2016) | No valid clinical NE diagnosis |
| (Bayitondere et al., 2018) | No valid clinical NE diagnosis |
| (Bhagwani et al., 2016) | Hypoxia diagnosis does not match |
| (Bhorat et al., 2021) | Review article |
| (Bischoff et al., 2021) | Not LMIC |
| (Boo and Cheah, 2016) | No valid clinical NE diagnosis |
| (Boskabadi et al., 2010) | Hypoxia diagnosis does not match |
| (Boskabadi et al., 2016) | Unclear if all babies were term, also Hypoxia diagnosis does not match |
| (Boskabadi et al., 2021) | Hypoxia diagnosis does not match |
| (Bradford et al., 2020) | No valid clinical NE diagnosis |
| (Brissaud et al., 2010) | Not LMIC |
| (Bruckmann and Velaphi, 2015) | Timing of NE diagnosis unclear |
| (Bundi et al., 2020) | Timing of NE diagnosis unclear |
| (Can et al., 2011) | Timing of NE diagnosis unclear |
| (Calkavur et al., 2011) | Timing of NE diagnosis unclear |
| (Carlo et al., 2013) | Not NE |
| (Cavallin et al., 2020) | No valid clinical NE diagnosis |
| (Ceran et al., 2021) | No useful outcome |
| (Chafer-Pericas et al., 2016) | Not LMIC |
| (Chandra and Prasadarao, 2019) | Timing of NE diagnosis unclear |
| (Chapagain et al., 2017) | Timing of NE diagnosis unclear |
| (Chen et al., 2012) | No valid clinical NE diagnosis |
| (Chen et al., 2018) | Full text not found |
| (CHEN Taoying et al., 2014) | Full text not found |
| (Chiabi et al., 2013) | Hypoxia diagnosis does not match |
| (Chiabi et al., 2021) | Hypoxia diagnosis does not match |
| (Chin et al., 2019) | Not LMIC |
| (Chock et al., 2021) | Not LMIC |
| (Choudhary et al., 2015) | Timing of NE diagnosis unclear |
| (Dalal and Nayan, 2013) | No valid clinical NE diagnosis |
| (Dani et al., 2013) | Not LMIC |
| (Dani et al., 2018) | Not LMIC |
| (Isadora D'Ávila Tassinari and Luciano Stürmer de Fraga, 2021) | Review article |
| (De Knijf and Pattinson, 2010) | No valid clinical NE diagnosis |
| (Denihan et al., 2019) | Not LMIC |
| (Doi et al., 2012) | Not LMIC |
| (Dominguez-Dieppa et al., 2021) | Timing of NE diagnosis unclear |
| (Doreswamy and Ramakrishnegowda, 2021) | Hypoxia diagnosis does not match |
| (Egharevba et al., 2018) | Timing of NE diagnosis unclear |
| (Eghbalian, 2010) | No valid clinical NE diagnosis |
| (Ekwochi et al., 2017) | Timing of NE dg >24 hrs in 36%, Apgar 0-5 at 5 min in only 32% |
| (El Bana et al., 2016) | Timing of NE diagnosis unclear |

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| (El Farargy and Soliman, 2019) | Timing of NE diagnosis unclear |
| (El Raggal et al., 2013) | No relevant outcome |
| (El-Gamasy and Nassar, 2017) | Timing of NE diagnosis unclear |
| (El-Gamasy and Alarabawy, 2018) | Timing of NE diagnosis unclear |
| (Elmahdy et al., 2010) | No usable outcome |
| (Elmoursi et al., 2021) | No usable outcome |
| (Elnady et al., 2018) | Unclear timing of NE diagnosis |
| (Ersdal et al., 2018) | Not NE |
| (Essajee et al., 2015) | Unclear timing of NE diagnosis |
| (Ezenwa et al., 2021) | Timing of NE diagnosis >24 hrs |
| (Fahmy et al., 2017) | No valid clinical NE diagnosis |
| (G. Mande et al., 2018) | Unclear timing of NE diagnosis |
| (Frey et al., 2018) | No valid clinical NE diagnosis |
| (Gane et al., 2014) | No valid clinical NE diagnosis |
| (Gane et al., 2016) | No relevant outcome |
| (Gane, Bahubali D. et al., 2013) | Not NE |
| (Gao et al., 2011) | Full text not found |
| (Garbutt and Trotman, 2009) | Timing of NE diagnosis unclear, also Hypoxia diagnosis does not match |
| (Garg et al., 2012) | Conference abstract |
| (Gathwala et al., 2010) | No valid clinical NE diagnosis |
| (Gebregziabher et al., 2020) | Timing of NE diagnosis unclear |
| (Ghobrial et al., 2018) | No valid clinical NE diagnosis |
| (Girish et al., 2018) | Timing of NE diagnosis unclear |
| (Glass et al., 2011a) | Not LMIC |
| (Glass et al., 2011b) | Not LMIC |
| (Goel et al., 2013) | Unclear Hypoxia criteria |
| (Graham et al., 2016) | No valid NE diagnosis |
| (Guan et al., 2017) | Timing of NE diagnosis unclear |
| (Gulczynska et al., 2012) | Conference abstract |
| (Gulczynska et al., 2014) | Conference abstract |
| (Gupta and Rana, 2018) | No valid NE diagnosis |
| (Gupta et al., 2014) | Timing of NE diagnosis unclear |
| (Hagag et al., 2019) | No relevant outcome |
| (Hamed et al., 2021) | Timing of NE diagnosis unclear |
| (He and Xie, 2020) | No valid clinical NE diagnosis |
| (Hassell et al., 2018) | No useful outcome |
| (Hekimoğlu and Aktürk Acar, 2021) | No valid clinical NE diagnosis |
| (Horn et al., 2013a) | Almost same data as in another included report (Horn 2013, Journal of Perinatal Medicine) |
| (Horn et al., 2009) | Almost same data as in another included report (Horn 2013, Journal of Perinatal Medicine) |

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| (Horn et al., 2013b) | Same data as in another included report (Horn 2013, Journal of Perinatal Medicine) |
| (Hou et al., 2017) | No valid NE diagnosis |
| (Huseynova et al., 2017) | Whole cohort low birth weight |
| (Imam et al., 2009) | Timing of NE diagnosis unclear |
| (Iqbal et al., 2021) | Hypoxia diagnosis does not match |
| (Issa et al., 2021) | Hypoxia diagnosis does not match |
| (Iwamoto et al., 2013) | Not LMIC |
| (Jiang and He, 2016) | Full text not found |
| (Jose et al., 2013) | Timing of NE diagnosis unclear |
| (Jose and K., 2017) | No valid clinical NE diagnosis |
| (Joseph et al., 2018) | Timing of NE diagnosis unclear |
| (Joy et al., 2013) | Mostly same data as another included article (Bharadjwaj 2012) |
| (Kali et al., 2015) | Hypoxia diagnosis does not match |
| (Kali et al., 2016) | Hypoxia diagnosis does not match |
| (Kamath et al., 2021) | Conference abstract |
| (Kanik et al., 2009) | Timing of NE diagnosis within 3 days |
| (Kedy Koum et al., 2014) | Timing of NE diagnosis unclear |
| (Khasawneh et al., 2020) | Timing of NE diagnosis unclear |
| (Khashaba et al., 2011) | Timing of NE diagnosis unclear |
| (Khodaparast et al., 2016) | No valid clinical NE diagnosis |
| (Kovacs et al., 2017) | Not LMIC |
| (Kozuki et al., 2017) | Timing of NE diagnosis within 7 days |
| (Kudreviciene et al., 2014) | Hypoxia diagnosis does not match |
| (Kulkarni et al., 2021) | Same data as another included report (Siddu Charki 2020) |
| (Kumar and Yadav, 2019) | Editorial |
| (Lakhkar et al., 2020) | Study protocol |
| (Leak et al., 2021) | No valid clinical NE diagnosis |
| (Lee et al., 2013) | Hypoxia criteria and timing of NE diagnosis do not match |
| (Li et al., 2019) | Timing of NE diagnosis unclear |
| (Li et al., 2011) | Full text not found |
| (LI et al., 2011) | Full text not found |
| (Li et al., 2009) | Hypoxia diagnosis does not match |
| (Liang et al., 2019) | Timing of NE diagnosis unclear |
| (LIN Ze-Peng et al., 2014) | Full text not found |
| (Liu et al., 2010) | No relevant outcome |
| (Liu et al., 2014) | No valid clinical NE diagnosis |
| (Liu et al., 2015) | No valid clinical NE diagnosis |
| (Liu et al., 2016) | No valid clinical NE diagnosis |
| (Liu et al., 2019a) | No valid clinical NE diagnosis |
| (Liu et al., 2019b) | Full text not found |

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| (Liu et al., 2020) | No valid clinical NE diagnosis |
| (Liu et al., 2021) | Hypoxia diagnosis does not match |
| (Locatelli et al., 2020) | Not LMIC |
| (Lopes-Pereira et al., 2019) | Not LMIC |
| (Lu Yunhong et al., 2019) | Full text not found |
| (LU et al., 2022) | Hypoxia diagnosis does not match |
| (Lv et al., 2017) | NE diagnosis not complete match, excluded cases with incomplete follow-up = no useful outcome |
| (Magai et al., 2020) | No valid clinical NE diagnosis |
| (Magai et al., 2021) | No valid clinical NE diagnosis |
| (Magai et al., 2019) | No valid clinical NE diagnosis |
| (Magalhaes et al., 2015) | Same data as in another included report (Kinoshita 2021) |
| (Malik et al., 2016) | No valid clinical NE diagnosis |
| (Manandhar and Basnet, 2019) | Timing of NE diagnosis unclear |
| (Manotas et al., 2018) | No valid clinical NE diagnosis |
| (Martinez et al., 2014) | No valid clinical NE diagnosis |
| (Matyanga et al., 2013) | Timing of NE diagnosis unclear |
| (Mah et al., 2017) | Timing of NE diagnosis unclear |
| (McIntyre et al., 2013) | Not LMIC |
| (Medani et al., 2014) | No valid clinical NE diagnosis |
| (Memon et al., 2012) | Hypoxia diagnosis does not match |
| (Mia et al., 2013) | Full text not found |
| (Milner et al., 2017) | No valid clinical NE diagnosis |
| (Mohamed and Kamel, 2021) | Timing of NE diagnosis unspecified |
| (Mohan et al., 2013) | No valid clinical NE diagnosis |
| (Mondal et al., 2010) | No valid clinical NE diagnosis |
| (Montaldo et al., 2020) | Same data as another included article (Thayyil 2021) |
| (Moniruzzaman et al., 2019) | Full text not found |
| (Moshiro et al., 2018) | Timing of NE diagnosis unclear |
| (Mullalli-Bime et al., 2016) | Conference abstract |
| (Mullany et al., 2013) | Same data as Lee 2011 |
| (Mwakyusa et al., 2009) | Timing of NE diagnosis unclear |
| (Mwaniki et al., 2010) | No valid NE diagnosis |
| (Namusoke et al., 2018) | Timing of NE diagnosis < 48 hrs |
| (Nangia et al., 2016) | Timing of NE diagnosis not specified |
| (Nath and Hazarika, 2016) | No valid NE diagnosis |
| (Nayeri et al., 2012) | Timing of NE diagnosis unclear |
| (Nevalainen et al., 2020) | Not LMIC |
| (Ngabireyimana et al., 2017) | No valid NE diagnosis |
| (Ogunfowora et al., 2019) | Timing of NE diagnosis unclear, no Hypoxia criteria |
| (Ogunkunle et al., 2020) | Timing NE diagnosis unclear |

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| (Okumuş et al., 2014) | No useful outcome |
| (Padayachee and Ballot, 2013) | Gestational age defined by birth weight |
| (Pang et al., 2021) | Hypoxia diagnosis does not match |
| (Parakh et al., 2019) | Hypoxia diagnosis does not match |
| (Patel et al., 2017) | Not NE |
| (Pattar et al., 2015) | Timing of NE diagnosis unclear |
| (PEI Xue-Mei et al., 2014) | Hypoxia diagnosis does not match |
| (Pejovic et al., 2020) | Timing of NE diagnosis unclear |
| (Peng et al., 2015) | Not LMIC |
| (Perez et al., 2017b) | Hypoxia diagnosis does not match |
| (Perez, 2015) | Editorial |
| (Perez et al., 2015) | Same data as included article (Perez 2018) |
| (Perez et al., 2017a) | No useful outcome |
| (Sola et al., 2013) | No useful outcome |
| (Perretta et al., 2020) | Not LMIC |
| (Prakash et al., 2016) | Hypoxia criteria do not match |
| (Preeti et al., 2019) | Hypoxia criteria do not match |
| (Prithviraj et al., 2016) | Timing of NE diagnosis 48-72 hrs |
| (Procianoy et al., 2019) | Same data as in another included study (Procianoy 2019) |
| (Pu et al., 2021) | Timing of NE diagnosis unclear |
| (Punchak et al., 2018) | Not NE |
| (Purkayastha et al., 2016) | No valid NE diagnosis |
| (Qureshi et al., 2010) | Timing of NE diagnosis unclear |
| (Savitha and Rajprakash, 2016) | No gestational age limit |
| (Raina et al., 2016) | Timing of NE diagnosis unclear |
| (Rajhans et al., 2012) | Conference abstract |
| (Rakesh et al., 2018) | Same data as in another included study (Catherine 2020). Also potential overlap with Olivera 2018 and Thomas 2018 |
| (Ramaganeshan et al., 2016) | No valid NE diagnosis |
| (Rathee and Prasad, 2014) | No valid NE diagnosis |
| (Rivera, 2015) | Not NE |
| (Robertson et al., 2011) | Trial protocol |
| (Robinson et al., 2021) | Not LMIC |
| (Rohit et al., 2015) | No valid NE diagnosis |
| (Roka et al., 2013) | No useful outcome |
| (Rule et al., 2017) | Timing of NE diagnosis within 48 hrs |
| (Sadeghnia and Mohammadpoor, 2019) | Not NE |
| (Salustiano et al., 2012) | No valid NE diagnosis |
| (Sebetseba et al., 2020) | No useful outcome |
| (See et al., 2012) | No useful outcome (included only babies who had CT/MRI done and a follow-up visit) |

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| (Seepana and Raju, 2019) | No valid NE diagnosis |
| (Seo et al., 2020) | Not LMIC |
| (Shalaby et al., 2021) | Timing of NE diagnosis unclear |
| (Shan, 2016) | Full text not found |
| (Shapiro et al., 2017) | Not LMIC |
| (Sharma et al., 2016) | Not NE |
| (Shrestha et al., 2016) | Timing of NE diagnosis unclear |
| (Shrestha et al., 2017) | No useful outcome (mixes NE and other diagnoses) |
| (Siddiqui and Butt, 2021) | Hypoxia diagnosis does not match |
| (Simiyu et al., 2017) | No gestational age limit |
| (Simovic et al., 2014) | Hypoxia diagnosis does not match |
| (Simovic et al., 2015) | Hypoxia diagnosis does not match |
| (Singh et al., 2021) | Hypoxia diagnosis does not match |
| (Song et al., 2016) | Not NE |
| (Sowjanya et al., 2016) | No gestational age limit |
| (Stofberg et al., 2020) | Hypoxia diagnosis does not match |
| (Sulthana et al., 2015) | No valid NE diagnosis |
| (Summanen et al., 2017) | Not LMIC |
| (Sun et al., 2014) | Full text not found |
| (Sunny et al., 2020) | No valid NE diagnosis |
| (Sunny et al., 2021a) | No valid NE diagnosis |
| (Sunny et al., 2021b) | Not NE |
| (Surkov, 2016) | Hypoxia diagnosis does not match |
| (Surkov, 2018) | Timing of NE diagnosis within 72 hrs |
| (Sweetman et al., 2012) | Conference abstract |
| (Szakmar et al., 2020) | Not LMIC |
| (Tagin et al., 2015) | Editorial |
| (Tajalli et al., 2021) | No valid NE diagnosis |
| (Talebian et al., 2015) | No valid NE diagnosis |
| (Tanigasalam et al., 2018) | Likely same data as in another included study (Catherine 2020). |
| (Tanigasalam et al., 2016) | Same data as another included study (Tanigasalam 2016) |
| (Tann et al., 2014) | Hypoxia diagnosis does not match |
| (Tann et al., 2015) | Conference abstract |
| (Tann et al., 2016) | Hypoxia diagnosis does not match |
| (Tann et al., 2018a) | Hypoxia diagnosis does not match |
| (Tann et al., 2018b) | Hypoxia diagnosis does not match |
| (Tann, 2010) | Conference abstract |
| (Tette et al., 2016) | Not NE |
| (Thayyil, 2018) | Editorial |
| (Thayyil et al., 2013) | Hypoxia diagnosis does not match |
| (Thomas et al., 2011) | Likely same data as in another included study (Shabeer 2017) |

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| (Thomas et al., 2015) | Likely same data as in another included study (Shabeer 2017) |
| (Thoresen et al., 2021) | Not LMIC |
| (Tian et al., 2021) | No valid NE diagnosis |
| (Torres-Munoz et al., 2017) | Hypoxia diagnosis does not match |
| (Torres-Munoz et al., 2021) | Unclear timing of NE diagnosis |
| (Tran et al., 2021) | No valid NE diagnosis (states that used TOBY criteria but no EEG was used), also lacks useful outcome |
| (Trotman and Garbutt, 2011) | Timing of NE diagnosis unclear |
| (Trotman and Olugbuyi, 2018) | Review |
| (Tskimanauri et al., 2017) | Full text not found |
| (Tunc et al., 2010) | Not NE |
| (Uleanya et al., 2019) | Not NE |
| (Van Anh et al., 2019) | No valid NE diagnosis |
| (van Deursen et al., 2019) | No valid NE diagnosis |
| (Viyas et al., 2019) | No useful outcome |
| (Wallander et al., 2014) | Not NE |
| (Walsh et al., 2012) | Not LMIC |
| (Wang et al., 2011) | No useful outcome (follow-up to 6 months only) |
| (Wang et al., 2018) | Gestational age and Hypoxia diagnosis unclear |
| (Wang et al., 2020) | According to inclusion criteria excluded post-term babies but according to Table 2 most cases were post-term |
| (Wang et al., 2021) | No useful outcome |
| (Wang Gang, 2017) | Full text not found |
| (Wei et al., 2012) | Timing of NE diagnosis unclear |
| (West and Opara, 2013) | No valid clinical NE diagnosis |
| (Wu et al., 2016) | No valid clinical NE diagnosis |
| (WU Yi-jun et al., 2015) | Full text not found |
| (Xin et al., 2019) | Not NE |
| (Xu et al., 2022) | No useful outcome |
| (Yadav et al., 2016) | Timing of NE diagnosis unclear |
| (Yang Yong, 2017) | Full text not found |
| (Yang, 2011) | Full text not found |
| (Yelamali et al., 2020) | Timing of NE diagnosis unclear |
| (Yin et al., 2014) | No valid clinical NE diagnosis |
| (Yuan et al., 2020) | Timing of NE diagnosis unclear |
| (Youn et al., 2016) | Not LMIC |
| (Yousef et al., 2021) | Timing of NE diagnosis unclear |
| (Zhang et al., 2020a) | Timing of NE diagnosis unclear |
| (Zhang et al., 2020b) | Not NE |
| (Zhang Yisen and Li Zhanhua, 2017) | Full text not found |

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| (Zhang, 2011) | Full text not found |
| (Zhang et al., 2016) | Full text not found |
| (Zhang et al., 2021) | Not original human study |
| (Zeng et al., 2021) | No valid clinical NE diagnosis |
| (Zhu et al., 2015) | No useful outcome |
| (Zhu et al., 2016) | No useful outcome |
| (Zou et al., 2010) | Full text not found |

NE = neonatal encephalopathy, LMIC = low- and middle-income country

*Total = 320*

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## Supplementary Table 3: Results of the Bias Evaluation and Modified Newcastle Ottawa Scale

See separate file “Supplementary Table 3.pdf”

## Supplementary Table 4: Additional information about included reports

See separate file “Supplementary Table 4.pdf”

## Supplementary Table 5: Neonatal Mortality Associated with Intrapartum-Related NE

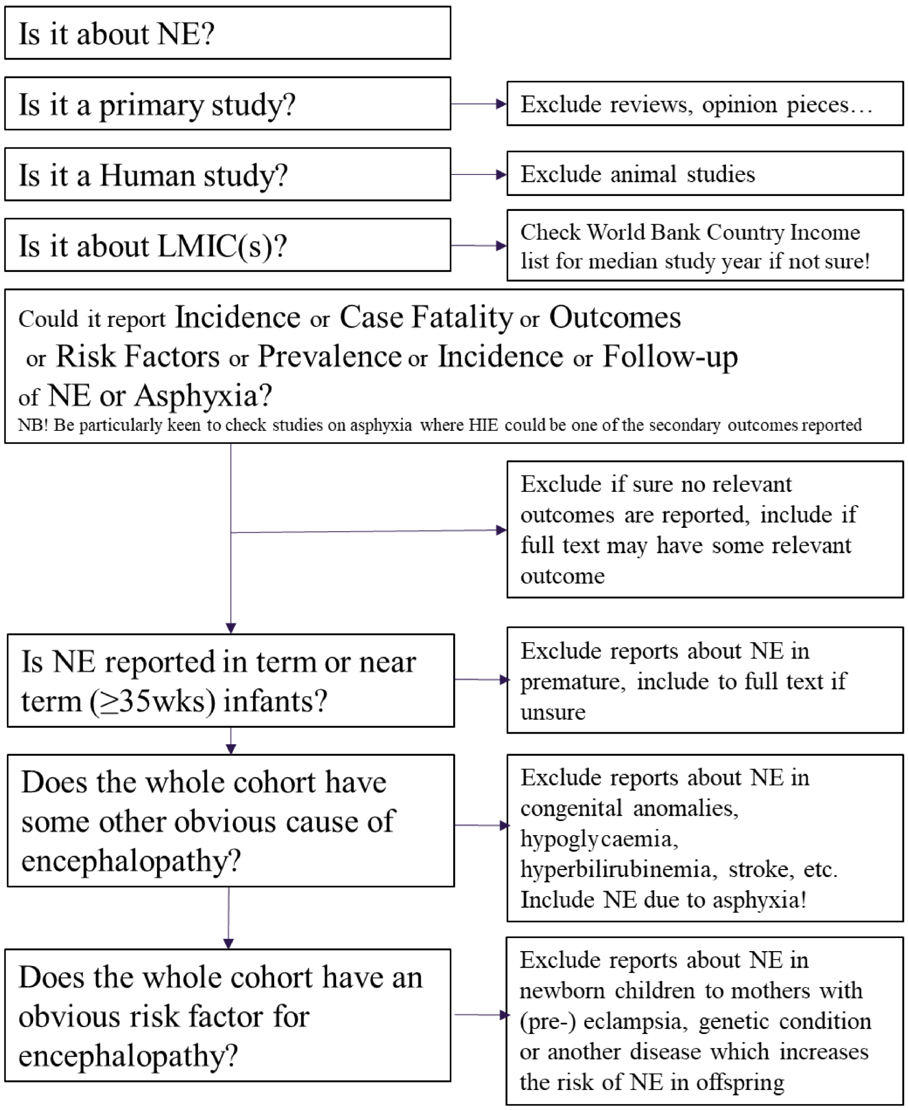
See separate file “Supplementary Table 5.pdf”

## Supplementary Table 6: Neurodevelopmental Outcomes Associated with Intrapartum-Related NE

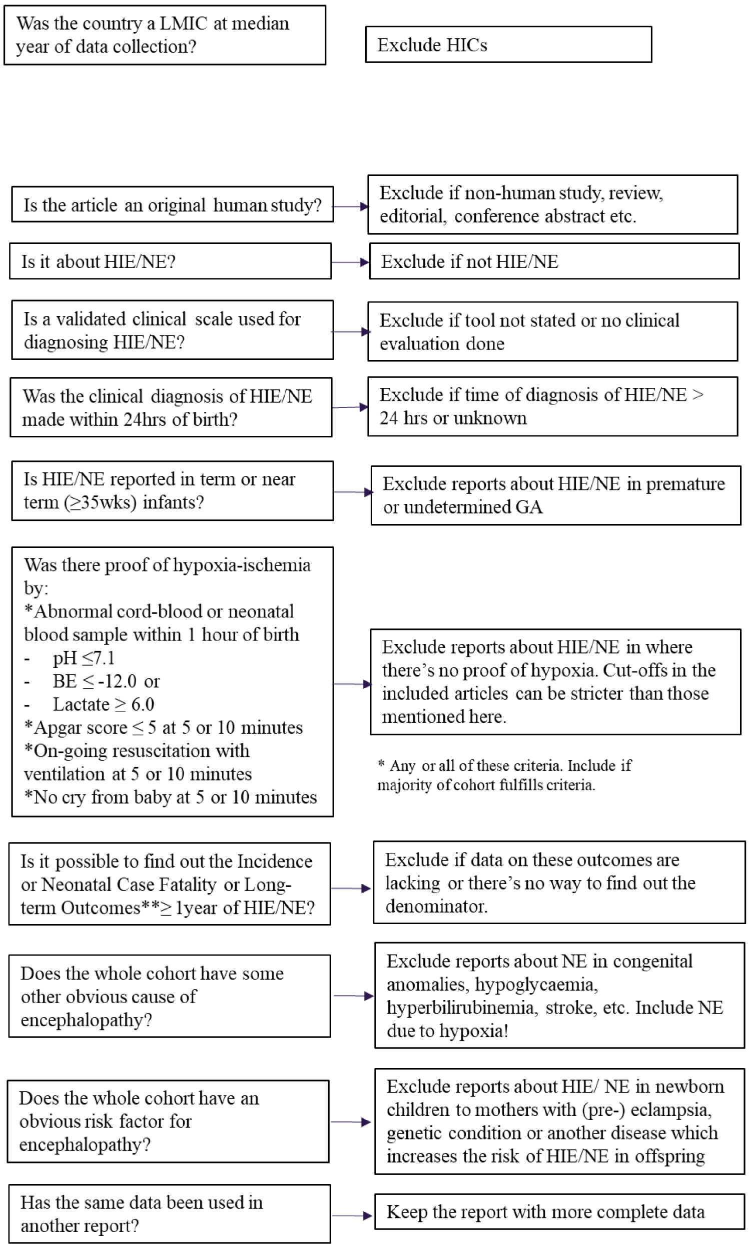
See separate file “Supplementary Table 6.pdf”

## Supplementary Figures

### Supplementary Figure 1: Abstract screening chart

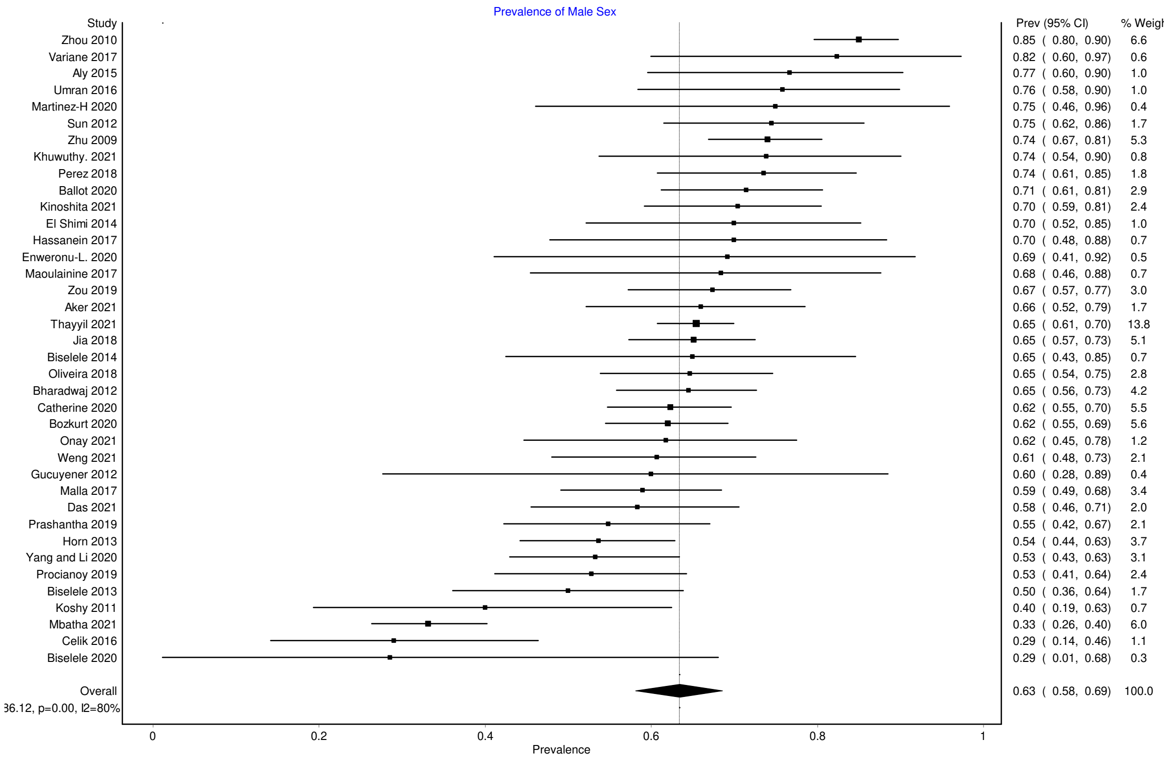


## Supplementary Figure 2: Full text screening chart

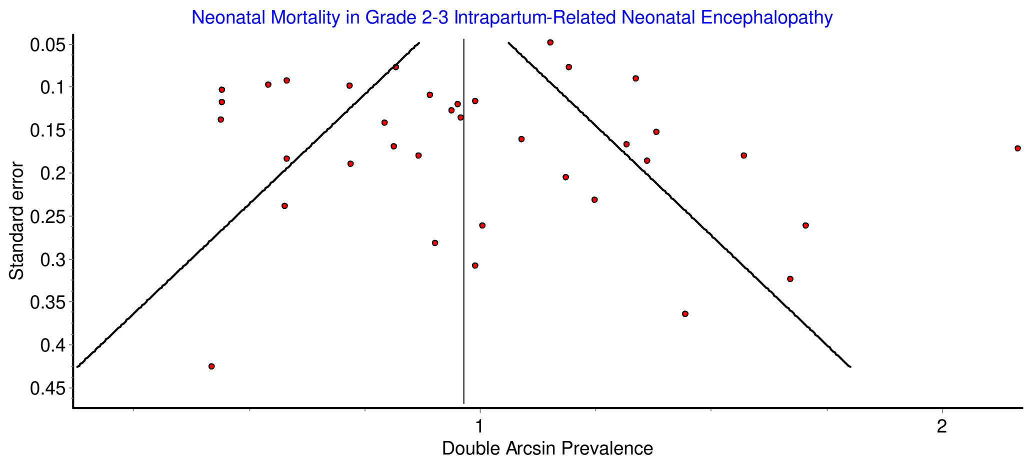



**Types of adverse neurodevelopmental outcomes considered are cerebral palsy; developmental delay assessed with any validated developmental assessment tool; intellectual impairment (intelligence quotient (IQ) 2 SD below mean); blindness (vision 6/60 in both eyes); sensorineural deafness requiring amplification; epilepsy

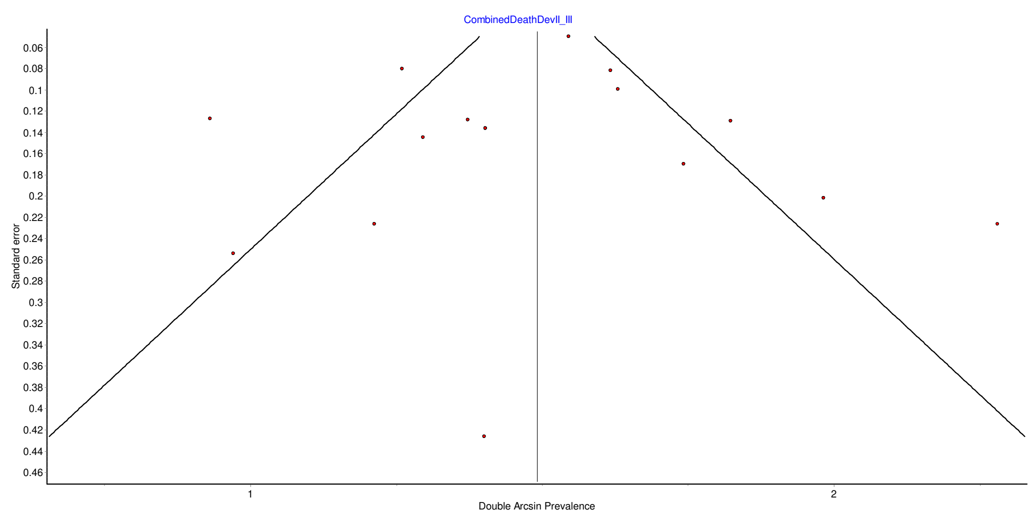
Supplementary Figure 3: Meta-analysis of the prevalence of male sex in the included studies



Supplementary Figure 4: Funnel plot of studies reporting neonatal mortality associated with grade II-III intrapartum-related neonatal encephalopathy

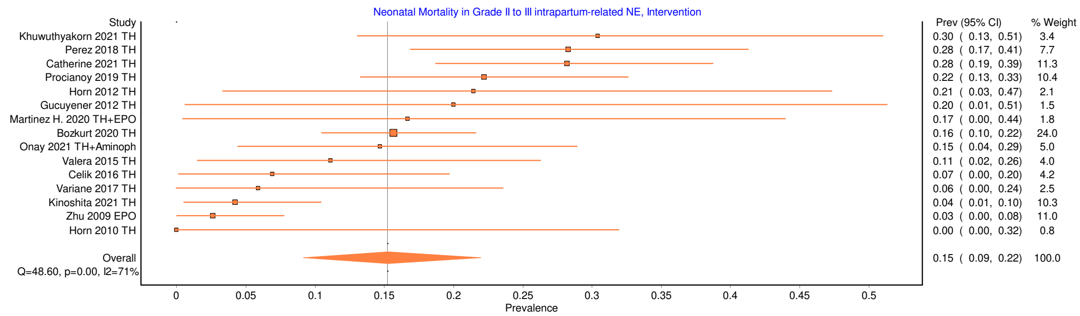



Supplementary Figure 5: Funnel plot of studies reporting combined death or moderate to severe neurodevelopmental outcome in grade II-III intrapartum-related neonatal encephalopathy

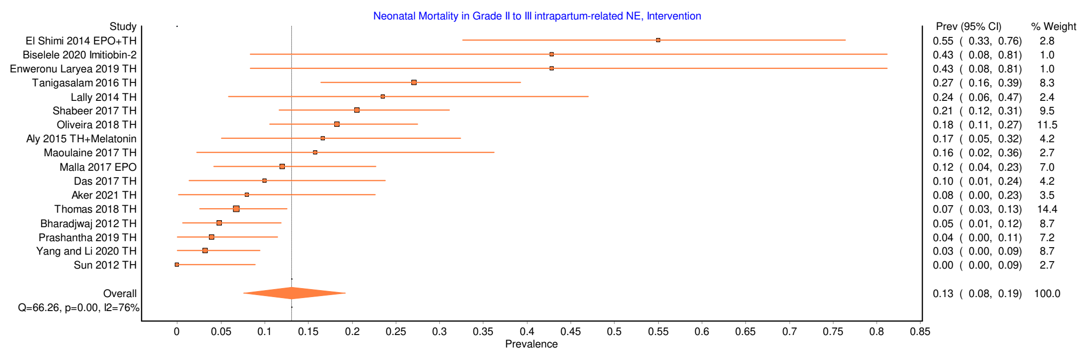


Supplementary Figure 6: Sub-group analyses of neonatal mortality by national neonatal mortality rate and country income group

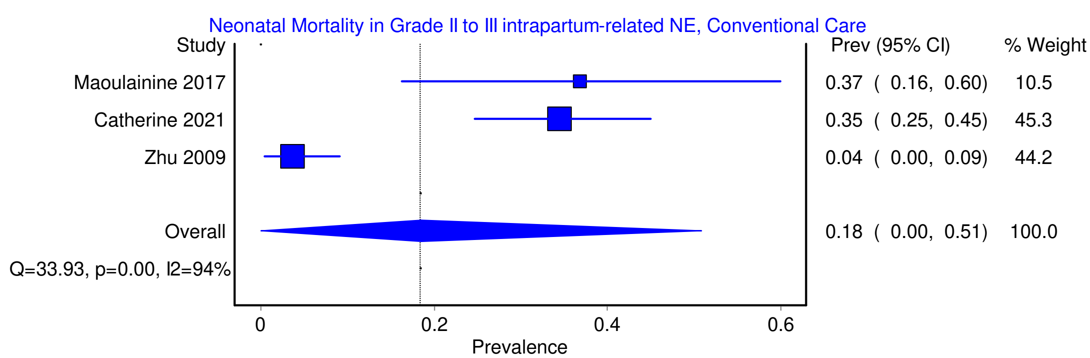
*Sub-group analysis: National neonatal mortality rate medium (5-15/1000), Intervention group*



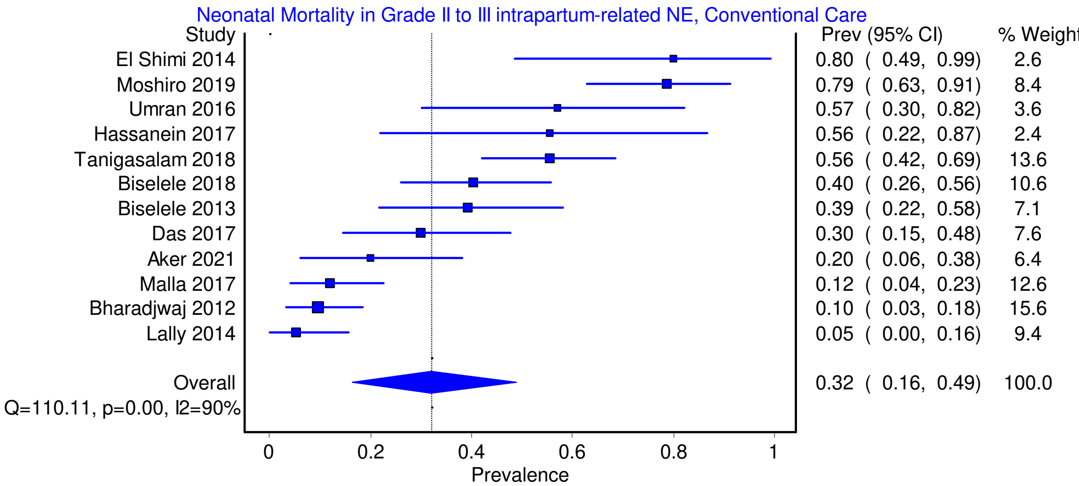
*Sub-group analysis: National neonatal mortality rate high (>15/1000), Intervention group*



*Sub-group analysis: National neonatal mortality rate medium (5-15/1000), Conventional care group*



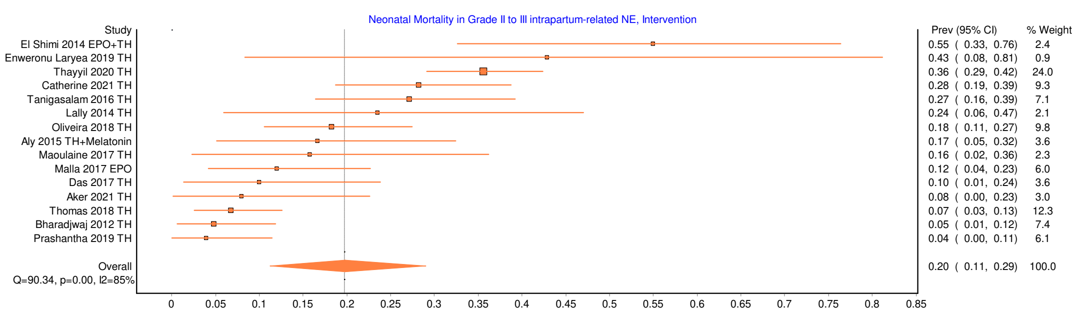
## *Sub-group analysis: National neonatal mortality rate high (>15/1000), Conventional care group*



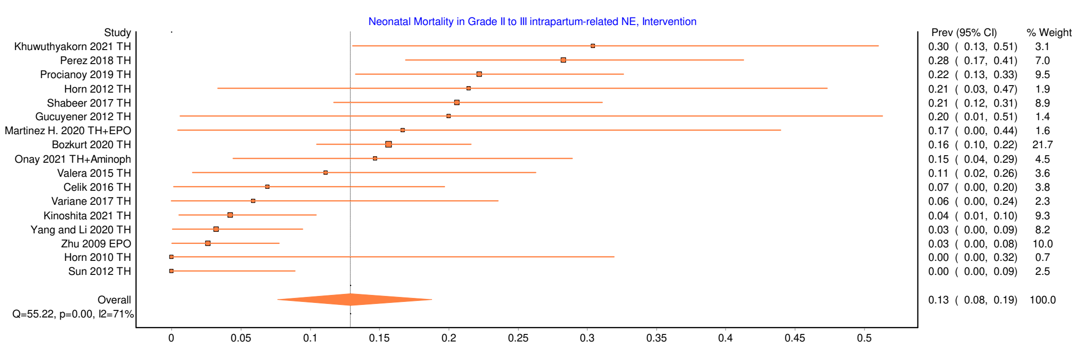

## *Sub-group analysis: World Bank Income Group Low, Intervention group*

N/A, only 1 study available

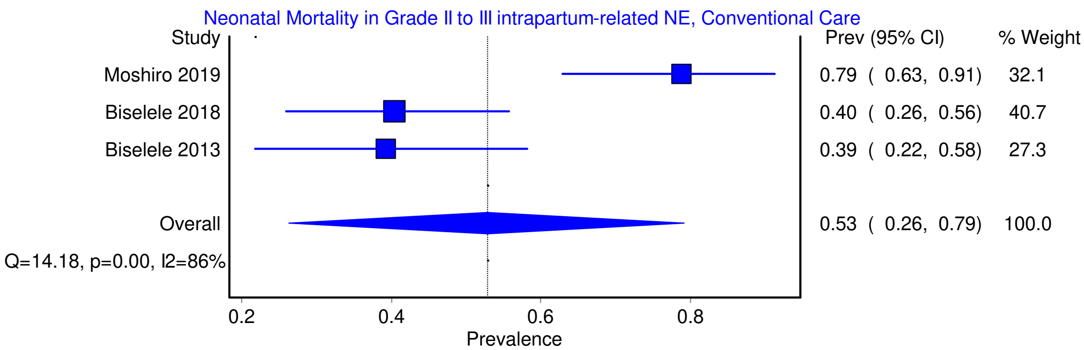
## *Sub-group analysis: World Bank Income Group Lower Middle, Intervention group*



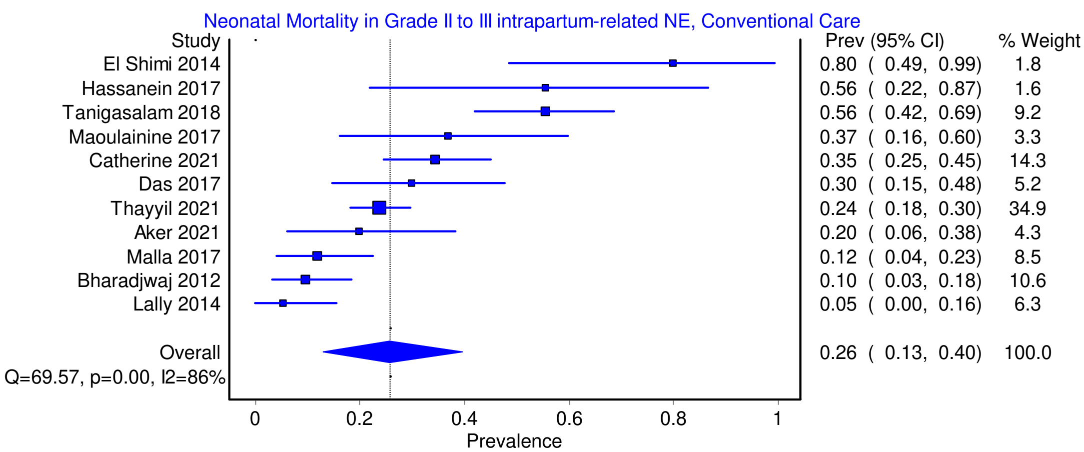

## *Sub-group analysis: World Bank Income Group Upper Middle, Intervention group*



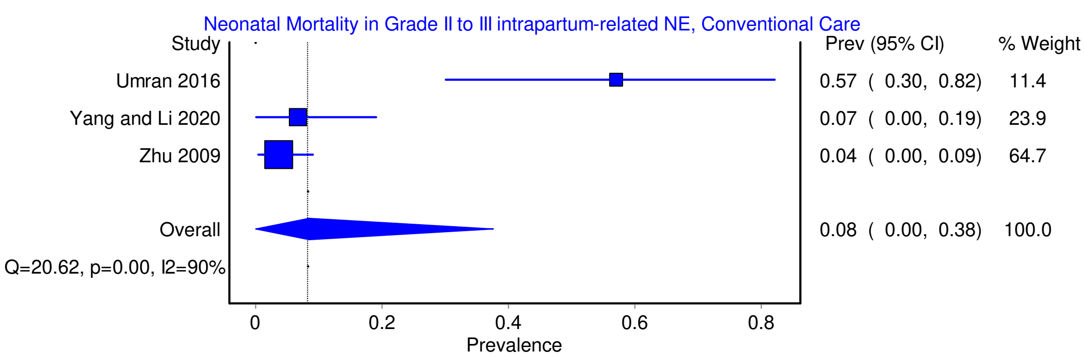
*Sub-group analysis: World Bank Income Group Low, Conventional care group*




*Sub-group analysis: World Bank Income Group Lower Middle, Conventional care group*

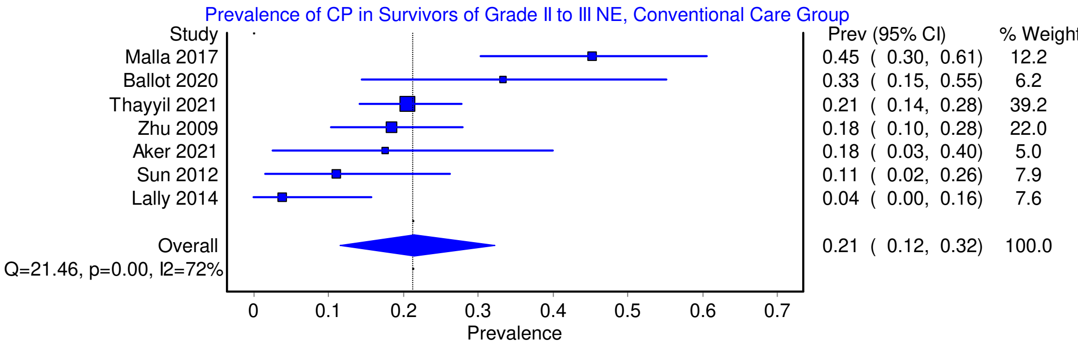



*Sub-group analysis: World Bank Income Group Upper Middle, Conventional care group*

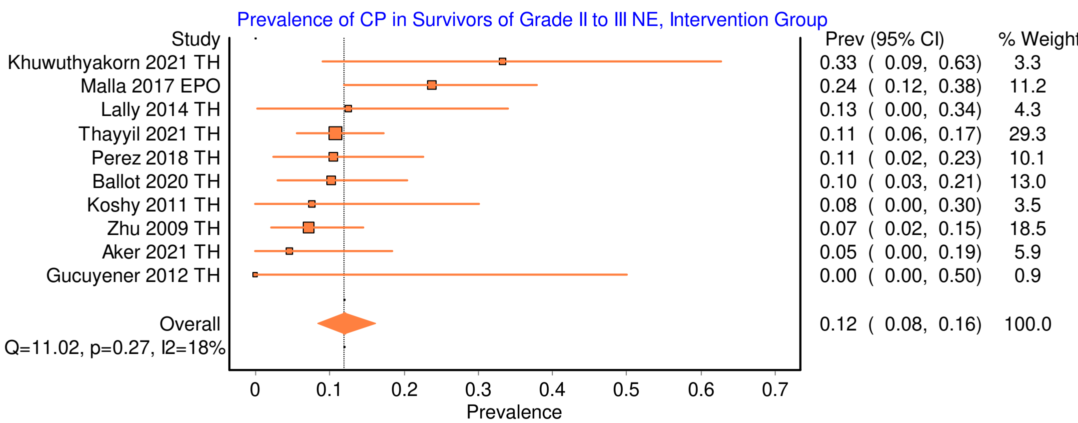


Supplementary Figure 7: Incidence of Cerebral Palsy in survivors of Grade II-III intrapartum-related neonatal encephalopathy after follow-up ≥ 1 year. A) Conventional care group B) Intervention group

a)




b)



# Supplementary Table 3: Results of the Bias Evaluation (see following sheets for the questionnaires used)

| **Author Year** | Incidence of NE | | | | | Outcomes of NE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Selection | | Outcomes | | | Selection | | Neonatal mortality | | | Developmental Outcomes | | | |
| | Representativeness | Ascertainment of hypoxia | Assessment of NE | Length of Follow-up | Adequacy of Follow-up | Representativeness | Ascertainment of NE | Assessment of death | Length of Follow-up | Adequacy of Follow-up | Assessment of dev.disability | Length of Follow-up | Adequacy of Follow-up | TOTAL STARS |
| **Incidence:** | | | | | | | | | | | | | | Max 2+3 |
| **Yang 2019** | a* | a* | b | b | d | | | | | | | | | 2+0 |
| **Incidence and neonatal mortality:** | | | | | | | | | | | | | | Max 2+3/2+3 |
| **Horn 2013** | a* | a* | b | b | b* | a* | b | a* | b | d | | | | 2+1/1+1 |
| **Moshiro 2020** | c | b | b | b | a* | c | c | a* | c | a* | | | | 0+1/0+2 |
| **Niaz 2021** | c | a* | b | b | a* | c | b | a* | b | a* | | | | 1+1/0+2 |
| **Incidence, neonatal mortality and developmental outcome:** | | | | | | | | | | | | | | Max 2+3/2+3+3 |
| **Lally 2014** | c | b | a* | b | a* | c | b | a* | b | a* | a* | a* | c | 0+2/0+2+2 |
| **Neonatal mortality:** | | | | | | | | | | | | | | Max 2+3 |
| **Aly 2015** | | | | | | c | c | a* | a* | a* | | | | 0+3 |
| **Bharadwaj 2012** | | | | | | c | b | a* | b | b* | | | | 0+2 |
| **Biselele 2013** | | | | | | c | b | a* | a* | d | | | | 0+2 |
| **Biselele 2020** | | | | | | c | b | a* | a* | d | | | | 0+2 |
| **Biselele 2018** | | | | | | c | a* | a* | b | b* | | | | 1+2 |
| **Biselele 2014** | | | | | | c | b | a* | b | d | | | | 0+1 |
| **Bozkurt 2020** | | | | | | c | b | a* | b | d | | | | 0+1 |
| **El Shimi 2014** | | | | | | c | b | a* | b | b* | | | | 0+2 |
| **Enweronu-L 2019** | | | | | | c | a* | a* | b | c | | | | 1+1 |
| **Hassanein 2017** | | | | | | c | b | b | c | a* | | | | 0+1 |
| **Horn 2010** | | | | | | c | b | a* | b | a* | | | | 0+2 |
| **Horn 2012** | | | | | | c | b | a* | b | a* | | | | 0+2 |
| **Kinoshita 2021** | | | | | | c | c | a* | b | c | | | | 0+1 |
| **Martinez-H 2020** | | | | | | c | b | a* | b | d | | | | 0+1 |
| **Oliveira 2018** | | | | | | c | c | a* | b | a* | | | | 0+2 |
| **Onay 2021** | | | | | | c | b | b | c | c | | | | 0+0 |
| **Prashantha 2019** | | | | | | c | b | a* | b | c | | | | 0+1 |
| **Shabeer 2017** | | | | | | c | b | a* | b | c | | | | 0+1 |
| **Shrestha 2020** | | | | | | c | b | a* | b | c | | | | 0+1 |
| **Tanigasalam 2016** | | | | | | c | b | a* | b | b* | | | | 0+2 |
| **Thomas 2018** | | | | | | c | b | a* | b | c | | | | 0+1 |
| **Umran 2016** | | | | | | c | b | a* | b | c | | | | 0+1 |
| **Variane 2017** | | | | | | c | b | b | c | c | | | | 0+0 |
| **Yang & Li 2020** | | | | | | c | b | a* | b | a* | | | | 0+2 |
| **Neonatal mortality and developmental outcome:** | | | | | | | | | | | | | | Max 2+3+3 |
| **Aker 2021** | | | | | | c | b | a* | a* | b* | a* | a* | b* | 0+3+3 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Catherine 2021** | | | | | | c | b | a* | c | d | a* | a* | b* | 0+1+3 |
| **Catherine 2020** | | | | | | c | b | a* | c | d | a* | a* | b* | 0+1+3 |
| **Celik 2015** | | | | | | c | b | a* | b | b* | a* | a* | b* | 0+2+3 |
| **Celik 2016** | | | | | | c | b | a* | b | b* | a* | a* | b* | 0+2+3 |
| **Das 2021** | | | | | | c | b | a* | a* | a* | a* | a* | a* | 0+3+3 |
| **Gucuyener 2012** | | | | | | c | b | a* | a* | a* | a* | a* | c | 0+3+2 |
| **Jia 2018** | | | | | | c | b | b | a* | a* | b | a* | a* | 0+2+2 |
| **Khuwuthyakorn 2021** | | | | | | c | b | b | b | a* | a* | a* | b* | 0+1+3 |
| **Malla 2017** | | | | | | c | a* | a* | a* | b* | a* | a* | a* | 1+3+3 |
| **Maoulainine 2017** | | | | | | b* | c | a* | b | d | b | a* | c | 1+1+1 |
| **Perez 2018** | | | | | | c | b | b | c | a* | a* | a* | a* | 0+1+3 |
| **Procianoy 2019** | | | | | | c | b | a* | b | a* | a* | a* | b* | 0+2+3 |
| **Sun 2012** | | | | | | c | a* | a* | a* | a* | a* | a* | a* | 1+3+3 |
| **Thayyil 2021** | | | | | | c | a* | a* | b | c | a* | a* | c | 1+1+2 |
| **Valera 2015** | | | | | | c | b | a* | a* | b* | a* | a* | b* | 0+3+3 |
| **Zhou 2010** | | | | | | c | a* | a* | c | d | a* | a* | c | 1+1+2 |
| **Zhu 2009** | | | | | | c | a* | a* | a* | c | a* | a* | c | 1+2+2 |
| **Zou 2019** | | | | | | c | a* | a* | b | a* | a* | a* | b* | 1+2+3 |
| | | | | | | | | | | | | | | |
| **<u>Developmental outcome:</u>** | | | | | | | | | | | | | | Max 2+3 |
| **Ballot 2020** | | | | | | c | b | | | | a* | a* | d | 0+2 |
| **Charki 2020** | | | | | | c | b | | | | b | a* | c | 0+1 |
| **Koshy 2011** | | | | | | c | b | | | | a* | a* | c | 0+2 |
| **Mbatha 2021** | | | | | | c | b | | | | a* | a* | c | 0+2 |
| **Weng 2021** | | | | | | c | c | | | | a* | a* | a* | 0+3 |
| | | | | | | | | | | | | | | |
| **SUM** | a* = 2 | a* = 2 | a* = 1 | a* = 0 | a* = 3 | a* = 1 | a* = 8 | a* = 40 | a* = 11 | a* = 17 | a* = 21 | a* = 24 | a* = 6 | |
| | b* = 0 | b = 4 | b = 5 | b = 6 | b* = 1 | b* = 1 | b = 37 | b = 6 | b = 28 | b* = 9 | b = 3 | b = 0 | b* = 8 | |
| | c = 4 | c = 0 | c = 0 | | c = 0 | c = 49 | c = 6 | | c = 7 | c = 11 | c = 0 | c = 0 | c = 9 | |
| | d = 0 | | | | d = 2 | d = 0 | d = 0 | | | d = 9 | | | d = 1 | |
| **Reports evaluated for the question** | 6 | 6 | 6 | 6 | 6 | 51 | 51 | 46 | 46 | 46 | 24 | 24 | 24 | |

**Supplementary Table 4: Additional information about included reports**

| Author Year | Main aim | Follow-up period | Lost to follow-up | Gest. Age | Hypoxia-ischemia definition | NE diagnosis | Exclusion criteria | Income Group | National NMR† | Setting | Public/ private |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **INCIDENCE:** | | | | | | | | | | | |
| **Yang 2019** | Incidence of NE with and without gestational hypertension | N/A | N/A | 37-42 | Any of: i) Apgar <3 at 1 min and Apgar <6 at 5min ii) > 10 min resuscitation or >2 min PPV via endotracheal tube | Neurological examination by Chinese Pediatric Society within 12hrs | Severe congenital malformations, multiple gestation, umbilical cord prolapse | UM | High | 27 hos-pitals | Unclear |
| **INCIDENCE AND NEONATAL MORTALITY:** | | | | | | | | | | | |
| **Horn 2013** | Compare incidence of NE using different criteria | Until discharge | Unclear | ≥36 | Several definitions | Several definitions | Severe congenital malformations, sepsis, neonatal abstinence, chromosomal syndromes | UM | Mid | 2 SEC and 1 TER | Public |
| **Moshiro 2020** | Cause of neonatal deaths | 7 days | Unclear | Term | Apgar <7 at 5 min | Thompson score after admission to NICU | Outborn | Low | High | Refer-ral hosp-ital | Private |
| **Niaz 2021** | Risk factors and outcomes of birth asphyxia | Until discharge | 0/97 | 34-40 (in analysis only 37-40) | Apgar 5 at 5min and no improvement to more than 7/10 at 20 minutes of age (SIC), or delayed cry at 5 min | Sarnat&Sarnat, no EEG, unclear timing | Dysmorphism, congenital heart defects, chromosomal abnormalities, congenital infections, infectious and metabolic causes of NE, outborn and birth weight <1000g | LM | High | TER | Public |

| Author Year | Main aim | Follow-up period | Lost to follow-up | Gest. Age | Hypoxia-ischemia definition | NE diagnosis | Exclusion criteria | Income Group | National NMR† | Setting | Public/ private |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **INCIDENCE, NEONATAL MORTALITY AND DEVELOPMENTAL OUTCOME:** | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lally 2014** | MR biomarkers to characterize brain injury in NE | NMR = until discharge Develop. = 42 m | NMR = 0/54, Develop= 10/54 | ≥36 | Any of: i) Resuscitation at birth ii) Apgar <6 at 5 min | Thompson >5 within 6 hrs | Birth weight <1800g, severe congenital malformations | LM | High | TER | Public |
| | | | | | **NEONATAL MORTALITY:** | | | | | | |
| **Aly 2015** | Efficacy of melatonin combined with TH | 2 weeks | 0/30 | 38-42 | Any of: i) Apgar <4 at 5 min and/or delayed first breath (45 min after birth); ii) metabolic or mixed acidosis with serum bicarbonate concentrations of < 12 mmol/l at initial blood gas analyses (SIC) | Sarnat&Sarnat <6hrs (unclear modification) | i) twin gestation; ii) maternal neuro-endocrinal disturbances including diabetes mellitus; iii) chorioamnionitis or congenital infections; iv) low birth weight <2500g; v) congenital malformations of the CNS or gastrointestinal anomalies; vi) chromosomal abnormalities; vii) moribund patient | LM | High | TER | Public |
| **Bharadwaj 2012** | Whether TH reduces death and NDD at 6m. | Until discharge | 4/130 | > 37 | pH<7 or BE - 12 or more (SIC) within 1 hr and ≥2 of: (i) Apgar ≤6 at 10 min; (ii) foetal distress; (iii) assisted ventilation ≥ 10 min; (iv) organ dysfunction; (v) acute perinatal event | Sarnat&Sarnat (no EEG) <6hrs | Serious congenital anomalies, outborn, no spontaneus respiration by 20 min | LM | High | TER | Public |
| **Biselele 2013** | Incidence and etiology of NE | Until discharge | Unclear | ≥36 | Any of: (i) Apgar <6 at 5 min, (ii) Resuscitation at 10 min, (iii) pH <7 and BE >16 within 1 hr | Sarnat&Sarnat (no EEG) within 24hrs | Severe congenital malformations | Low | High | TER | Public |

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| **Biselele 2020** | Safety and pharmacokinetics of II-imitiobin | Until discharge | Unclear | ≥ 36 | PPV with bag-and-mask ≥ 10 min | Thompson score of ≥7 at 1-3 hrs | 1) inability to insert umbilical catheter 2) major congenital or chromosomal abnormalities, 3) birth weight < 1800 g; 4) clear signs of infection, 5) moribund patients. | Low | High | 3 Public Hospitals | Public |
| **Biselele 2018** | Feasibility of TH defined as arrival to hospital <6hrs | Until discharge | 0/57 | ≥ 36 | Any of i) Apgar up to 5 at 5 min or ii) need of resuscitation ≥ 10 min | Thompson score of ≥7 at < 6 hrs | Severe congenital or chromosomal malformations | Low | High | 3 Public Hospitals | Public |
| **Biselele 2014** | Determine the evolution of Thompson score during first 6 hrs | Until discharge | Unclear | ≥ 36 | Any of: (i) Apgar <6 at 5 min, (ii) Resuscitation at 10 min, (iii) pH <7 and BE >16 within 1 hr | Thompson score ≥6 at < 1 hr | Congenital malformations | Low | High | TER | Public |
| **Bozkurt 2020** | Evaluate the incidence and severity of acute kidney injury in newborns treated with TH | Unclear | Unclear | ≥ 36 | pH < 7 or BD ≥ 16 in cord blood, if pH 7...7.15 and/or BD 10...15.9 then any of the following was also needed: i) Apgar score < 6, ii) ventilation ≥10 min iii) evidence of organ dysfunction. | Sarnat&Sarnat <6hrs | congenital renal anomalies, major congenital anomalies, IUGR and sepsis | UM | Mid | TER | Public |
| **El Shimi 2014** | Safety and efficacy of EPO | Until discharge | 1/30 | ≥ 37 | pH <7 or BE < -16 within 1 hr. If pH 7.01...7.15 or BE -10…-15.9 mmol/L or blood gas not available, both i) an acute perinatal event and ii) Apgar <6 at 10 min or assisted ventilation ≥ 10 min | Sarnat by NICHD Grade II-III | congenital renal anomalies, major congenital anomalies, IUGR and sepsis | LM | High | TER | Public |

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| **Enweronu-Laryea 2019** | Temperature profile of infants with NE | Until discharge | 0/14 | ≥36 | Both: i) Bag-mask resuscitation at birth and ii) Apgar <6 at 5 min | Thompson ≥7 or seizures | birth weight < 2000 g, imminent death and infants with major congenital malformations, swift recovery | LM | High | TER | Public |
| **Hassanein 2017** | Concentration of umbilical cord CD34+ stem cells | Unclear | 0/20 | ≥37 | pH of ≤7.0 and/or a BD of ≥16 within 1 hr. If pH 7.01...7.15 and/or the BD 10–15.9, additional criteria were used: i) Apgar <6 at 10min and ii)resuscitation with or without assisted ventilation 10 min (unclear if both were required) | aEEG and and Sarnat | congenital or chromosomal anomalies, multiple pregnancy, or parents refused enrollment | LM | Mid | TER | Public |
| **Horn 2010** | Temperature profile of a new cooling method | Until discharge | 0/5 | ≥36 | Any of: i) BD ≥ 16 within 1 hr, or ii) An abnormal intra-partum course and either Apgar < 7 at 10 min or continued respiratory support at 10 min | Clinical seizures or abnormal aEEG | Birth weight <2000g, major congenital abnormalities, active bleeding, obvious sepsis, persistent pulmonary hypertension, severe hypoglycaemia or electrolyte abnormality that did not respond to usual therapy | UM | Mid | TER | Public |

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| **Horn 2012** | Temperature profile | Until discharge | 0/14 | 36-42 | pH ≤7.0 or BD ≥16 in cord or within 1 hr. If pH was 7.01...7.15 or BD 10...15.9 or a blood gas was not available and one of following: acute perinatal event and Apgar ≤ 5 at 10min or assisted ventilation for 10 min | Sarnat NICHD grade II-III | Not reported | UM | Mid | SEC | Public |
| **Kinoshita 2021** | Feasibility and effectiveness of using ice packs to reach and maintain the TH target temperature | Until discharge (but reports one death at 28d) | 26207 | ≥35 | Not specified but reported mean Apgars, pH and BE were low | Modified Sarnat (unspecified) within 6 hrs | Not reported | UM | Mid | TER | Private |
| **Martinez-Hernandez 2020** | Analyse survival and neurological condition of neonates treated with TH | Until discharge | Unclear | >34 (incl 1 born w 34) | pH ≤ 7 or BD ≥ 16 in cord blood, if pH 7.01...7.15 or BD 10...15.9 during 1st hr of life (SIC) or if blood sample was not available then any of: i) adverse perinatal event ii) Apgar ≤ 5 at 10 min iii) ventilation at 10 min | Sarnat&Sarnat grade II-III within 6 hrs | Birth weight <1800g or major congenital malformations and chromosomal abnormalities incompatible with life | UM | Mid | TER | Unclear |
| **Oliveira 2018** | Feasibility and effectiveness of TH | Until discharge | Unclear | Term | Resuscitation at birth (mean (SD) Apgar at 5 min was 4.5 (1.3)) | NICHD Sarnat Grade II-III < 6 hrs | Birth weight < 1800g, moribund condition, major life-threatening congenital malformations, cooling device not available | LM | High | 5 TERs | Public |

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| **Onay 2021** | To compare the renal function of infants who received aminophylline during TH vs. TH alone | Unclear | Unclear | ≥36 | Both i) pH ≤7 or BE ≤ −16 within 1 hr and ii) Apgar <5 at 10 min or need for resuscitation at 10min | Sarnat&Sarnat stage II-III or pathlogic aEEG within 6 hrs | birth weight < 2000 g, central nervous system malformation, anatomical renal anomaly, chromosomal disorders, inborn error of metabolism, maternal chorioamnionitis, stroke, or drug exposure that might lead to neonatal encephalopathy, severe or diffuse parenchymal cranial hemorrhages | UM | Mid | TER | Public |
| **Prashantha 2019** | Efficacy and safety of TH | Until discharge | 11/62 | ≥36 | Inborn babies any of: i) pH <7 ii) BD ≥12 iii) Apgar <6 at 5 min iv) PPV ≥10 min. Outborn babies any of: i) no cry immediately after birth ii) required resuscitation iii) Apgar score <5 at 5min iv) need of respiratory support | NICHD Sarnat Grade II-III < 6 hrs | Birth weight < 1800g | LM | High | TER | Private |
| **Shabeer 2017** | Compare efficacy and safety of different TH methods | Until discharge | Unclear | ≥35 | Any of i) pH < 7 or BD >12 from cord blood; ii) Apgar < 5 at 5 min iii) resuscitation > 10 min | NICHD Sarnat Grade II-III within 6 hrs | Birth weight <1800g | LM | High | TER | Private |

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| **Shrestha 2020** | Association of Thompson score and early neonatal outcomes | Unclear (3 days?) | 0/20 | Term | pH < 7.0 within 1 hr included in review (original criteria Apgar <7 at 5min) | Thompson score day 1 | Congenital anomalies | LM | High | TER | Private |
| **Tanigasalam 2016** | Effectiveness of TH on acute kidney injury | Unclear (most deaths within 5 days) | 0/120 | Term | pH ≤7 or BD ≥ 12in cord blood and ≥2 of: i) Apgar ≤5 at 10 min, ii) fetal distress, iii) assisted ventilation for at least 10 min, iv) organ dysfunction | Sarnat&Sarnat Grade II-III < 6hrs | Extramural neonates, major congenital abnormalities, absence of spontaneous respiratory efforts by 20 min or history of maternal renal failure | LM | High | TER | Public |
| **Thomas 2018** | Feasibility and safety of TH | Until discharge | Unclear | ≥35 | Inborn: pH <7 or BD >12 in cord blood or Apgar <5 at 5 min or need for resuscitation for >10 min. Outborn: no cry/breathing immediately after birth or assistance for breathing soon after birth or Apgar <5 at 5 min | NICHD Sarnat Grade II-III < 6 hrs | Chromosomal disorder or major congenital anomaly | LM | High | 11 TERs | Both |
| **Umran 2016** | IGF-1 levels in NE | Until discharge | Unclear | 37-41+6 | All of: i) intrapartum fetal distress; ii) Apgar score <6 at 5 min; iii) need of mask-bag ventilation or intubation | Abnormal muscle tone, level of consciousness, posture, reflexes, myoclonus, pupils, seizures evaluated in < 6hrs | Congenital abnormalities, or confirmed inborn error of metabolism | UM | High | TER | Public |

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| **Variane 2017** | Correlate aEEG findings with mortality and neuroimaging findings | Until discharge | Unclear | ≥36 | ≥ 2 of the following: i) Apgar <6 at 6 min, ii) ventilation 10 min or iii) pH <7.1 or BE > -12 (SIC, unclear timing) | Modified Sarnat (unspecific) | genetical syndromes or congenital malformations not compatible with life | UM | Mid | TER | Private |
| **Yang & Li 2020** | Effect of TH on oxidative factors | 7 days | Unclear | ≥37 | Any 1 of: i) Apgar <4 at 1 min and <6 at 5-min, ii) pH <7.0 or BE ≤-16 in umbilicar artery, iii) resuscitation or mechanical ventilation was for 5 min | Chinese medical association society of pediatrics definition | Birth weight < 2500g, i) convulsions caused by electrolyte disorder, intracranial hemorrhage and birth injury, as well as brain injury caused by intrauterine infection, genetic and metabolic diseases, and other congenital diseases; ii) neonates with congenital malformation or congenital metabolic abnormality; and iii) intrauterine, prenatal or intrapartum infection. | UM | Low | TER | Public |
| **NEONATAL MORTALITY AND DEVELOPMENTAL OUTCOME:** | | | | | | | | | | | |
| **Aker 2021** | MRI at 5d to predict GMA at 3m and BSID-III score at 18m | NMR = Neonatal period, Develop. = 18 m | NMR = 0/50, Develop . = 3/50 | >35 | For inborn any of: pH <7 or BD ≥12 within 1 hr, Apgar ≤5 at 5 min, or PPV for ≥ 10min. For outborn no cry at birth | NICHD Sarnat Grade II-III < 6 hrs | Major congenital anomalies or imminent death | LM | High | TER | Private |

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| **Catherine 2021** | To assess the effect of therapeutic hypothermia on the outcome | NMR = Until discharge, Develop. = 18 m | NMR = 0/162, Develop. 7/158 | Term | pH<7 or BE < 12 within 1 hr and ≥2 of: (i) Apgar <6 at 10 min; (ii) foetal distress; (iii) assisted ventilation ≥ 10 min; (iv) organ dysfunction | Sarnat&Sarnat <6hrs | Serious congenital anomalies, outborn, no spontaneus respiration by 20 min | LM | Mid | TER | Public |
| **Catherine 2020** | Effect of TH on the levels of S100B and NSE and their usefulness in predicting NDD | NMR = Until discharge, Develop. = 18 m | NMR = 0/162, Develop. = 7/158 | Term | pH<7 or BE < 12 within 1 hr and ≥2 of: (i) Apgar <6 at 10 min; (ii) foetal distress; (iii) assisted ventilation ≥ 10 min; (iv) organ dysfunction | Sarnat&Sarnat <6hrs | Serious congenital anomalies, outborn, no spontaneus respiration by 20 min | LM | Mid | TER | Public |
| **Celik 2015** | Effects of TH on neuronal biomarkers | NMR = Until discharge, Develop. = 12 m | 0/7 | > 36 | Any of: (i) Apgar score <5 at 10 min of age, (ii) Continued need for ventilation 10 min after birth (iii) pH <7 or BE < -16 within 1 hr | aEEG and Levene staging <6hrs | >6 h of age, severe congenital, anomalies or severe intrauterine growth retardation | UM | Mid | TER | Public |
| **Celik 2016** | Differences in outcome of whole body hypothermia and selective head cooling | NMR = Until discharge, Develop. = 12 m | 1/30 (1 cessation of cooling) | ≥ 36 | Apgar ≤5 at 10 min, PPV 10 min after delivery, or pH <7.0 or base excess ≤ -16 within 1 h after birth | aEEG and Levene staging <6hrs | >6 h of age, severe congenital, anomalies or severe intrauterine growth retardation | UM | Mid | TER | Public |

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| **Das 2021** | Safety and effectiveness of TH | NMR = Until discharge , Develop. = 30 m | Both 0/60 | ≥ 37 | pH < 7 or BE< -12 and ≥ 2 of: i) Apgar < 6 at 10 min ii) PPV > 1 min, or first cry delayed > 5 min iii) Perinatal predisposition for asphyxia | Sarnat (own modification) <6 hrs | SGA, chromosomal or major congenital anomalies, refusal of consent, major intracranial hemorrhage, birth weight < 2000g, no spontaneous respiration ≥ 20 min | LM | High | TER | Public |
| **Gucuyener 2012** | Association between aEEG and NIRS during TH and short and long-term outcome | NMR = neonatal, Develop. = 18 m (incl. 4 additional cases with <12m follow- | NMR = 0/10, Develop. = 0/5 | Term | Unclear if both or either: Apgar <5 at 5 min and/or cord blood pH <7.0 | Sarnat & Sarnat Grade II-III and aEEG or seizures | Not reported | UM | Mid | TER | Public |
| **Jia 2018** | Effect of timing of TH on aEEG and NSE after 3d and neonatal death or severe disability at 18m (lacks information on death beyond neonatal period) | NMR = neonatal, Develop. = 18 m | Both 0/152 | ≥36 | Any of: i) Apgar ≤ 5 at 5 min; ii) ventilation for 10 min; iii) pH ≤ 7 (unclear timing) | Sarnat&Sarnat within 12 hrs | 1) major congenital abnormalities; 2) known or suspected chromosomal abnormalities; 3) major brain malformations; or 4) aEEG abnormalities from causes other than HIE | UM | Mid | TER | Public |

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| **Khuwuthyakorn 2021** | Long-term outcomes after TH | NMR = Until discharge, Develop. = ≥ 24 m | NMR = 0/23, Develop. = 3/23 (3 additional with incomplete follow-up) | ≥35 | ≥ 2 of: i)Apgar ≤5 at 10 min, ii)PPV or continued resuscitation 10 min, iii) pH < 7 or BD >16 within 1 hr | Modified Sarnat (unspecified) within 6 hrs | Birth weight <1800g | UM | Mid | TER | Public |
| **Malla 2017** | Efficacy and safety of EPO | NMR = Neonatal period, Develop. = 19 m | Both 0/50 | ≥37 | Apgar <5 at 10 min and ≥2 of: i) fetal distress ii) ventilation ≥10 min iii) pH <7 or BD ≥ 16 or | NICHD Sarnat Grade II-III < 6 hrs | Congenital or chromosomal anomalies, congenital infections, severe IUGR, inborn errors of metabolism | LM | High | TER | Public |
| **Maoulainine 2017** | Feasibility of TH | NMR = Until discharge, Develop. = 18 m | NMR = unclear, Develop = 19 % in TH and 42 % NT | ≥36 | Not specified (95 % had Apgar <6 at 5 min) | Sarnat&Sarnat within 6 hrs for cooled, unspecified for non-cooled | Birth weight < 1800g, imperforate anus, major intracranial hemorrhage, and severe chromosomal or congenital anomalies | LM | High | TER | Public |
| **Perez 2018** | Efficacy of a new cooling method | NMR = Unclear, Develop. = 18-24m | Both = 0/53 | ≥35 | pH < 7.1 (timing and source unspecified) or requiring ventilatory support (timing unspecified) | Sarnat&Sarnat (without EEG) or SIBEN Grade II-III within 6 hrs | Not reported | UM | Mid | 3 TERs | Private |

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| **Procianoy 2019** | Describe the experience of TH | NMR = Until discharge Develop. = 12 m | NMR = unclear, Develop. = 13/72 | ≥36 | pH <7 or BD <15 (SIC) within 1 hr, or acute perinatal event, or Apgar <6 at 10 min, or ventilation ≥10 min | Sarnat&Sarnat Grade II-III < 6 hrs | birth weight < 1800g, major congenital malformations | UM | Mid | TER | Public |
| **Sun 2012** | Effect of TH on levels of NSE and S-100 protein in CSF | NMR = Neonatal period, Develop. = 12 m | Both 0/51 | ≥37 | Any of following: i) Apgar score <4 at 1 min and <6 at 5 min, ii) pH <7 or ≤ BD 16 (SIC) iii) resuscitation or ventilation at 5 min | Sarnat&Sarnat in < 6 hrs | <2500g, major congenital abnormalities, infection on admission (rupture of membranes >18 h, maternal fever >38C or foul-smelling amniotic fluid), other encephalopathy | LM | High | TER | Public |
| **Thayyil 2021** | Efficacy of TH on death and moderate to severe developmental disability | NMR = Until discharge, Develop. = 20 m | NMR = unclear, Develop. = 14/408 | ≥36 | Hospital born: resuscitation at 5 min and/or Apgar <6 at 5 min. Home born: no cry by 5 min | NICHD Sarnat Grade II-III 1-6hrs age | Birth weight <1800g, no heart rate at 10 min despite adequate resuscitation, life threatening congenital malformations, parents unable to attend follow-up | All LM | Low & High | 7 TER | Public |

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| **Valera 2015** | Describe the implementation of TH | NMR = Neonatal period, Develop. = > 12 m | NMR = 0/27, Develop. = 3/27 lost and 5/27 were < 12m | ≥36 | Inborn: all of i) Apgar < 6 at 10 min, ii) pH ≤ 7 or BD ≥-16 (SIC), iii) sentinel event and iv) assisted ventilation ≥ 10 min | Sarnat&Sarnat in < 6 hrs | Moribund patient not fit for transfer or arrival > 6hrs of life | UM | Mid | TER | Public |
| **Zhou 2010** | Randomized controlled trial of selective head cooling to treat infants with NE | NMR = Unclear, Develop. = 18 m | NMR = unclear, Develop. = 41/194 | ≥ 37 | All of (?): i) Apgar <4 at 1 min and <6 at 5 min, ii) pH <7 or BD ≤ 16 (SIC) in cord blood iii) resuscitation or ventilation at 5 min | Sarnat&Sarnat in < 6 hrs | Birth weight < 2500g, major congenital abnormalities, Infection (rupture of membranes >18 hours or maternal fever >38C or amniotic fluid foul smell), other encephalopathy (neonatal stroke, central nervous system) | UM | High | 12 hospitals | Public |

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| **Zhu 2009** | Efficacy and safety of EPO | NMR = neonatal, Develop. = 18 m | NMR = unclear, but 118/285 potential cases were excluded, Develop. = 14/167 | >37 | Apgar scores of <6 at 5 min or resuscitation at 10 min | Sarnat & Sarnat Grade II-III | Birth weight < 2500g, major congenital abnormalities, head trauma or skull fracture causing intracranial hemorrhage, body temperature of 34°C, financial problems of the parents, lack of permanent address, and postnatal age of > 48 hrs | UM | Mid | 2 TER | Public |
| **Zou 2019** | Hyperbilirubinemia as a risk factor for HIE and whether TH affected bilirubin levels | NMR = Until discharge, Develop. = 18-24 m | NMR = 0/89, Develop. = 3/89 | ≥ 37 | All of (?): i) Apgar <4 at 1 min and <6 at 5 min, ii) pH <7 or BD ≤ 16 (SIC) in cord blood iii) resuscitation or ventilation at 5 min | Sarnat&Sarnat in < 6 hrs | Birth weight < 2500g, major congenital abnormalities, Infection (rupture of membranes >18 hours or maternal fever >38C or amniotic fluid foul smell), other encephalopathy | UM | Mid | TER | Public |
| **DEVELOPMENTAL OUTCOME:** | | | | | | | | | | | |

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| **Ballot 2020** | To compare developmental outcomes in survivors of NE with those in healthy children born at full term | 9-18 m (mean 14.31 m (95% CI 13.3 - 15.3) | 15/99 | > 36 | Any one: Resuscitation >10 min, BE ≤16 (SIC) within 1 hr, Apgar <5 at 10 min | Sarnat&Sarnat <6hrs for TH, undefined for others | Birth weight < 2000g | UM | Mid | TER | Public |
| **Charki 2020** | Outcomes of TH | 18 m | 54/210 (87 %, based on 32 cases death or DAMA + 22 lost) | > 36 | Arterial blood gas pH <7.1 and BD >16, timing not specified | Sarnat & Sarnat Grade II-III, EEG not mentioned | Birth weight <1800 g, severe chromosomal or congenital anomalies, major intracranial hemorrhage, refusal from parents | LM | High | TER | Public |

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| **Koshy 2011** | Evaluate NDD after TH | 18-24 | 5/20 | ≥35 | Inborn: pH < 7.0 or BD ≥ 12 and ≥2 of: i) Apgar ≤5 at 5 min; ii) ventilation for ≥ 10 min; iii) Perinatal predisposition to perinatal asphyxia. Outborn: not having cried/breathed immediately after birth with evidence of any of: i) not breathing normally at 5min; ii) given assistance for breathing soon after birth; iii) flaccid since birth; iv) poor feeding; v) Apgar ≤5 at 5 min encephalopathy at admission | NICHD Sarnat Grade II-III <5 hrs age | Small for gestational age, chromosomal or major congenital anomaly, refusal of consent, or inability to start cooling by 5 hrs' age | LM | High | TER | Private |

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| **Mbatha 2021** | To determine the long-term outcome of neonates managed with TH outside of NICU | 12-24m | 56/113 | >36 | Apgar ≤ 5 at 10 min or need for resuscitation for ≥ 10min or pH <7.00 or BD ≥16 in cord blood or within 1 hr of birth | Lethargy, stupor, or coma and either hypotonia, abnormal reflexes, an absent or weak suck, or clinical seizures, and abnormal background activity in aEEG | Major congenital abnormalities | UM | Mid | TER | Public |
| **Weng 2021** | Effect of TH on aEEG after 3d, NBNA at 28d and BSID-II at 18m | 18 m | 0/61 | ≥35 | Both i) Apgar score ≤ 3 1 min or ≤ 5 at 5 min; and ii) pH ≤ 7.0 or BD ≥ 16 in the umbilical cord or arterial blood < 1hr | Clinical Sarnat&Sarnat or aEEG | Birth weigt < 1800g, normal aEEG monitoring; serious congenital malformations; traumatic brain injury or moderate to severe intracranial hemorrhage; systemic congenital viral or bacterial infection; spontaneous bleeding tendency or platelets less than 50∗10^9/L 12 hrs after birth | UM | Mid | TER | Public |

aEEG = amplitude-integrated electroencephalography
BD = Base Deficit
BE = Base Excess
BSID = Bayley Scales of Infant Development
CNS = central nervous systeme
CSF = cerebrospinal fluid
DAMA = discharge against medical advice
EEG = electroencephalography
EPO = erythropoietin
GMA = general movements assessment
IUGR = intrauterine growth restriction
LM = Lower middle-income country
MRI =magnetic resonance imaging
NBNA = neonatal behavioural neurological assessment
NDD = neurodevelopmental disability
NICHD = National Institute of Child Health and Development
NICU = Neonatal Intensive Care Unit
NMR = Neonatal Mortality Rate
NSE = neuronal specific endolase
NT = normothermia
PPV = postive pressure ventilation
SD = Standard Deviation
SEC = Secondary Hospital
TER = Tertiary Hospital
TH = Therapeutic hypothermia

| | | | |
|---|---|---|---|
| | Low | <5 | per |
| Neonatal Mortaliry Rate, | Mid | 5-15 | 1000 |
| | High | >15 | live |

**Supplementary Table 5: Neonatal Mortality Associated with Intrapartum-Related NE**

| | USUAL CARE | | | | | | | | | | | INTERVENTION | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Author Year** | Any grade cases | Any grade deaths | Any grade deaths/1000 | Gr I cases | Gr I deaths | Gr II cases | Gr II deaths | Gr III cases | Gr III deaths | Gr II-III cases | Gr II-III deaths | Any grade cases | Any grade deaths | Any grade deaths/1000 | Gr I cases | Gr I deaths | Gr II cases | Gr II deaths | Gr III cases | Gr III deaths | Gr II-III cases | Gr II-III deaths | Comments |
| Aker 2021 | 25 | 5 | 200.0 | | | 24 | | 1 | | 25 | 5 | 25 | 2 | 80.0 | | | 24 | | 1 | | 25 | 2 | Sarnat grade of deaths not specified |
| Aly 2015 | | | | | | | | | | | | 30 | 5 | 166.7 | | | 24 | | 6 | | 30 | 5 | Sarnat grade of deaths not specified |
| Bharadjwaj 2012 | 62 | 6 | 96.8 | | | 54 | | 7 | | 62 | 6 | 62 | 3 | 48.4 | | | 55 | | 8 | | 62 | 3 | Sarnat grade of deaths not specified |
| Biselele 2020 | | | | | | | | | | | | 7 | 3 | 428.6 | | | | | | | 7 | 3 | |
| Biselele 2018 | 57 | 25 | 438.6 | 30 | 8 | 9 | 6 | 3 | 3 | 42 | 17 | | | | | | | | | | | | |
| Biselele 2013 | 44 | 14 | 318.2 | 16 | 1 | 20 | 7 | 8 | 4 | 28 | 11 | | | | | | | | | | | | |
| Biselele 2014 | 19 | 3 | 157.9 | | | | | | | | | | | | | | | | | | | | |
| Bozkurt 2020 | | | | | | | | | | | | 166 | 26 | 156.6 | | | 117 | | 49 | | 166 | 26 | Sarnat grade of deaths not specified |
| Catherine 2021 | 84 | 29 | 345.2 | | | | | | | 84 | 29 | 78 | 22 | 282.1 | | | | | | | 78 | 22 | |
| Celik 2015 ** | 7 | 0 | 0.0 | 7 | 0 | | | | | | | | | | | | | | | | | | |
| Celik 2016 ** | | | | | | | | | | | | 29 | 2 | 69.0 | | | 12 | | 17 | | 29 | 2 | Sarnat grade of deaths not specified |
| Das 2017 | 30 | 9 | 300.0 | | | 20 | 6 | 10 | 3 | 30 | 9 | 30 | 3 | 100.0 | | | 20 | 1 | 10 | 2 | 30 | 3 | |
| El Shimi 2014 | 10 | 8 | 800.0 | Information in article Table 1 and text does not add up, mortality calculated by Table 1 only | | | | | | 10 | 8 | 20 | 11 | 550.0 | Information in article Table 1 and text does not add up, mortality calculated by Table 1 only | | | | | | 20 | 11 | |
| Enweronu Laryea 2019 | | | | | | | | | | | | 14 | 3 | 214.3 | 5 | 0 | 4 | 1 | 3 | 2 | 7 | 3 | |
| Gucuyener 2012 | | | | | | | | | | | | 10 | 2 | 200.0 | | | 6 | 0 | 4 | 2 | 10 | 2 | |
| Hassanein 2017 | 20 | 5 | 250.0 | 11 | 0 | | | | | 9 | 5 | Unclear if infants received therapeutic hypothermia or not. As cooling was not mentioned we presumed that no treatment was given. | | | | | | | | | | | |
| Horn 2010 | | | | | | | | | | | | 5 | 0 | 0.0 | | | | | | | 5 | 0 | |
| Horn 2012 | | | | | | | | | | | | 14 | 3 | 214.3 | | | | | | | 14 | 3 | Sarnat grade of deaths not specified |
| Horn 2013 | 110 | 17 | 154.5 | | | | | | | | | Unclear if infants received therapeutic hypothermia or not. As cooling was not mentioned we presumed that no treatment was given. | | | | | | | | | | | |

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| Jia 2018 | 89 | 7 | 78.7 | 30 | | 30 | | 27 | | | | 63 | 2 | 31.7 | 32 | | 20 | | 11 | | | | Outcomes were not disaggregated by NE grade and 50% were mild NE cases, this study is not included in Figure 2 |
| Khuwuthyakorn 2021 | | | | | | | | | | | | 23 | 7 | 304.3 | | | 19 | | 4 | | 23 | 7 | Sarnat grade of deaths not specified |
| Kinoshita 2021 | | | | | | | | | | | | 71 | 3 | 42.3 | | | 25 | | 10 | | 71 | 3 | 36 cases with inadequate record of NE grade |
| Lally 2014 | 37 | 2 | 54.1 | Grade II-III based on Thompson > 5 at < 6 hrs. Sarnat Grade Day 3 was used in calculation of Grade I NE mortality and distribution of NE severity. | | | | | | 37 | 2 | 17 | 4 | 235.3 | | | | | | | 17 | 4 | |
| Malla 2017 | 50 | 6 | 120.0 | | | 26 | | 24 | | 50 | 6 | 50 | 6 | 120.0 | | | 24 | | 26 | | 50 | 6 | Sarnat grade of deaths not specified |
| Maoulaine 2017 | 19 | 7 | 368.4 | | | | | | | 19 | 7 | 19 | 3 | 157.9 | | | | | | | 19 | 3 | |
| Martinez H. 2020 | | | | | | | | | | | | 12 | 2 | 166.7 | | | | | | | 12 | 2 | |
| Moshiro 2020 | 146 | 37 | 253.4 | 113 | 11 | 16 | 9 | 17 | 17 | 33 | 26 | | | | | | | | | | | | |
| Niaz 2021 | 84 | 13 | 154.8 | Due to inclusion of preterm cases <35 weeks of gestation, disaggregated data were not included. | | | | | | | | Unclear if infants received therapeutic hypothermia or not. As cooling was not mentioned we presumed that no treatment was given. | | | | | | | | | | | |
| Oliveira 2018 | | | | | | | | | | | | 82 | 15 | 182.9 | | | 61 | 5 | 21 | 10 | 82 | 15 | |
| Onay 2021 | | | | | | | | | | | | 34 | 5 | 147.1 | 3 | | 22 | | 9 | | 34 | 5 | Sarnat grade of deaths not specified, all included in Figure 2 despite 3 mild cases |
| Perez 2018 | | | | | | | | | | | | 53 | 15 | 283.0 | | | 15 | | 38 | | 53 | 15 | In text both 15 and 5+6=11 deaths are mentioned |
| Prashantha 2019 | | | | | | | | | | | | 51 | 2 | 39.2 | | | 57 | | 5 | | 51 | 2 | 11 cases were dismissed against medical advice and not included in the mortality calculation |
| Procianoy 2019 | | | | | | | | | | | | 72 | 16 | 222.2 | | | 41 | 4 | 31 | 12 | 72 | 16 | |
| Shabeer 2017 | | | | | | | | | | | | 68 | 14 | 205.9 | | | 59 | | 9 | | 68 | 14 | Sarnat grade of deaths not specified |
| Shrestha 2020 | 20 | 7 | 350.0 | of Apgar < 7, diaggregated data on 64 additional cases were not included. Exclud | | | | | | | | | | | | | | | | | | | |
| Sun 2012 | 28 | 1 | 35.7 | 5 | | 16 | | 7 | | | | 23 | 0 | 0.0 | 4 | 0 | 13 | 0 | 6 | 0 | 19 | 0 | Sarnat grade of child who died in the control group was not specified |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tanigasalam 2016 | 60 | 30 | 500.0 | 4 | 0 | 41 | | 15 | | 54 | 30 | 60 | 16 | 266.7 | 1 | 0 | 42 | | 17 | | 59 | 16 | Sarnat grade of children who died was not specified apart from "features of severe encephalopathy and refractary seizures", i.e. not mild NE. |
| Thayyil 2020 | 206 | 49 | 237.9 | | | 167 | | 39 | | 206 | 49 | 202 | 72 | 356.4 | | | 161 | | 41 | | 202 | 72 | |
| Thomas 2018 | | | | | | | | | | | | 103 | 7 | 68.0 | 3 | | 81 | | 19 | | 103 | 7 | Sarnat grade of children who died was not specified. Due to low number of mild NE cases this study is included in Figure 2 |
| Umran 2016 | 30 | 10 | 333.3 | 15 | 2 | 10 | | 4 | | 14 | 8 | | | | | | | | | | | | Deaths in stage II-III were not separated |
| Valera 2015 | | | | | | | | | | | | 27 | 3 | 111.1 | | | | | | | 27 | 3 | |
| Variane 2017 | | | | | | | | | | | | 17 | 1 | 58.8 | | | 10 | | 7 | | 17 | 1 | Sarnat grade of death not specified |
| Yang and Li 2020 | 30 | 2 | 66.7 | | | | | | | 30 | 2 | 62 | 2 | 32.3 | | | | | | | 62 | 2 | |
| Zhou 2010 | 94 | 27 | 287.2 | 18 | | 41 | | 35 | | | | 100 | 20 | 200.0 | 21 | | 41 | | 38 | | | | As mortality outcomes were not disaggregated by NE grade and 20% were mild NE cases, this study is not included in Figure 2 |
| Zhu 2009 | 82 | 3 | 36.6 | | | 61 | | 21 | | 82 | 3 | 76 | 2 | 26.3 | | | 47 | | 29 | | 76 | 2 | Sarnat grade of deaths not specified |
| Zou 2019 | 44 | 6 | 136.4 | 7 | | 28 | | 9 | | | | 45 | 6 | 133.3 | 8 | | 29 | | 8 | | | | As mortality outcomes were not disaggregated by NE grade and nearly 20% were mild NE cases, this study is not included in Figure 2 |
| **SUM** | **1487** | **328** | **220.6** | 256 | 22 | 563 | 28 | 227 | 27 | 815 | 223 | **1820** | **308** | **169.2** | 77 | 0 | 1029 | 11 | 427 | 28 | 1600 | 280 | |

*second paper from same main author had same neonatal mortality data

**Celik 2015 chosen for Grade I data, Celik 2016 chosen for Grade II-III data

**Supplementary Table 6: Neurodevelopmental outcomes associated with Intrapartum-Related Neonatal Encephalopathy**

| | | | **USUAL CARE** | | | | | | | **INTERVENTION** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Author (ref)** | **Grades reported** | **Outcomes reported** | **Events** | **N** | **%** | **Gr I N** | **Gr I events** | **Gr II-III N** | **Gr II-III events** | **Events** | **N** | **%** | **Gr I N** | **Gr I events** | **Gr II-III N** | **Gr II-III events** | **Denominator** |
| | | i) death or CP with GMFCS level 3-5 or BSID-III cognitive and/or motor score <85 or blindness or deafness | 12 | 23 | **52** | | | 23 | 12 | 5 | 24 | **21** | | | 24 | 5 | denominator = children with known outcome |
| | | ii) death | 6 | 23 | **26** | | | 23 | 6 | 2 | 24 | **8** | | | 24 | 2 | denominator = children with known outcome |
| | | iii) GMFCS level 3-5 or BSID-III cognitive and/or motor score <85 or blindness or deafness | 6 | 17 | **35** | | | 17 | 6 | 3 | 22 | **14** | | | 22 | 3 | Denominator = children with known outcome who did not die |
| | | iv) BSID-III cognitive score <70 | 3 | 17 | **18** | | | 17 | 3 | 0 | 22 | **0** | | | 22 | 0 | denominator = children evaluated with BSID-III, Griffiths (n=1) or phone (n=1) |
| | | v) BSID-III cognitive score 70-84 | 3 | 17 | **18** | | | 17 | 3 | 2 | 22 | **9** | | | 22 | 2 | denominator = children evaluated with BSID-III, Griffiths (n=1) or phone (n=1) |
| | | vi) BSID-III motor score <70 | 3 | 17 | **18** | | | 17 | 3 | 0 | 22 | **0** | | | 22 | 0 | denominator = children evaluated with BSID-III, Griffiths (n=1) or phone (n=1) |
| | | vii) BSID-III motor score 70-84 | 1 | 17 | **6** | | | 17 | 1 | 2 | 22 | **9** | | | 22 | 2 | denominator = children evaluated with BSID-III, Griffiths (n=1) or phone (n=1) |
| Aker 2021 | Grades II and III combined | viii) CP (any grade) - data also available for divided grades | 3 | 17 | **18** | | | 17 | 3 | 1 | 22 | **5** | | | 22 | 1 | denominator = children evaluated with BSID-III, Griffiths (n=1) or phone (n=1) |
| | | i) death or any adverse outcome as below | NA | | | | | | | NA | NA | | | | | | |
| | | ii) death | NA | | | | | | | NA | NA | | | | | | |
| | | iii) any developmental delay (BSID-III motor, cognitive or language <70) | NA | | | | | | | NA | NA | | | | | | denominator = children evaluated with BSID-III |
| | | iv) BSID-III motor <70 | 8 | 35 | **23** | | | | | 5 | 49 | **10** | | | 49 | 5 | denominator = children evaluated with BSID-III |
| | | v) BSID-III cognitive <70 | 7 | 35 | **20** | | | | | 5 | 49 | **10** | | | 49 | 5 | denominator = children evaluated with BSID-III |
| | | vi) BSID-III language <70 | 6 | 35 | **17** | | | | | 2 | 49 | **4** | | | 49 | 2 | denominator = children evaluated with BSID-III |
| Ballot 2020 | Excluded from Figure 3 as only examined suvivors -> mortality data not available presuming that TH = grade II-III combined, CP data available disaggregated by grades but grades are not disaggregated by TH | vii) CP | 8 | 35 | **23** | **14** | **1** | **21** | **7** | 5 | 49 | **10** | | | 49 | 5 | denominator = children evaluated with BSID-III |
| | | i) combined death or moderate to severe disability | **46** | **79** | **58** | | | **79** | **46** | 27 | 76 | **36** | | | **76** | **27** | Denominator = children with known outcome |
| | | ii) death | **29** | **79** | **37** | | | **79** | **29** | 22 | 76 | **29** | | | 76 | 22 | Denominator = children with known outcome |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Catherine 2021 | Grades II and III combined | iii) any moderate or severe delay (as below) | 17 | 50 | **34** | | | 50 | 17 | 5 | 54 | **9** | | 54 | 5 | Denominator = children with known outcome who did not die |
| | Excluded from Figure 3 due to lack of combined outcome, which was presented in the above report with same patients. | i) combined death or moderate to severe disability | **NA** | **NA** | **NA** | | | | | NA | NA | **NA** | | **NA** | **NA** | Denominator = children with known outcome |
| | | ii) death | **29** | **79** | **37** | | | **79** | **29** | 22 | 76 | **29** | | 76 | 22 | Denominator = children with known outcome |
| | | iii) any moderate or severe delay | **NA** | **NA** | **NA** | | | | | NA | NA | NA | | NA | NA | Denominator = children with known outcome who did not die |
| | | iii) DASII mental <70% | **14** | **50** | **28** | | | **50** | **14** | 4 | 54 | **7** | | 54 | 4 | Denominator = children with known outcome who did not die |
| | | iii) DASII motor <70% | **17** | **50** | **34** | | | **50** | **17** | 5 | 54 | **9** | | 54 | 5 | Denominator = children with known outcome who did not die |
| | | iv) hearing (abnormal BERA) | **1** | **50** | **2** | | | **50** | **1** | 0 | 54 | **0** | | 54 | 0 | Denominator = children with known outcome who did not die |
| | | v) vision | **1** | **50** | **2** | | | **50** | **1** | 0 | 54 | **0** | | 54 | 0 | Denominator = children with known outcome who did not die |
| | | | | | | | | | | | | | | | | Denominator = children with known outcome who did not die |
| Catherine 2020 | Grades II and III combined | vi) speech | 12 | 50 | **24** | | | 50 | 12 | 2 | 54 | **4** | | 54 | 2 | Denominator = children with known outcome who did not die |
| | | i) combined death or moderate to severe disability as below | | | | | | | | 21 | 29 | **72** | **Outcomes reported below** | 29 | 21 | Denominator = children with known outcome |
| | | ii) death | | | | | | | | 11 | 29 | **38** | | 29 | 11 | Denominator = children with known outcome |
| | | iii) Severe disability = BSID-III cognitive, language, or motor combined score <- 2 SD, total loss of vision, or cerebral palsy | | | | | | | | 10 | 18 | **56** | | 18 | 19 | Denominator = children with known outcome who did not die |
| Celik * 2016 | Grades II and III combined | iv) Neuromotor retardiation (=mild disability) = BSID-III cognitive, language, or motor combined score -1 SD...-2 SD | | | | | | | | 1 | 18 | **6** | | 18 | 1 | Denominator = children with known outcome who did not die |
| | Excluded from Figure 3 as same patients were included above. | i) combined death or severe disability as below | 0 | 7 | **0** | 7 | 0 | | | | | | | | | Denominator = children with known outcome |
| | | ii) death | 0 | 7 | **0** | 7 | 0 | | | | | | | | | Denominator = children with known outcome |
| | | iii) Severe disability = BSID-III cognitive, language, or motor combined score <- 2 SD, total loss of vision, or cerebral palsy | 0 | 7 | **0** | 7 | 0 | **Outcomes for Grade II-III reported above** | | | | | | | | Denominator = children with known outcome who did not die |
| Celik * 2015 | Grade I in usual care. Grades II-III were same patients as above | iv) Neuromotor retardiation (=mild disability) = BSID-III cognitive, language, or motor combined score -1 SD...-2 SD | 0 | 7 | **0** | 7 | 0 | | | | | | | | | Denominator = children with known outcome who did not die |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | disability | NA | NA | | | | | NA | NA | | | | | | |
| | | ii) death | NA | NA | | | | | NA | NA | | | | | | |
| | Excluded from Figure 3 as only death or DAMA available | iii) psychomotor delay by DASII-III | 16 | 84 | 19 | Control group included 15 % Grade I NE, but outcomes are not detailed by grade | | | 13 | 72 | 18 | | | 72 | 13 | Denominator = children with known outcome who did not die |
| Charki 2020 | Grades I to III combined | iv) sensoneural disorder | 24 | 84 | 29 | | | | 11 | 72 | 15 | | | 72 | 11 | Denominator = children with known outcome who did not die |
| | | i) combined death or neurodevelopmental disability | 18 | 30 | **60** | | 30 | 18 | 6 | 30 | **20** | **na** | **na** | 30 | 6 | Denominator = children with known outcome |
| | | ii) death | 9 | 30 | **30** | | 30 | 9 | 3 | 30 | **10** | | | 30 | 3 | Denominator = children with known outcome |
| | | iiii) DASII motor or mental development quotient <80% | 9 | 21 | **43** | | 21 | 9 | 3 | 27 | **11** | | | 27 | 3 | Denominator = children with known outcome who did not die |
| | | iv) Blindness = < 20/200 in both eyes | 7 | 21 | **33** | | 21 | 7 | 2 | 27 | **7** | | | 27 | 2 | Denominator = children with known outcome who did not die |
| | | v) Deafness = need of amplification | 8 | 21 | **38** | | 21 | 8 | 3 | 27 | **11** | | | 27 | 3 | Denominator = children with known outcome who did not die |
| Das 2017 | II and III combined (has also segregated grade II and III) | vi) Seizures = abnormal EEG or need of AED | 18 | 21 | **86** | | 21 | 18 | 10 | 27 | **37** | | | 27 | 10 | Denominator = children with known outcome who did not die |
| | | i) death or moderate to severe developmental disability | | | | | | | 2 | 5 | | | | 5 | 2 | Denominator = children with known outcome at > 12m |
| | | ii) death | | | | | | | | | | | | | | |
| Gucuyener 2012 | Grades II and III combined | iii) Cerebral Palsy | | | | | | | 2 | 5 | | | | 5 | 2 | Denominator = children with known outcome at > 12 m |
| | | i) death or severe disability (unclear definition) | NA | | | **only reports neonatal death** | | | NA | | | | **only reports neonatal death** | | | |
| | Excluded from Figure 3 because of non-standard outcome definition | ii) death | NA | | | | | | NA | | | | | | | |
| Jia 2018 | All grades combined | iii) severe disability (unclear definition) | 35 | 82 | **43** | | | | 16 | 61 | **26** | | | | | Denominator = children with known outcome who did not die neonatally |
| | | severe disability | NA | | | | | | 17 | 20 | **85** | **children** | | 20 | 17 | (including 1 child with CP who was lost between 1- |
| | | ii) death | NA | | | | | | 6 | 19 | **32** | | | 19 | 6 | Denominator = children with known outcome at 2 yrs |
| | | i) death or severe disability (BSID-III (any domain) <70, GMFCS 3...5, severe visual impairment and profound hearing impairment) | NA | | | | | | 16 | 17 | **94** | | | 19 | 16 | Denominator = children with known outcome at 2 yrs |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | iii) Any neurological impairment | NA | | | | | 8 | 13 | **62** | | 13 | 8 | Denominator = children with known outcome at 2 yrs incl 2 whose parents refused BSID but were reportedly healthy |
| | | iv) BSID-III cognitive <70 | NA | | | | | 4 | 11 | **36** | | 11 | 4 | Denominator = children evaluated with BSID-III 2 yrs |
| | | ix) BSID-III language < 70 | NA | | | | | 4 | 11 | **36** | | 11 | 4 | Denominator = children evaluated with BSID-III 2 yrs |
| | | x) BSID-III motor <70 | NA | | | | | 3 | 11 | **27** | | 11 | 3 | Denominator = children evaluated with BSID-III 2 yrs |
| | | iv) CP any grade | NA | | | | | 4 | 12 | **33** | | 12 | 4 | Denominator = children evaluated with BSID-III 2 yrs + 1 known case of CP who was lost between 1 and 2 yrs |
| | | v) blindness | NA | | | | | 3 | 11 | **27** | | 11 | 3 | Denominator = children evaluated with BSID-III 2 yrs |
| Khuwuthyakorn 2021 | Grades II and III combined | vi) profound hearing impairment (OAE or ABR test) | NA | | | | | 0 | 11 | **0** | | | | Denominator = children evaluated with BSID-III 2 yrs |
| | | i) combined death or moderate to severe disability | | | | | | 3 | 15 | **20** | | **15** | **3** | Denominator = children with known outcome |
| | | ii) death | | | | | | 2 | 15 | **13** | | **15** | **2** | Denominator = children with known outcome |
| | | iii)neurodevelopmental disability (Griffiths and Vineland, unclear cut-offs) | | | | | | 1 | 13 | **8** | | **13** | **1** | Denominator = children with known outcome who did not die |
| Koshy 2011 | Grades II and III combined | iv) CP | NA | | | | | 1 | 13 | **8** | | **13** | **1** | Denominator = children with known outcome who did not die |
| | Outcomes i-iii reported separate for NT and TH | i) combined death or moderate to severe disability (not including microcephaly) | 8 | 37 | **22** | 37 | 8 | 6 | 16 | **38** | as these children were cooled, we presume they were in Grade II-III | 16 | **6** | Denominator = children with known outcome. 2 additional cases had microcephaly |
| | | ii) death | 2 | 28 | **7** | 28 | 2 | 4 | 17 | **24** | | 17 | **4** | Denominator = children with known outcome |
| | Outcomes iv-vii all reported all in usual care group | iii) cerebral palsy | 1 | 26 | **4** | 38 | 3 | 2 | 16 | **13** | | **16** | **2** | Denominator = children with known outcome who did not die |
| | | iv) visual (not correctable by glasses) or hearing impairment | 1 | 26 | **4** | 38 | 1 | | | | | | | Denominator = children with known outcome who did not die |
| | | v) seizures and/or use of AED | 3 | 26 | **12** | 38 | 3 | | | | | | | Denominator = children with known outcome who did not die |
| | | vi) head growth < -2 SD | 9 | 26 | **35** | 38 | 9 | | | | | | | Denominator = children with known outcome who did not die |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lally 2014 | Grade II-III based on Thompson >5 within 6 hrs. Also has data on each Sarnat grade Day 3. | vii) composite motor score <82 or composite cognitive score <85 on BSID-III | 3 | 26 | **12** | 38 | 3 | | | | | | Denominator = children with known outcome who did not die |
| | *Severe disability: GMFCS grade 3 to 5, hearing impairment requiring hearing aids, bilateral cortical visual impairment with no useful vision or BSID-II Mental Development <70. | i) death or moderate* or severe disability** | 35 | 50 | **70** | 50 | 35 | 20 | 50 | **40** | 50 | 20 | Denominator = children with known outcome |
| | **Moderate disability: BSID-II Mental Developmental 70...84 and any one of the following: GMFCS grade 2, hearing impairment with no amplification, or persistent seizure disorder | ii) death | 8 | 50 | **16** | 50 | 8 | 8 | 50 | **16** | 50 | 8 | Denominator = children with known outcome |
| | | iii) any disability | 15 | 42 | **36** | 42 | 15 | 12 | 42 | **29** | 42 | 12 | Denominator = children with known outcome who did not die |
| | | iv) CP | 19 | 42 | **45** | 42 | 19 | 10 | 42 | **24** | 42 | 10 | Denominator = children with known outcome who did not die |
| | | v) hearing impairment requiring amplification | 2 | 42 | **5** | 42 | 2 | 2 | 42 | **5** | 42 | 2 | Denominator = children with known outcome who did not die |
| | Grade II-III combined, separate for outcome i) | vii sezures requiring AED | 17 | 42 | **40** | 42 | 17 | 8 | 42 | **19** | 42 | 8 | Denominator = children with known outcome who did not die |
| | | vii) BSID-II mental <70 | 15 | 40 | **38** | 40 | 15 | 8 | 40 | **20** | 40 | 8 | Denominator = children who completed BSID-II |
| | | iiiv) BSID-II mental 70-84 | 6 | 40 | **15** | 40 | 6 | 5 | 40 | **13** | 40 | 5 | Denominator = children who completed BSID-II |
| | | ix) BSID-II psychomotor <70 | 15 | 40 | **38** | 40 | 15 | 9 | 40 | **23** | 40 | 9 | Denominator = children who completed BSID-II |
| Malla 2017 | | x) BSID-II psycomotor 70-84 | 5 | 40 | **13** | 40 | 5 | 4 | 40 | **10** | 40 | 4 | Denominator = children who completed BSID-II |
| | | i) death or any neurodevelopmental disorder | 13 | 18 | **72** | 18 | 13 | 7 | 16 | **44** | 16 | 7 | Denominator = children with known outcome |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Excluded from Figure 3 because of non-standard outcome definition | ii) death | 7 | 18 | **39** | 18 | 7 | 4 | 16 | **25** | 16 | 4 | Denominator = children with known outcome |
| | | iii) psychomotor delay | 2 | 11 | **18** | 11 | 2 | 3 | 6 | **50** | 6 | 3 | Denominator = children with known outcome who did not die |
| | | iv) epilepsy | 1 | 11 | **9** | 11 | 1 | 1 | 6 | **17** | 6 | 1 | Denominator = children with known outcome who did not die |
| Maoulainine 2017 † | Grades II and III combined | v) neurosensory problem | 3 | 11 | **27** | 11 | 3 | 1 | 6 | **17** | 6 | 1 | Denominator = children with known outcome who did not die |
| | Excluded from Figure 3 due to lack of mortality data | i) death or moderate to severe disability | | | | | | NA | | | | | |
| | | ii) death | | | | | | NA | | | | | |
| Mbatha 2020 | Grades II and III combined | iii) Moderate to severe disabiltiy by GMDS | | | | | | 18 | 56 | | | | Denominator = children with known outcome at 18-24m who did not die. Reports also outcome at 12 m. |
| | | i) death or severe developmental disability (CP, BSID-II mental development index ≤ 70, blindness, hearing impairment requiring a hearing aid and a persistent seizure disorder) | | | | | | 22 | 53 | **42** | 53 | 22 | denominator = children with known outcome |
| | | ii) death | | | | | | 15 | 53 | **28** | 53 | 15 | denominator = children with known outcome |
| | | iii) severe developmental disability (CP, BSID-II mental development index ≤ 70, blindness, hearing impairment requiring a hearing aid and a persistent seizure disorder) | | | | | | 7 | 38 | **18** | 38 | 7 | Denominator = children with known outcome at 18 months who did not die |
| | | iv) CP | | | | | | 4 | 38 | **11** | 38 | 4 | Denominator = children with known outcome at 18 months who did not die |
| | | v) hearing impairment requiring hearing aid | | | | | | 3 | 38 | **8** | 38 | 3 | Denominator = children with known outcome at 18 months who did not die |
| | | vi) Blindness | | | | | | 2 | 38 | **5** | 38 | 2 | Denominator = children with known outcome at 18 months who did not die |
| Perez 2018 | Grades II and III combined | vii) persistent seizures | | | | | | 1 | 38 | **3** | 38 | 1 | Denominator = children with known outcome at 18 months who did not die |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | microcephaly removed from original | i) death or moderate to severe neurodevelopmental delay (BSID-III <85 or hearing impairment or visual impairment) | | | | | | | | 37 | 59 | **63** | **na** | **na** | 59 | 37 | numerator = 16 deaths + 18 abnormal BSID + 3 blind/deaf. Denominator = children with known outcome = 72-13 lost to follow-up |
| | | ii) death | | | | | | | | 16 | 59 | **27** | | | 59 | 16 | denominator = children with known outcome |
| | | iii) any neurodevelopmental delay (as defined above) | | | | | | | | 18 | 40 | **45** | | | 40 | 18 | who attended could not be evaluated because of blindness or deafness) |
| | | iv) motor score <85 | | | | | | | | 8 | 40 | **20** | | | 40 | 8 | denominator = those with BSID-III done (3 children who attended could not be evaluated because of blindness or deafness) |
| | | v) language score <85 | | | | | | | | 15 | 40 | **38** | | | 40 | 15 | denominator = those with BSID-III done (3 children who attended could not be evaluated because of blindness or deafness) |
| | | vi) cognitive score <85 | | | | | | | | 13 | 40 | **33** | | | 40 | 13 | denominator = those with BSID-III done (3 children who attended could not be evaluated because of blindness or deafness) |
| | | iv) microcephaly | | | | | | | | 1 | 43 | **2** | | | 43 | 1 | Denominator = children with known outcome who did not die |
| | | v) hearing impairment | | | | | | | | 5 | 43 | **12** | | | 43 | 5 | Denominator = children with known outcome who did not die |
| Procianoy 2019 | Grade II-III combined (reports separate grade II and IIII) | vi) visual impairent | | | | | | | | 3 | 43 | **7** | | | 43 | 3 | Denominator = children with known outcome who did not die |
| | Excluded from Figure 3 and 4 due to mixing grade I and II-III, also only severe disability reported. | i) death or severe developmental delay BSID-III mental or physical development index <70 | 18 | 28 | **64** | | | na | na | 7 | 23 | **30** | | | na | na | denominator = children with known outcome |
| | | ii) death | 1 | 28 | **4** | | | | | 0 | 23 | **0** | | | | | denominator = children with known outcome |
| | | iii) developmental delay BSID-III mental or physical development index <70 | 17 | 27 | **63** | | | | | 7 | 23 | **30** | | | | | Denominator = children with known outcome who did not die |
| | | iv) BSID-III mental development index <70 | 13 | 27 | **48** | | | | | 5 | 23 | **22** | | | | | Denominator = children with known outcome who did not die |
| | | v) BSID-III physical development index <70 | 12 | 27 | **44** | | | | | 5 | 23 | **22** | | | | | Denominator = children with known outcome who did not die |
| Sun 2012 | Grade II-III combined, but 20% Grade I | vi) CP | 3 | 27 | **11** | | | | | 2 | 23 | **9** | | | | | Denominator = children with known outcome who did not die |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (Severe disability: BSID-III cognitive score <70, GMFCS 3...5, profound hearing impairment requiring hearing aids or a cochlear implant, or blindness. ) | i) death or moderate to severe disability | 94 | 199 | **47** | **na** | **na** | 199 | 94 | 98 | 195 | **50** | | | 195 | 98 | denominator = children with known outcome |
| | | ii) death | 63 | 201 | **31** | | | 201 | 63 | 84 | 198 | **42** | | | 198 | 84 | denominator = children with known outcome |
| | | iii) Severe disability | 28 | 136 | **21** | | | 136 | 28 | 14 | 112 | **13** | | | 112 | 14 | Denominator = children with known outcome who did not die |
| | Moderate disability BSID-III cognitive 70–84 and one or more of the following: GMFCS 2, a hearing impairment with no amplification, or a persistent seizure disorder) | iv) Moderate disability | 3 | 135 | **2** | | | 135 | 3 | 0 | 111 | **0** | | | 111 | 0 | Denominator = children with known outcome who did not die |
| | | v) Severe Microcephaly (<5th centile) | 23 | 135 | **17** | | | 135 | 23 | 19 | 110 | **17** | | | 110 | 19 | Denominator = children with known outcome who did not die |
| | | vi) BSID-III cognitive score 70-84 | 22 | 133 | **17** | | | 133 | 22 | 25 | 108 | **23** | | | 108 | 25 | Denominator = children with known outcome who did not die |
| | | vii) BSID-III cognitive score <70 | 24 | 133 | **18** | | | 133 | 24 | 11 | 108 | **10** | | | 108 | 11 | Denominator = children with known outcome who did not die |
| | | viii) BSID-III motor score 70-84 | 7 | 133 | **5** | | | 133 | 7 | 6 | 108 | **6** | | | 108 | 6 | Denominator = children with known outcome who did not die |
| | | ix) BSID-III motor score <70 | 26 | 133 | **20** | | | 133 | 26 | 11 | 108 | **10** | | | 108 | 11 | Denominator = children with known outcome who did not die |
| | | x) BSID-III language score 70-84 | 47 | 133 | **35** | | | 133 | 47 | 29 | 108 | **27** | | | 108 | 29 | Denominator = children with known outcome who did not die |
| | | xi) BSID-IIII language score <70 | 27 | 133 | **20** | | | 133 | 27 | 18 | 108 | **17** | | | 108 | 18 | Denominator = children with known outcome who did not die |
| | | xii) persistent seizures | 9 | 133 | **7** | | | 133 | 9 | 3 | 111 | **3** | | | 111 | 3 | Denominator = children with known outcome who did not die |
| | Microcephaly removed | xiii) CP (GMFCS 2..5) | 28 | 136 | **21** | | | 136 | 28 | 12 | 111 | **11** | | | 111 | 12 | Denominator = children with known outcome who did not die |
| | | xiv) Blindness | 10 | 135 | **7** | | | 135 | 10 | 5 | 111 | **5** | | | 111 | 5 | Denominator = children with known outcome who did not die |
| Thayiil 2021 | Grades II and III combined | xv) Hearing impairment | 6 | 136 | **4** | | | 136 | 6 | 3 | 112 | **3** | | | 112 | 3 | Denominator = children with known outcome who did not die |
| | | i) death or severe neurodevelopmental disorder (any BSID-III < 70) | | | | | | | | 6 | 19 | **32** | | | 19 | 6 | denominator = children with known outcome |
| | | ii) death | | | | | | | | 3 | 19 | **16** | | | 19 | 3 | denominator = children with known outcome |
| | | iii) severe motor disorder BSID-III <70 | | | | | | | | 1 | 13 | **8** | | | | | denominator = children >1yr with known outcome who did not die |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | iv) moderate motor disorder BSID 70-84 | | | | | | | | 1 | 13 | **8** | | | | | denominator = children >1yr with known outcome who did not die |
| | | v) severe language develp | | | | | | | | 2 | 13 | **15** | | | | | denominator = children >1yr with known outcome who did not die |
| | | vi) moderate language dev | | | | | | | | 3 | 13 | **23** | | | | | denominator = children >1yr with known outcome who did not die |
| | | vii) severe cognitive | | | | | | | | 0 | 13 | **0** | | | | | denominator = children >1yr with known outcome who did not die |
| Valera 2017 ₮ | Grades II and III combined | viii) moderate cognitive | NA | | | | | | | 1 | 13 | **8** | | | 16 | 3 | denominator = children >1yr with known outcome who did not die |
| | | i) death or severe disability (GMFCS 3-5 or GCDAS <70) | 46 | 94 | **49** | **18** | **0** | 76 | 46 | 31 | 100 | **31** | **21** | **0** | **79** | **31** | denominator = children with known outcome |
| | | ii) death | 27 | 94 | **29** | **18** | **0** | 76 | 27 | 20 | 100 | **20** | **21** | **0** | **79** | **20** | denominator = children with known outcome |
| | | iii) severe disability (GMFCS 3-5 or GCDAS <70) | 19 | 67 | **28** | **18** | **0** | 49 | 19 | 11 | 80 | **14** | **21** | **0** | **59** | **11** | Denominator = children with known outcome who did not die |
| | | iv) GCDAS <70 | 13 | 63 | **21** | **15** | **0** | 48 | 13 | 4 | 75 | **5** | **19** | **0** | **56** | **4** | Denominator = children with known outcome who did not die |
| | | v) GCDAS 70-84 | 17 | 63 | **27** | **15** | **7** | 48 | 10 | 23 | 75 | **31** | **19** | **6** | **56** | **17** | Denominator = children with known outcome who did not die |
| Zhou 2010 | All NE grades. (has data on separate) | vi) cerebral palsy | 19 | 67 | **28** | | | NA | NA | 10 | 80 | **13** | | | **NA** | **NA** | Denominator = children with known outcome who did not die. NE grade of cases unknown. |
| | | i) death or moderate to severe disability (CP GMFCS 3...5, severe hearing loss, blindness, and BSID-II MDI < 70) | 35 | 80 | **44** | | | **80** | **35** | 18 | 73 | **25** | | | 73 | 18 | denominator = children with known outcome |
| | | ii) death | 4 | 80 | **5** | | | **80** | **4** | 3 | 73 | **4** | | | 73 | 3 | denominator = children with known outcome |
| | | iii) CP | 14 | 76 | **18** | | | **76** | **14** | 5 | 70 | **7** | | | 70 | 5 | Denominator = children with known outcome who did not die |
| Zhu 2009 | Grades II and III combined and separated | iv) MDI <70 | 17 | 76 | **22** | | | **70** | **7** | 7 | 70 | **10** | | | 70 | 7 | Denominator = children with known outcome who did not die |
| | Excluded from Figures 3 and 4 because of 16 % mild NE | i) death or abnormal neurodevelopmental outcome (BSID-III cognitive or motor score <85) | 26 | 42 | **62** | | | **na** | **na** | 16 | 44 | **36** | | | **na** | **na** | denominator = children with known outcome |
| | | ii) death | 6 | 42 | **14** | | | | | 6 | 44 | **14** | | | | | denominator = children with known outcome |
| Zou 2019 | All NE grades combined | iii) abnormal neurodevelopment (BSID-III cognitive or motor score <85) | 20 | 36 | **56** | | | | | 10 | 38 | **26** | | | | | Denominator = children with known outcome who did not die |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | i) death or severe disability (BSID-II MDI < 70, GMFCS 3 to 5, hearing impairment requiring hearing aids, or blindness) | 10 | 25 | **40** | 25 | 10 | 2 | 36 | **6** | 36 | 2 | denominator = children with known outcome |
| | | ii) death | 4 | 25 | **16** | 25 | 4 | 0 | 36 | **0** | 36 | 0 | denominator = children with known outcome |
| Weng 2021 | Grades II and III combined | iii) severe disability | 6 | 21 | **29** | 21 | 6 | 2 | 36 | **6** | 36 | 2 | Denominator = children with known outcome who did not die |
| | | **SUM Combined Outcome:** | **361** | **712** | **51** | | | **351** | **883** | **40** | | | |
| | | **SUM CP:** | **95** | **426** | **22** | | | **56** | **476** | **12** | | | |

BSID = Bayley Scales of Infant Development
CP = Cerebral Palsy
DAMA = discharge against medical advice
DASII = Developmental Assessment Scale for Indian Infants
EEG = electroencephalography
GCDAS = Griffiths Scales od Developmental Assessment
MDI = Mental Development Index
GMFCS = Gross Motor Function Classification Scale
GMDS = Griffiths Mentadl Development Scale
SD = Standard Deviation

Additional notes:

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|---|---|---|---|
| † Maoulaine | Number of abnormal cases were calculated based on percentages provided in the article and are not the same as reported in Table 5 of the artcile, which does not consider loss to follow-up. | Usual care group group N=18, 7 died hospital, 11 were followed, 5 were normal = 6 were abnormal. Total N= 7+6+5 = 18, abnormal = 7+6 = 13 | Intervention 19, 3 died in hospital and 1 after hospital, 13 Were followed, 9 were normal = 4 were abnormal. Total N = 3+13=16, abnormal = 3+4=7 |
| Ŧ Valera | 3 children were lost to follow-up and outcome for 5 was not includedd as they were not 1 year at time of report | | |