

Supplemental Digital Content 3: Data Extraction Tool

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Table 2. Background study summary

ID	First Author	Year	Country	Country income status*	Setting	Study design	Prospective vs Retrospective	Study population	Culture type	Specimen processing method
1	Aku	2018	Ghana	LMIC	Hospital - 2 centres	Cross-sectional	Prospective	All neonates in NICU without AB prior to delivery. With clinical suspicion of sepsis.	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
2	Bandyopadhyay	2018	India	LMIC	Hospital -	Cohort	Retrospective	Cases of culture positive sepsis.	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
3	Bhattarai	2021	Nepal	LMIC	Hospital - Tertiary.	Cohort	Prospective	All newborns with clinical suspicion of sepsis.	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
4	Bhattarai	2019	Nepal	LMIC	Hospital tertiary	Cohort	Prospective	All cases of Neonatal Sepsis admitted during the study period.	Blood	Not specified.
5	H. B. Bozkurt	2018	Turkey	UMIC	Hospital	Cohort	Retrospective	Patients dx with sepsis in NICU	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
6	Chauhan	2019	India	LMIC	Hospital - NICU PGIMS, Rohtax Haryana	Cohort	Retrospective	All blood culture positive neonates with proven sepsis. Age equal to or <28 days.	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.

7	T. Das	2021	India	LMIC	Hospital - Urban	Cross-sectional	Retrospective	Clinically suspected NS	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
8	Dramowski	2021	South Africa	UMIC	Hospital	Cohort	Prospective	Clinically suspected, presumed, at risk neonates.	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
9	Flannery	2022	United states	HIC	Hospital multicentre	Cohort	Prospective	live-born infants ≥ 22 weeks	Blood or CSF	Not described
10	Gao	2019	China	HIC	W& C medical center	Cohort	Retrospective	Neonates < 28 days culture proven sepsis	Blood or CSF	Not described
11	Govindaraju	2020	India	LMIC	Tertiary private hospital	Cohort	Retrospective	Neonates admitted to the nicu for > 24 hours with suspected sepsis	blood	Not described
12	Geyesus	2017	Ethiopia	LIC	Hospital	Cross-sectional	Prospective	Clinical signs or symptoms of septicemia	Blood	Standard lab methods for specimen isolation, Kirby-Baur Disk-diffusion.
13	Giannoni	2018	Switzerland	HIC	Multi-centre 10 tertiary care hospitals.	Cohort	Prospective	Newborns with blood culture proven sepsis	Blood	Not described
14	Guo	2019	China	HIC	Single centre tertiary	Cohort	Retrospective	Neonates with culture proven sepsis	Blood	Not described
15	Hameed	2018	Pakistan	LMIC	Single centre, tertiary	Cross-sectional	Retrospective	Neonatal sepsis blood samples	Blood	Standard lab methods for specimen isolation
16	Hammoud	2017	Kuwait, UAE, Saudi Arabia	HIC	Multicentre - 5 centres	Cohort	Prospective	Total live births and admissions into the NICU	Blood or CSF	Not described
17	Jiang	2020	China	HIC	Multicentre 25 tertiary hospitals	Cohort	Prospective	All infants born < 34 weeks gestation in the centres and admitted within 7 days of birth	Blood or CSF	Consideration of contaminants. Standard collection methods.

18	Johnson	2021	India	LMIC	3 tertiary hospitals	Cohort	Prospective	All neonates admitted to NICU for >24 hours with sufficient data available	Blood	Standard blood culture and AST methods
19	Kumari	2021	India	LMIC	Single centre tertiary	Cohort	Prospective	Admitted with risk factors or suspected sepsis	Blood	Standard lab methods for specimen isolation
20	Lebea	2017	South Africa	UMIC	Single centre tertiary	Cohort	Retrospective	All blood cultures reviewed inclusion of culture positive neonates	Blood	Not described
21	Liu	2021	China	HIC	Multicentre 25 tertiary hospitals	Cohort	retrospective	>= 37 week GA with sepsis within 20 days after birth and <37 weeks with corrected age of 44 weeks	Blood	Standard blood culture and AST methods
22	Lu	2020	China	HIC	Single centre	Cohort	Retrospective	>800g infants =<72 hours with positive blood cultures	Blood or CSF	Not described
23	Mulinganya	2021	DRC	LIC	Single centre tertiary	Cross-sectional	Retrospective	Neonates with possible EOS	Blood	Standard blood culture and AST methods
24	Palwinder	2017	India	LMIC	Single centre tertiary	Cohort	Prospective	Neonates suspected of Community acquired neonatal sepsis >72 hours from birth	Blood	Standard blood culture and AST methods
25	Pan	2020	China	HIC	Single centre tertiary	Cohort	Retrospective	Neonates with suspected sepsis - (? Suspected due to positive blood cultures not clinical symptoms)	Blood or CSF	Standard blood culture and AST methods
26	Pandit	2020	Nepal	LMIC	Single centre tertiary	Cross-sectional	-	Inborn and outborn neonates with symptoms of sepsis in NICU	Blood	Standard blood culture and AST methods

27	Pillay	2021	South Africa	UMIC	Single centre tertiary	Cohort	Retrospective	All positive blood cultures from the NICU neonates excluding repeat cultures of same infection	Blood	Standard blood culture and AST methods
28	Pokhrel	2018	Nepal	LMIC	Single centre tertiary	Cross-sectional	Retrospective	All neonates with clinical suspicion of sepsis and a positive blood culture	Blood	Standard blood culture and AST methods
29	Polcwiartek	2021	United states	HIC	Multi-centre database from 392 NICUs	Cohort	Prospective	Inborn term infants without congenital anomalies. Electronic health record.	Blood /CSF	Standard blood culture and AST methods
30	Purba	2019	India	LMIC	Single centre tertiary	Cross-sectional	Prospective	Clinically suspected sepsis admitted at age 0-28 days	Blood	Standard blood culture and AST methods
31	Saha	2018	Bangladesh, pakistan, India	LMIC	multi-centre 5 sites, 4 rural and 1 urban, 3 countries - CHW for community cases	Cohort	Prospective	pSBI episodes identified	Blood	4216 tested by Molecular assay 4859 blood culture
32	Salah	2021	Yemen	LIC	Multicentre - 6 hospitals	Cross-sectional	prospective	Neonates admitted to NICU for at least 72 hours with suspected NS	Blood	Standard blood culture and AST methods
33	Salama	2021	Egypt	LMIC	Single centre tertiary	Cohort	Retrospective	Preterm neonates <36 weeks with clinical/or lab diagnosis of sepsis	Blood	Standard blood culture and AST methods

34	Sands	2021	Ethiopia, Nigeria, Rwanda, South Africa, Bangladesh, India, Pakistan	LMIC	12 sites across 7 countries hospital	Cohort	Prospective	Women in labour or immediately post-partum recruited and neonates followed up. Neonates admitted showing signs of sepsis	Blood	Mic and WGS - automated
35	Thapa	2019	Nepal	LMIC	Single centre hospital	Cohort	prospective	Neonates with clinical manifestation of septicaemia	Blood	Standard blood culture and AST methods
36	Seliem	2018	Egypt	LMIC	Single centre tertiary	Cross-sectional	Prospective	Infants <72 hours signs and symptoms of sepsis or inborn with risk of sepsis	Blood	Standard blood culture and AST methods
37	Shruthi	2018	India	LMIC	Single centre tertiary	Cohort	Retrospective	Neonates suspected to have LONS	Blood	Standard blood culture methods
38	Stordal	2021	Norway	HIC	Single centre tertiary	Cohort	Prospective	All infants admitted to NICU	Blood	Standard - Microbiology department
39	Staadon	2021	South Africa	UMIC	Single centre tertiary	Cohort	Prospective	Infants with positive blood cultures admitted to NICU	Blood	Standard blood culture and AST methods
40	Stoll	2020	United states	HIC	Multi centre hospital	Cohort	Prospective	>22 weeks >400g	Blood /CSF	Standard blood culture methods
41	Takassi	2022	France	HIC	Single centre hospital	Case-control	Prospective	<37 weeks diagnosed and treated for EOS	Blood /CSF	No blood culture methods detailed
42	Tumuhamyeid	2020	Uganda	LMIC	Single centre tertiary	Cross-sectional	Prospective	Neonates with suspected sepsis	Blood	Standard blood culture methods
43	Utomo	2021	Indonesia	LMIC	Single centre tertiary	Cross-sectional	Prospective	Admission into NICU suspected sepsis	Blood	Standard blood culture methods
44	Velaphi	2019	South Africa	UMIC	Single centre tertiary	Cohort	Prospective	Neonates with suspected EOS	Blood /CSF	Molecular testing TAC + culture

45	Yohannes	2021	Ethiopia	LMIC	Single centre tertiary hospital	Cross-sectional	Prospective	Neonates with suspected sepsis	Blood	Standard blood culture and AST methods
46	Yusef	2018	Jordan	UMIC	Single centre tertiary	Cohort	Retrospective	Blood culture proven sepsis	Blood	No specimen culture methods described.
47	Zamarano	2021	Uganda	LMIC	Single centre tertiary	Cross-sectional	Prospective	Suspected sepsis	Blood	Standard blood culture and AST methods
48	Tessema	2021	Germany	HIC	Single centre tertiary	Cohort	Prospective	Culture positive	Blood	Standard blood culture and AST methods

Table 3. Data summary of included studies

Paper ID	First Author	Publication Year	Total Admissions	Total samples	Total neonates included (N)	Total Number of organisms	Proportion positive (%)	Positive Culture EOS (n)	Positive culture LOS (n)	EOS Bacterial Pathogens (n)	LOS Bacterial Pathogens (n)
1	Aku	2018	N/A	150	150	26	17%	13	13	13	13
2	Bandyopadhyay	2018	N/A	183	183	183	-	59	41	108	75
3	Bhattarai	2021	n/A	372	372	132	35%	62	70	61	70
4	Bhattarai	2019	N/A	311	311	47	15%	8	39	8	39
5	H. B. Bozkurt	2018	721	115	115	69	60%	18	51	18	51
6	Chauhan	2019	882	141	141	141	-	63	78	56	74
7	T. Das	2021	N/A	299	299	118	39%	37	83	37	83

8	Dramowski	2021	1299 cultures	1299	712	126	10%	11	115	11	109
9	Flannery	2022	217480	217480	235	239	0.11%	239	0	235	0
10	Gao	2019	N/A	597	597	620	-	105	520	103	491
11	Govindaraju	2020	3347	1942	1942	90	5%	16	45	16	45
12	Geyesus	2017	N/A	251	251	120	48%	87	33	87	33
13	Giannoni	2018	N/A	429	429	444	-	87	357	87	350
14	Guo	2019	N/A -	327	327	297	-	82	215	81	199
15	Hameed	2018	N/A	618	618	85	14%	51	34	50	33
16	Hammoud	2017	81458	81458	81458	101	0.12%	101		99	
17	Jiang	2020	27532	27532	27532	321	1%	321		315	
18	Johnson	2021	4073	4073	226	231	6%	55	176	55	157
19	Kumari	2021	N/A	200	200	47	24%	32	15	31	14
20	Lebea	2017	1903	1903	196	235	12%	39	196	39	176
21	Liu	2021	N/A	2693	2693	2752	-	349	743	347	653
22	Lu	2020	N/A	306	306	306	-	306		296	
23	Mulinganya	2021	N/A	150	150	61	41%	50		50	
24	Palwinder	2017	N.A	300	300	237	79%		237		237
25	Pan	2020	5522	213	213	213	-		202		190
26	Pandit	2020	2965	1200	1200	363	30%	290	73	290	73
27	Pillay	2021	1607	1607	681	681	42%	90	591	76	477
28	Pokhrel	2018	24516 live births, 336 admissions	69	69	69	-	54	15	54	15

29	Polwiartek	2021	142410	142410	142410	1236	1%	1197		1076	
30	Purba	2019	n/A	185	185	119		33	86	28	73
31	Saha	2018	63114	4859	4859	338	7%	34	68	34	68
32	Salah	2021	N/A	199	199	154	77%	100	54	92	51
33	Salama	2021	N/A	153	153	61	40%	38	28	38	28
34	Sands	2021	36285	36285	36285	2620	7%	390	385	390	385
35	Thapa	2019	N/A	516	516	56	11%	35	30	35	30
36	Seliem	2018	6719 inhouse deliveries	188	188	65	35%	65		65	
37	Shruthi	2018	N/A	212	212	110	52%		110		110
38	Stordal	2021	5249	3544	372	324	9%	30	259	30	351
39	Staadn	2021	702	1312	1312	437	33%	17	102	17	94
40	Stoll	2020	217480	217480	289	289	0.13%	241		233	
41	Takassi	2022	N/A	25	25	27	-	27		27	
42	Tumuhamyeid	2020	N/A	359	359	46	13%	15	31	23	23
43	Utomo	2021	N/A	104	104	52	50%	3	39	12	37
44	Velaphi	2019	N/A	2624	1231	99	4%	99		95	
45	Yohannes	2021	N/A	412	412	170	41%	90	80	88	69
46	Yusef	2018	N/A	68	68	68	-	19	46	18	45

47	Zamarano	2021	N/A	122	122	72	59%	41	31	41	31
48	Tessema	2021	N/A	152	152	152	-	18	116	18	115