**Table 1. Summary characteristics of included studies**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study ID** | **Outbreak start year** | **Outbreak end year** | **Location** | **Historic Typhoid occurrence** | **Diagnostic method** | **AMR status\*\*** | **Intervention\*\*\*** | **Total suspected cases** | **Total confirmed cases** | **Attack rate (%)** | **CFR (%)** |
| **#52 - Aye 2004** | 2000 | 2000 | Madaya, Myanmar | Frequently occurred from 1989 to 2000 | Blood culture, Widal test, Diazo urine test | susceptible | CHLO/ANTI/EDU | 49 | 3 | 2.9 | - |
| **#395 – Michel 2005** | 2001 | 2001 | Abidjan, Cote d'Ivoire | NA | Blood culture | quinolones | ANTI | 10 | 5 | - | - |
| **#340 - Lewis 2005** | 2002 | 2002 | Bharatpur, Nepal | NA | Blood culture | MDR | CHLO | 5963 | 39 | 6.49 | - |
| **#24 - Al-Sanouri 2008** | 2004 | 2004 | Jordan | NA | Blood culture, Faecal culture | MDR | - | 83 | 24 | - | - |
| **#1407 – Muehlen 2007** | 2004 | 2004 | Leipzig, Germany | 59-88 cases of have been reported annually since 2001. | Blood culture, Widal test and/or specific ELISA | - | - | 6 | 4 | - | - |
| **#415 - Muyembe-Tamfum 2009** | 2004 | 2005 | Kinshasa, DRC | Kinshasa, DRC is an endemic area for typhoid fever. | Surgically diagnosed, blood culture | MDR | surgery/ANTI | 144 | 11 | - | 44.4 |
| **#251 - Holt 2011** | 2004 | 2005 | Mekong river delta, Vietnam | Reported annually between 1991 - 2001 | Blood culture | MDR | - | - | 287 | - | - |
| **#293 – Keddy 2011** | 2005 | 2005 | Delmas, South Africa | In 1993, outbreak occurred in Delmas, Mpumalanga, a town 100 km due east of Johannesburg, South Africa | Culture (not specified), MLVA | susceptible | - | 600 | 49 | - | - |
| **#424 – Neil 2012** | 2007 | 2009 | Kasese, Uganda | NA | Blood culture, faecal culture | MDR | - | 577 | 27 | 8.09 | - |
| **#73 – Bayram 2011** | 2008 | 2008 | Anatolia, Turkey | Exact date of the outbreak unknown, Last outbreak occurred affecting 10 people in Battalgazi town in the vicinity of Malatya (Iseri et al., 2009), [https://www.scielo.br/j/bjm/a/6qGZb7n4CZmjFz8cYYSkRpH/?lang=en#](https://www.scielo.br/j/bjm/a/6qGZb7n4CZmjFz8cYYSkRpH/?lang=en) | Blood, stool, urine culture | MDR | CHLO | 637 | 91 | - | - |
| **#1408 – Scobie 2014** | 2008 | 2011 | Fiji | Since 2005, at least 13 outbreaks have been reported | Blood, stool, or urine specimen culture | - | ViPS vaccine | 1765 | 1582 | - | - |
| **#353 - Lutterloh 2012** | 2009 | 2009 | Malawi–Mozambique | Endemic in Malawi and Mozambique | TUBEX, blood culture, stool culture | MDR | CHLO/EDU | 303 | 46 | - | 4 |
| **#344 - Limpitikul 2014 (1)** | 2009 | 2010 | Songkhla, Thailand | Endemic in Thailand, the incidence varies according to region (central, northern, north-eastern, and southern) | Blood culture | susceptible | - | - | 137 | - | - |
| **#344 - Limpitikul 2014 (2)** | 2010 | 2011 | Songkhla, Thailand | Endemic in Thailand, the incidence varies according to region (central, northern, north-eastern, and southern) | Blood culture, faecal culture | susceptible | - | - | 231 | - | - |
| **#344 - Limpitikul 2014 (total)** | 2009 | 2011 | Songkhla, Thailand | Endemic in Thailand, the incidence varies according to region (central, northern, north-eastern, and southern) | Blood culture, faecal culture | susceptible | - | - | 368 | - | - |
| **#245 - Hendriksen 2015** | 2010 | 2012 | Lusaka, Zambia | NA | Stool, blood culture | MDR | - | 2040 | 94 | - | 0.5 |
| **#585 - Walters 2014 (1)** | 2009 | 2011 | Kasese, Uganda | \*From [#424 – Neil 2012], last outbreak occured in 2007-2009, Kasese, Uganda | Blood and stool culture | MDR | - | 709 | 8 | - | - |
| **#585 - Walters 2014 (2)** | 2011 | 2011 | Bundibugyo, Uganda | \*From [#424 – Neil 2012], last outbreak occured in 2007-2009, Kasese, Uganda | Blood and stool culture | MDR | - | 333 | 16 | - | - |
| **#27 - Ali 2017** | 2011 | 2012 | Kikwit, DRC | Last outbreak occured in 2006. Thereafter, became endemic. | Blood culture, faecal culture | - | - | 1430 | 63 | 0.6 | 1.5 |
| **#458 - Polonsky 2014 (1)** | 2011 | 2012 | Dzivaresekwa, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Blood, bone marrow, bowel fluid or stool culture | - | - | 785 | - | 0.66 | - |
| **#458 - Polonsky 2014 (2)** | 2011 | 2012 | Kuwadzana, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Blood, bone marrow, bowel fluid or stool culture | - | - | 1785 | - | 1.13 | - |
| **#458 - Polonsky 2014 (total)** | 2011 | 2012 | Harare, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Blood, bone marrow, bowel fluid or stool culture | - | - | 3795 | 62 | - | 0.05 |
| **#414 - Muti 2014** | 2011 | 2012 | Harare, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Stool, urine and blood culture | CHL | EDU/WASH | 1078 | 24 | - | - |
| **#257 – Imanishi 2014 (1)** | 2011 | 2012 | Dzivaresekwa, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Blood, stool, urine culture | MDR | chlorine tablets | 1017 | - | - | - |
| **#257 – Imanishi 2014 (2)** | 2011 | 2012 | Kuwadzana, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Blood, stool, urine culture | MDR | chlorine tablets | 1965 | - | - | - |
| **#257 – Imanishi 2014 (total)** | 2011 | 2012 | Harare, Zimbabwe | In January 2010, resurgence occured in Mabvuku and Tafara suburbs of Harare | Blood, stool, urine culture | MDR | chlorine tablets | 4181 | 52 | - | - |
| **#1406 – Cherian 2015** | 2013 | 2013 | Pondicherry, India | Endemic with outbreaks reported from Rajasthan, Maharashtra, Bangalore, West Bengal, and Pondicherry districts | Blood culture, widal test | - | ANTI | 9 | 2 | 3.4 | - |
| **#493 - Roy 2016** | 2014 | 2014 | Assam, India | Since 1990, epidemics reported from different parts of India including Kolkata | Widal test, blood culture | susceptible | - | 79 | 6 | 1.95 | - |
| **#276 - Kabwama 2017** | 2015 | 2015 | Kampala, Uganda | Last outbreak occured in 2011, Kasese and neighboring Bundibugyo District | TUBEX, blood culture | MDR | WASH/CHLO | 10230 | 51 | 0.95 | - |
| **#105 - Burnsed 2018** | 2015 | 2015 | Oklahoma, USA | from 2000 to 2010, 28 outbreaks occured | Blood culture, faecal culture | susceptible | WASH/EDU | 38 | 25 | - | - |
| **#470 - Qamar 2018** | 2016 | 2017 | Hyderabad, Pakistan | Endemic in South Asia | Blood culture | XDR | Active surveillance | - | 486 | - | >1 |
| **#155 - Davis 2018** | 2016 | 2017 | Harare, Zimbabwe | \*From [#458 - Polonsky 2014], last outbreak occured in 2012, Harare, Zimbabwe | Blood culture, faecal culture | CIP | WASH/CHLO | 860 | 80 | - | 0.5 |
| **#255 – Hu 2022** | 2016 | 2016 | Lanling, China | Endemic in China, outbreak is rarely reported until 2015 | Blood culture, faecal culture | TMP-SMX | water pipes renewed | 31 | 25 | - | - |
| **#619 – Yousafzai 2019** | 2016 | 2017 | Hyderabad, Pakistan | Endemic in South Asia | Blood culture | XDR | CHLO/WASH | 101 | 101 | - | - |
| **#243 – Hechaichi 2023** | 2016 | 2016 | Gabes, Tunisia | NA | Blood, bone marrow, bowel fluid, stool culture | susceptible | WASH/EDU | 187 | 74 | 16.24 | - |
| **#417 - N'Cho 2019** | 2017 | 2018 | Harare, Zimbabwe | \*From [#155 - Davis 2018], last outbreak occured in 2017, Harare, Zimbabwe | Blood, stool, or rectal swab culture | CIP | WASH/CHLO/EDU | 3187 | 191 | - | - |
| **#67 – Bano-Zaidi 2018** | 2017 | 2018 | Yucatan, Mexico | Last major outbreak occurred in the early 1970s. | Blood, bone marrow, stool culture, widal test | AMP, CHL | - | 110 | 66 | - | - |
| **#364 – Makungo 2020** | 2017 | 2017 | Makhuduthamaga, South Africa | Last outbreaks occurred in 2005 in Delmas, Mpumalanga province | Blood, stool, rectal swabs culture | susceptible | WASH/CHLO/EDU | 122 | 7 | - | - |
| **#459 – Poncin 2022** | 2018 | 2019 | Harare, Zimbabwe | \*From [#417 - N'Cho 2019], last outbreak occured in 2018, Harare, Zimbabwe | Blood and stool culture | - | TCV | 1967 | - | - | - |
| **#428 – Nimonkar 2022** | 2019 | 2019 | Amritsar, India. | Endemic in India | Blood culture | - | - | 75 | 75 | 1.64 | - |
| **#539 – Srinivasan 2022** | 2019 | 2019 | Vellore, India | Endemic in India | Blood culture | CIP | - | 51 | 51 | 0.9 | - |
| **#593 – Wang 2022** | 2022 | 2022 | Beijing, China | NA | Blood culture | XDR | WASH/CHLO | 23 | 23 | 21.7 | - |

\*source not from study author, but from our own time-series data

\*\*AMP=Ampicillin, CHL=Chloramphenicol, CIP=Ciprofloxacin, MDR=Multi-drug-resistant, TMP-SMX= Trimethoprim/ sulfamethoxazole, XDR=Extensively drug-resistant

\*\*\*ANTI=Antimicrobials, CHLO=Water source Chlorination, EDU=Public Health Education, TCV=Typhoid Conjugate Vaccine, WASH=Wash, Sanitation, and Hygiene