

Table S2. Details of the included studies

Author	Study site	Year conducted	Study design	Types of participants enrolled	Number of participants	Age range	%Male	Number of malaria and bacteremia co-infection	All co-infection	All malaria	All bacteremia	Malaria without bacteremia	Bacteremia without malaria	Non-malaria/bacteremia	Clinical outcomes of co-infection	Test for malaria	Test for bacteremia
Akinyemi et al., 2007	Nigeria	2004-2005	Cross-sectional study	Febrile	441	All age groups	NS	<i>Salmonella</i> (16), Without <i>Salmonella</i> (91)	16	107	42	91	26	308	NS	Thick-blood smear	Blood culture
Akpede et al., 1993	Nigeria	1988-1989	Prospective observational study	Convulsion associated with fever	386	All age groups	NS	<i>P. falciparum</i> + gram positive bacteria (9), <i>P. falciparum</i> + gram negative bacteria (18)	27	289	43	262	16	81	NS	Blood film examination	Blood culture
Archibald et al., 1998	Tanzania	1995	Prospective observational study	Febrile	517	≥15 years old	280 (54.2%)	Malaria + Bacteremia unidentified (5)	5	49	145	44	140	328	NS	Thin-blood smear	Blood culture
Archibald et al., 2003	Malawi	1998	Cross-sectional study	Pediatric patients had initiated antimicrobial, antituberculous, or antimalarial therapy	229	All age groups	128 (55.9%)	Malaria + Bacteremia unidentified (2)	2	2	35	0	33	194	NS	Thick and thin-blood smear	Blood culture
Aung et al., 2018	Myanmar	2016-2017	Prospective cohort study	Patients with falciparum malaria	20	≥ 16 years old	19 (95%)	<i>P. falciparum</i> + <i>Escherichia coli</i> (1), <i>Salmonella typhi</i> (1), <i>Staphylococcus aureus</i> (1), mixed growth of <i>Acinetobacter baumannii</i> and <i>Enterobacter cloacae</i> (1)	4	20	4	16	0	0	NS	thick and thin-blood film examination	Blood culture
Ayoola et al., 2005	Nigeria	NS	Prospective observational study	Febrile	102	Infants aged 1 to 12 months	NS	<i>P. falciparum</i> + gram positive bacteria (9), <i>P. falciparum</i> + gram negative bacteria (7)	16	47	39	31	23	32	Diarrhea and restlessness	Thick and thin-blood film examination	Blood culture
Bassat et al., 2009	Mozambique	2003-2007	Retrospective study	Children with severe malaria	1780	Children < 5 years old	NS	<i>P. falciparum</i> + <i>S. pneumoniae</i> (20), +gram negative bacteria (16), + <i>S. aureus</i> (13) and +NTS (12)	76	1780	76	1,704	0	0	Higher case-fatality rates	Thick and thin-blood film examination	Blood culture
Bell et al., 2001	Malawi	1998	Prospective observational study	Febrile	238	> 14 years old	101 (42.4%)	Malaria + gram negative bacteria (21), Malaria + <i>S. pneumoniae</i> (1)	22	64	52	42	30	144	NS	Thick-blood smear	Blood culture
Bhattacharya et al., 2013	India	2004	Prospective observational study	Febrile	3,371	All age groups	1,730 (51.3%)	<i>P. vivax</i> + <i>S. Typhi</i> (1), + <i>S. paratyphi</i> A (1), other gram negative bacteria (3), <i>P. vivax</i> + gram positive bacteria (1)	6	93	256	87	250	3,028	Increase vivax relapses	Thin-blood film examination	Blood culture
Biggs et al., 2013	Tanzania	2006-2008	Prospective observational study	Febrile	4,106	2 months to 13 years	2,237 (54.5%)	Malaria (<i>P. falciparum</i>) + Nontyphoidal <i>Salmonella</i> (NTS) (53), recent malaria (<i>P. falciparum</i>) + Nontyphoidal <i>Salmonella</i> (NTS) (67)	120	2206	356	2086	236	1,664	NS	Microscopy , rapid diagnostic test	Blood culture
Blomberg et al., 2007	Tanzania	2001-2002	Prospective cohort study	Children with signs of systemic infection	1,787	Children 0 to 7 years (median age of 8.5 months)	992 (56%)	Malaria + Bacteremia unidentified (18)	18	49	62	21	44	1,704	Higher case-fatality rates	Thick and thin drop blood smears	Blood culture

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Boumbanda Koyo et al., 2020	Gabon	2015-2016	Retrospective study	Febrile	428	< 15 years old	NS	<i>P. falciparum</i> + <i>H. influenzae</i> , <i>S. aureus</i> , and <i>S. pneumoniae</i> (1), <i>P. falciparum</i> + <i>P. malariae</i> + <i>H. influenzae</i> (1), <i>P. falciparum</i> + <i>Rickettsia felis</i> (4), <i>P. falciparum</i> + <i>S. pneumoniae</i> (3), <i>P. falciparum</i> + <i>S. aureus</i> (3), <i>P. falciparum</i> + <i>H. influenzae</i> (1)	13	298	19	285	6	124	NS	RT-PCR, PCR	RT-PCR, PCR
Bronzan et al., 2007	Malawi	1996-2005	Prospective observational study	Children with severe malaria	1,388	Children ≥6 months old	710 (51.2%)	<i>P. falciparum</i> + Non-typhoidal <i>Salmonella</i> (37), + <i>Streptococcus pneumoniae</i> (7), + <i>Klebsiella</i> species (3), + <i>Acinetobacter</i> species (3), +alpha-hemolytic <i>Streptococcus</i> (2), + <i>Salmonella typhi</i> (1), + <i>Aeromonas</i> species (1), + <i>Escherichia vulneris/Proteus mirabilis</i> (1), + <i>Staphylococcus aureus</i> (1), +group D <i>Streptococcus</i> (1), +gram-negative rods (1), + <i>Haemophilus influenzae</i> type b (1), +non-typeable <i>Haemophilus influenzae</i> (1), + <i>Escherichia coli</i> (1), + <i>Campylobacter</i> species (1), + <i>Enterobacter cloacae</i> (1), and <i>enterococcus</i> (1)	64	1,388	64	1,324	0	0	Higher case-fatality rates	Blood film examination	Blood culture
Christopher et al., 2013	Tanzania	2011-2012	Prospective cross-sectional study	Febrile	317	2 to 60 months old	195 (61.5%)	Malaria +Bacteremia unidentified (13)	13	82	21	69	7	212	High mortality rates	Blood slide	Blood culture
Egbe et al., 2014	Nigeria	NS	Cross-sectional study	Febrile	500	All age groups (1 day to 84 years)	281 (56.2%)	Malaria +Bacteremia unidentified (39)	39	170	104	131	65	265	NS	Thick-blood film examination	Blood culture
Ehounoud et al., 2021	the Republic of Cote d'Ivoire (Ivory Coast)	2014-2015	Cross-sectional study	Febrile	438	All age groups	176 (40.3%)	<i>P. falciparum</i> + <i>P. malariae</i> + <i>S. pneumoniae</i> (1), <i>P. falciparum</i> + <i>P. ovale</i> + <i>R. felis</i> (1), <i>P. falciparum</i> + <i>P. ovale</i> + <i>S. aureus</i> (2), <i>P. falciparum</i> + <i>R. felis</i> + <i>S. aureus</i> (1), <i>P. falciparum</i> + <i>S. aureus</i> + <i>S. pneumoniae</i> (2), <i>P. ovale</i> + <i>S. aureus</i> + <i>S. enterica Typhi</i> (1), <i>P. falciparum</i> + <i>R. felis</i> (8), <i>P. falciparum</i> + <i>S. aureus</i> (10), <i>P. falciparum</i> + Non-typhoidal <i>Salmonella</i> (10)	36	217	95	181	59	162	NS	RT-PCR	RT-PCR
Ekanem et al., 2008	Nigeria	2000-2002	Prospective observational study	Neonates with features suggestive of sepsis	202	Neonates ≤ 1 week old	112(55.4%)	<i>P. falciparum</i> + <i>Staphylococcus aureus</i> (6), +coliform (6) and + others/unidentified (2)	14	71	103	57	89	42	NS	Thick and thin-blood film examination	Blood culture

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Evans et al., 2004	Ghana	NS	Retrospective study /Prospective observational study	Children with severe malaria	251	NS	127 (50.5%)	<i>P. falciparum</i> +Non-typhoid <i>Salmonella</i> species (NTS) (10), + <i>Staphylococcus aureus</i> (9), + <i>Escherichia coli</i> (1), + <i>Providencia</i> (1), +Other coliforms (1), + <i>Streptococcus pneumoniae</i> (1)	23	182	51	159	28	41	NS	Thick and thin-blood film examination	Blood culture
Ganiyu et al., 2004	Nigeria	NS	Cross-sectional study	Children	147	4.24 ± 2.88 years of age	NS	Malaria + <i>E. coli</i> (5), + <i>Proteus</i> (4), + <i>Staphylococcus</i> (16), + <i>Salmonella</i> (1)	26	60	28	34	2	85	NS	Thick and thin-blood film examination	Blood culture
Graham et al., 2002	Malawi	1996-1999	Prospective observational study	Children with severe malaria	701	3-148 months	NS	Malaria +NTS (18), Malaria + <i>Streptococcus pneumoniae</i> (5), + Group D <i>Streptococcus</i> (1), +alpha-haemolytic <i>Streptococcus</i> (1) and <i>Enterococcus</i> (1); +Enterobacteriaceae were <i>Enterobacter cloacae</i> (2), <i>Acinetobacter</i> (2), <i>Escherichia coli</i> (1), <i>Salmonella typhi</i> (1), and <i>Klebsiella</i> (1), + <i>Campylobacter</i> spp. (1), <i>Haemophilus influenzae</i> (1)	36	701	36	665	0	0	NS	Thin and thick film microscopy	Blood culture
Guiraud et al., 2017	Burkina Faso	2013-2014	Prospective cohort study	Febrile	1,339	2 months-15 years old	NS	<i>P. falciparum</i> +iNTS (12), + <i>Salmonella Typhi</i> (3), + <i>Streptococcus pneumoniae</i> (5), + <i>Staphylococcus aureus</i> (2)	22	777	118	755	96	466	NS	Thick-blood film examination	Blood culture
Hogan et al., 2018	Ghana	2013-1015	Prospective cohort study	Febrile	1,238	≥30 days and ≤15 years	677 (55%)	Malaria +Bacteremia unidentified (4)	4	728	62	724	58	452	NS	Microscopy	Blood culture
Ikumapayi et al., 2007	Gambia	2002-2004	Cross-sectional study	Children who were investigated as possible cases of invasive bacterial infection	62	Children aged 2–29 months	NS	Malaria +Bacteremia unidentified (25)	25	0	62	0	37	0	NS	NS	Blood culture
Isendahl et al., 2014	Guinea-Bissau	2010	Cross-sectional study	Children with tachycardia and/or fever	372	NS (mean age was 1.7 years)	209 (56%)	Malaria +Bacteremia unidentified (4)	4	17	46	13	42	313	NS	Thin and thick smears for malaria microscopy	Blood culture
Kabore et al., 2021	Burkina Faso	2013-2014	Prospective observational study	febrile	589	children aged 3 months to 15 years	350 (59%)	<i>P. falciparum</i> +Bacteremia (16)	16	175	75	159	59	355	NS	Microscopy , rapid diagnostic test [RDT] and PCR	Blood culture, PCR
Krumkamp et al., 2016	Ghana	2007-2012	Case-control study	Febrile	6,746	Children <15 years of age	3,661 (54.3%)	<i>P. falciparum</i> +Invasive Non-typhoidal <i>Salmonella</i> (34)	34	2,530	445	2,479	411	3,822	NS	Thick-blood film examination	Blood culture

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Lepage et al., 1987	Rwanda	1984-1985	Case-control study	Febrile	900	Children aged under 15 years	NS	<i>P. falciparum</i> +Bacteremia (30)	30	30	112	0	82	788	NS	Thick-drop smear	Blood culture
Maltha et al., 2014	Burkina Faso	2012-2013	Prospective observational study	Febrile and/or signs of severe illness	711	children aged under 15 years	393 (55.3%)	Malaria +Bacteremia unidentified (7)	7	292	63	285	56	363	Higher case-fatality rates	Thick and thin-blood film examination , rapid diagnostic test [RDT]	Blood culture
Morch et al., 2017	India	2011-2012	Prospective observational study	Febrile	1,564	≥5 years old	895 (57%)	<i>P. falciparum</i> (12), other <i>Plasmodium</i> (13) +Bacteremia include , <i>Staphylococcus aureus</i> , <i>Salmonella typhi</i> and <i>S. paratyphi</i>	25	268	124	243	99	1,197	NS	Blood smear, rapid diagnostic test [RDT] and PCR	Blood culture
Mourembou et al., 2016	Gabon	NS	Case-control study	Febrile	410	Children under 15 years	212 (51.7%)	<i>P. falciparum</i> + <i>T. whipplei</i> , <i>S. aureus</i> , and <i>S. pneumoniae</i> (1), <i>P. falciparum</i> + <i>S. aureus</i> and <i>S. pneumoniae</i> (3), <i>P. falciparum</i> + <i>S. aureus</i> , and <i>S. pyogenes</i> (1), <i>P. falciparum</i> + <i>non-typhi Salmonella</i> (3), <i>P. falciparum</i> + <i>S. aureus</i> (1), <i>P. falciparum</i> + <i>S. pneumoniae</i> (5)	14	323	22	309	8	79	NS	Thick blood film, RT-PCR	blood cultures, RT-PCR
Moyo et al., 2020	Tanzania	2017-2018	Cross-sectional study	Febrile	2,226	Children aged 0–5 years	1,299 (58%)	<i>P. falciparum</i> + <i>Serratia marcescens</i> (2), + <i>K. pneumoniae</i> (2), + <i>E. coli</i> (1), + <i>Acinetobacter ursingii</i> (1), + <i>Alcaligenes faecalis</i> (1), + <i>Ochrobactrum tritici</i> (1), <i>E. faecium</i> (1), and <i>S. aureus</i> (1)	10	204	236	194	226	1,796	40% (4/10) had clinically severe disease and high malaria parasitaemia by qPCR, and one of these four children died.	RT-PCR	Blood culture
Msaki et al., 2012	Tanzania	2011	Cross-sectional study	Febrile	231	Children less than 5 years of age	105 (45.5%)	<i>P. falciparum</i> malaria +bacteremia (1)	1	22	17	21	16	193	NS	Thin and thick blood smears	Blood culture
Mtove et al., 2011	Tanzania	2006-2010	Prospective observational study	Febrile	6,836	Children aged 2 months to 14 years	2,422 (46%)	<i>P. falciparum</i> malaria +bacteremia (167)	167	1,898	1,248	1,731	1,081	3,857	NS	Thick and thin-blood film examination , rapid diagnostic test [RDT]	Blood culture
Muthumbi et al., 2015	Kenya	1998-2014	Retrospective study	Febrile or signs of focal sepsis	98,600	All age groups	52,341 (53.1%)	<i>P. falciparum</i> malaria + NTS bacteremia (99)	99	18,896	3,814	18,797	3,715	75,989	NS	Thick and thin films	Blood culture
Nadjm et al., 2010	Tanzania	2006-2007	Prospective observational study	Febrile	3,639	Children aged 2 months to 13 years	NS	<i>P. falciparum</i> + NTS (52), <i>P. falciparum</i> + other bacteria (48)	100	2,195	341	2,095	241	1,203	higher case-fatality rates	Microscopy , rapid diagnostic test [RDT]	Blood culture

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Nielsen et al., 2015	Ghana	2007-2011	Prospective observational study	severe illness	1,915	Children under 15 years	55%	<i>P. falciparum</i> +NTS (21), + <i>Streptococcus</i> spp. (6), + <i>S. aureus</i> (4), + <i>S. pneumoniae</i> (3), + <i>Pseudomonas</i> spp. (3), + <i>Salmonella ser. Typhi</i> (2), + <i>Escherichia coli</i> (2), + <i>Acinetobacter</i> spp. (2), + <i>Klebsiella</i> spp. (1), + <i>Shigella</i> spp. (1) and <i>Chryseobacter</i> spp. (1)	46	771	244	725	198	946	higher case-fatality rates	Thin and thick blood smears	Blood culture
Nyein et al., 2016	Myanmar	2014-2015	Cross-sectional study	Adults with falciparum malaria	67	Adults (NS)	54 (80.6%)	<i>P. falciparum</i> + <i>Escherichia coli</i> (3), + <i>Salmonella</i> Paratyphi A (2), <i>Staphylococcus aureus</i> (2), + <i>Salmonella typhi</i> (1) and + <i>Salmonella typhimurium</i> (1)	9	67	9	58	0	0	NS	Rapid diagnostic test [RDT]	Blood culture
Okwara et al., 2004	Kenya	2001	Cross-sectional study	Febrile	264	Children aged between three months and 12 years	156 (59.1%)	<i>P. falciparum</i> +bacteremia (18)	18	158	32	140	14	92	NS	Thick-blood film examination	Blood culture
Onchiri et al., 2015	Kenya	2012-2014	Prospective cohort study	Febrile	1,476	Children aged 6 months to 15 years	701 (47.5%)	Malaria+Bacteremia unidentified (8)	8	428	48	420	40		NS	Thin and thick smear microscopy, rapid diagnostic tests (RDTs)	Blood culture
Park et al., 2016	Sub-Saharan Africa (Burkina Faso, Ethiopia, Ghana, Guinea-Bissau, Kenya, Madagascar, Senegal, South Africa, Sudan, and Tanzania)	2010-2014	Cross-sectional study	Febrile	13,431	All age groups (except in Ghana, where where only children aged <15 years)	NS	Malaria +gram-positive bacteria (22), Mararia +NTS (15), Malaria + <i>Salmonella</i> Typhi (9), Malaria + gram negative bacteria (7)	53	3,133	497	3,080	444	9,854	NS	Thick and thin blood smears and rapid malaria tests	Blood culture

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Pattanaik et al., 2012	India	2008-2009	Prospective cohort study	Patients categorized into severe and uncomplicated malaria	67	Adults (NS)	NS	<i>P. falciparum</i> + <i>Streptococcus pyogenes</i> (1)	1	67	1	66	0	0	NS	Thick and thin blood smears, rapid diagnostic test [RDT], nested polymerase chain reaction (PCR)	Blood culture
Phoba et al., 2013	Democratic Republic of the Congo (DRC)	2011-2012	Prospective observational study	Febrile	3,311	Children < 5 years old	NS	<i>P. falciparum</i> + <i>Salmonella</i> spp. (74), <i>P. falciparum</i> + other (7)	81	184	114	103	33		NS	Thick and thin blood smears, rapid diagnostic test [RDT]	Blood culture
Phu et al., 2020	Vietnam	1991-2003	Prospective observational study	Adults with severe falciparum malaria	845	Older than 14 years	NS	<i>P. falciparum</i> +S. Typhi (3), +non-typhoid <i>Salmonella</i> (1), + <i>Staphylococcus aureus</i> (2), +Group A <i>Streptococcus</i> (1), <i>H. influenzae</i> type b (1), and <i>Klebsiella pneumoniae</i> (1)	9	845	9	836	0	0	Higher case-fatality rates	Thin- and thick-film malaria parasite counts	Blood culture
Popoora et al., 2019	Nigeria	2017	Cross-sectional study	Febrile	682	All age groups	332 (48.7)	<i>P. falciparum</i> +S. Typhi (6), +non-typhoid <i>Salmonella</i> (1), + <i>Staphylococcus aureus</i> (24), + <i>Klebsiella pneumoniae</i> (1), + <i>Citrobacter koseri</i> (1) and <i>Enterobacter cloacae</i> (1)	34	171	117	137	83	428	NS	Microscopy of thin and thick films	blood cultures, PCR
Sandlund et al., 2012	Sweden	1995-2009	Retrospective study	travelers diagnosed with malaria	755	All age groups	NS	<i>P. falciparum</i> + <i>Salmonella enterica</i> serovar Enteritidis (1), <i>Plasmodium</i> spp. + <i>Escherichia coli</i> (1)	2	755	2	753	0	0	NS	Thick and thin blood smears, rapid diagnostic test [RDT], PCR	Blood culture
Shimelis et al., 2020	Ethiopia	2018-2019	Prospective cross-sectional study	Febrile	433	Children aged at least 2 months and under 13 years	255 (58.9%)	Malaria +Bacteremia unidentified (1)	1	14	24	13	23	396	NS	Thick and thin blood smear slides	Blood culture
Sothmann et al., 2015	Ghana	2012	Case-Control Study	Febrile	2,306	Children below 15 years of age	1235 (53.6%)	Malaria +Bacteremia unidentified (16)	16	866	72	850	56	1,384	NS	Thin and thick blood slides	Blood culture
Thriemer et al., 2012	Tanzania	2009-2010	Case-Control Study	Febrile	2,209	Above the age of 2 months	NS	<i>P. falciparum</i> + bacteremia (1)	1	29	166	28	165	2,015	NS	Thin and thick blood films	Blood culture

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Ukaga et al., 2006	Nigeria	NS	Case-Control Study	Malaria positive and apparently healthy patients	185	All age groups	NS	<i>Staphylococcus aureus</i> 4 (3.2%), <i>Escherichia coli</i> 3 (2.4%) <i>Salmonella typhi</i> 25 (20%), <i>Klebsiella pneumoniae</i> 10 (2.4%) and <i>Pseudomonas aeruginosa</i> 2 (1.6%).	44	125	44	81	0	60	Persistence of malaria-like symptoms after treatment	Thick and thin blood smears s	Blood culture
Walsh et al., 2000	Malawi	1996-1997	Prospective observational study	Febrile	2,123	Neonate or child >2 months of age	NS	<i>P. falciparum</i> + bacteremia (67)	67	290	365	223	298	1,535	Splenomegaly and anemia	Blood film examination	Blood culture
Were et al., 2010	Kenya	2004-2006	Prospective cohort study	<i>P. falciparum</i> malaria	585	Aged 1 to 36 months	295 (50.4%)	<i>P. falciparum</i> + gram positive bacteria (22), + gram-negative bacteria (37)	59	585	59	526	0	0	Higher case-fatality rates	Thick and thin blood films	Blood culture

