Appendix

**Table A1: Details of studies reporting drug susceptibility/resistance of *C. neoformans***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author** | **Year** | **Study design** | **Study period** | **Country** | **Level of care** | **Population description** | **Number of patients** | **Number of isolates** | **Samples collected from** |
| Andrade-Silva et al. 45 | 2013 | LSS | SC | 1998-2010 | Brazil | Tertiary | AIDS patients | 95 | 95 | CSFBloodUrineSkin lesions |
| Bariao et al. 95 | 2020 | LSS | SC | 2012-2017 | Brazil | Tertiary | Patients who were hospitalised | 72 | 72 | BloodCSF |
| Bertout et al. 58 | 2012 | PCS | SC | Unclear | Cameroon | Unclear | HIV-positive patients with cryptococcal meningitis with no systemic treatment | 23 | 114 | CSF |
| Chen et al. 47 | 2015 | LSS | SC | Jan 2001 to Dec 2012 | Taiwan | Tertiary | Patients with invasive cryptococcosis | 93 | 89 | CSFBlood |
| Chen et al. 46 | 2018 | LSS | MC | Jan 2016 - Nov 2017 | China | Unclear | Patients hospitalized in Jiangxi hospitals | 86 | 86 | CSFBloodHydrothoraxMarrow |
| Chowdhary et al. 96 | 2011 | LSS | MC | 2002-2009 | India | Unclear | HIV patients  | 160 | 160 | CSFBloodSputumUrineEndotracheal secretion |
| Cogliati et al. 97 | 2018 | LSS | MC | 1997-19992010-20162000-2009 | Italy | Unclear | HIV+/- patients, 80% was HIV+ | 302 | 302 | CSFBlood |
| Córdoba et al. 51 | 2016 | LSS | MC | 2000-2014 | Argentina | Tertiary | AIDS-associated CM patients | 707 | 707 | Unclear |
| de Oliveira et al. 98 | 2017 | LSS | MC | Unclear | Brazil | Unclear | Cryptococcosis patients attended medical centres located in the Midwest and Southeast regions of Brazil | 83 | 58 | CSFBlood |
| Espinel-Ingroff et al. 56 | 2012 | LSS & ECV determination | MC | Unclear | EuropeUnited StatesArgentinaAustraliaBrazilCanadaCubaIndiaMexicoSouth Africa | Unspecified | Unclear | Unclear | 6092 | Various clinical isolates from patients’ samples |
| Espinel-Ingroff et al 60 | 2012 | LSS & ECV determination | MC | Unclear | EuropeUnited StatesAustraliaBrazilCanadaIndiaSouth Africa | Unclear | Unclear | Unclear | 3590 | Unclear |
| Espinel-Ingroff et al. 61 | 2015 | LSS & ECV determination | MC | Unclear | Unclear | Unclear | Unclear | Unclear | 1308 | Unclear |
| Fan et al. 57 | 2016 | LSS  | MC | Aug 2009 - July 2014 | China | Tertiary | Patients (one strain per patient) from the CHIF-NET study, a laboratory-based, national multicentre surveillance programme | 305 | 305 | CSFBloodOthers |
| Gonzalez et al. 100 | 2016 | LSS | MC | Oct 1995 to Oct 2011 | Mexico | Tertiary | Most of the isolates derived from patients had as a main risk factor an HIV-positive infection. | 156 | 153 | Unclear |
| Govender et al. 101 | 2011 | PBS | MC | March 2002 - Feb 20082002-20032007-2008 | South Africa | Tertiary | Patients who had been diagnosed with the first episode of laboratory-confirmed cryptococcosis | 1033 out of 8439 incident cryptococcosis met the selection criteria | 487 | CSFBloodOther |
| Tewari et al. 49 | 2012 | LSS | MC | Unclear | India | Tertiary | 12 HIV+ patients50 HIV- patients | 62 | 62 | CSFtracheal aspiratebloodsputum |
| Gutch et al. 50 | 2015 | LSS  | MC | Unclear | India | Unclear | HIV+ patients | 9 | 58 | BloodUrineSputumCSFEnvironmental samples (n=54) |
| Hagen et al. 52 | 2016 | LSS | SC | 1973-2013 | Denmark | Tertiary | Unclear | Unclear | 108 | Unclear |
| Herkert et al. 53 | 2018 | LSS  | MC | 1987-2015 | Brazil | Tertiary | HIV+ patients | 197 | 219 | Unclear |
| Hurtado et al. 70 | 2019 | AS | MC | Nov 2013 - Mar 2015 | Brazil | Tertiary | 284 deceased patientsCause of death assigned to a cryptococcal infection | 284 | 8 | CSFBlood |
| Kassi et al 66 | 2016 | LSS | MC | May 2012 - Sept 2014 | Ivory Coast | Tertiary | Patients with HIV positive, and none of them received a systemic antifungal treatment | 61 | 363 | CSF |
| Mahabeer et al. 102 | 2014 | LSS | SC | Aug 2009 - March 2011 | South Africa | Tertiary | Patients who were 18 years or older who had a positive cryptococcal antigen test on CSF were included in the study. All patients were naive to antifungal therapy and combination antiretroviral therapy at enrolment  | 128 | 113 | CSF |
| Mahabeer et al. 103 | 2014 | LSS | MC | Aug 2009 - March 2011 | South Africa | Tertiary | HIV-infected patients (18 years or older) experiencing their first episode of CM | 128 | 113 | CSF |
| Mdodo et al. 35 | 2011 | LSS | MC | Aug 2008 - Mar 2009 | Kenya | Tertiary | HIV positive patients from Kenyatta National Hospital and Mbagathi District Hospital in Nairobi Kenya | 67 | 67 | CSF |
| Naicker et al. 104 | 2020 | PCS | MC | 2007-2008Jan 2017 - Mar 2017 | South Africa | Unclear | Patients with the first episode of culture-confirmed cryptococcal disease at 37 South African hospitals | 2007-2008 (n = 249)2017 (n = 204) | 2007-2008 (n = 249)2017 (n = 204) | CSFBloodOther |
| Nascimento et al. 105 | 2017 | LSS | SC | 2000 - 2011 | Brazil | Tertiary | Patients with CM | 61 | 87 | CSF |
| Nishikawa et al. 106 | 2019 | LSS | MC | 1995-2006 | Brazil | Tertiary | Patients from the Amazon region in northern Brazil | 62 | 62 | Unclear |
| Pan et al. 54 | 2012 | LSS | MC | Unclear | ChinaJapanIndiaIndonesiaThailandKuwaitQatar | Tertiary | HIV-infected patientsHIV negative patientsOr unknown HIV patients | 426 | 426 | Unclear |
| Pfaller et al. 107 | 2011 | LSS | MC | 1996 - 2008 | Isolates obtained from the ARTEMIS and SENTRY Antimicrobial Surveillance Programs.Regions:Asia PacificLatin AmericaEuropeNorth America | Unclear | Patients from 61 medical centres in 23 countries in the ARTEMIS (178 isolates) and SENTRY | 285 (first collection)986 (second collection) | 285 (first collection)986 (second collection) | Unspecified clinical isolates |
| Prakash et al. 55 | 2020 | LSS | MC | 2001 - 2014 | India | Unclear | Patients from six hospitals in Delhi, Uttar Pradesh, Chandigarh, Himachal Pradesh, Kerala and Manipal representing states of north India, north-east, north-west and south India. | 296 | 523 | Unclear |
| Rakotoarivelo et al. 37 | 2020 | CSS | MC | Nov 2014 - Dec 2016 | Madagascar | Tertiary | Consecutive HIV-infected adults presenting with CD4cellcounts ≤200/µl | 129 | 13 | CSF |
| Selb et al. 59 | 2019 | LSS | MC | 2011-2017 | Germany | Tertiary | Patients with cryptococcosis diagnosed in Germany | 133 | 133 | Unclear |
| Smith et al. 48 | 2015 | LSS | MC | 2010 - 2014 | Uganda | Tertiary | HIV infected and was presenting with his or her first episode of cryptococcal meningitis.  | 198 | 198 | CSF |

AS = Autopsy study; CSS = Cross sectional study; LSS = Lab surveillance study; MC = Multi-centre; PBS = Population-based surveillance; PCS = Prospective cohort study; RSC = Retrospective cohort study; SC = Single centre

**Table A2: Studies reporting drug susceptibility/resistance of *C. gattii***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author** | **Publication year** | **Study design** | **Study period** | **Country** | **Level of care** | **Population description** | **Number of isolates** | **Samples collected from** |
| Espinel-Ingroff et al. 56 | 2012 | RCS | MC | Collection period not specified | 15 to 24 laboratories (Europe, United States, Argentina, Australia, Brazil, Canada, Cuba, India, Mexico, and South Africa)  | Tertiary | Patients with *C. gattii* infections | 705 to 975 | Various sites, from participating laboratories  |
| Espinel-Ingroff et al. 60 | 2012 | RCS | MC | Collection period not specified | 8 to 16 laboratories in Europe, the United States, Australia, Brazil, Canada, India, and South Africa | Tertiary | Patients with *C. gattii* infections | 853 to 985 | Various sites, from participating laboratories  |
| Espinel-Ingroff et al. 61 | 2015 | RCS | MC | Collection period not specified | United States, India, Mexico, Netherlands | Tertiary | Patients with *C. gattii* infections | 406 | Various sites, from participating laboratories  |
| Firacative et al. 63 | 2016 | RCS | MC | Collection period not specified | Australia (n = 1), Colombia (n = 37), Guatemala (n = 1), Mexico (n = 14), New Zealand (n = 1), Paraguay (n = 1),United States (n = 66) Venezuela (n = 1) | Unknown | Patients with *C. gattii* infections | 122 (56 clinical) | Various sites, from participating laboratories  |
| Lee et al. 64 | 2019 | RCS | MC | 2008-2017 | Australia | Unknown | Patients with cryptococcal infections | 55 | Various sites, from mycology collection |
| Lockhart et al. 62 | 2012 | RCS | MC | Collection period unknown (collection library) | United States Pacific Northwest (PNW), Other US regions, Botswana, South Africa, Australia, India | Unknown | Patients with *C. gattii* infections | 298 | Various sites, from participating laboratories  |

MC = Multi-centre; RCS = Retrospective cohort study