Table 1. Risk of bias of included studies.

Author	Year	Risk Level
Arendrup[27]	2013	Low
Arikan-Akdagli[75]	2019	Unclear
Awad[76]	2018	Unclear
Badiee[19]	2017	Unclear
Bassetti[11]	2011	Low
Castanheira[28]	2020	Low
Castanheira[29]	2014	Low
Castanheira[24]	2014	Unclear
Chen[77]	2017	Unclear
Desnos-Ollivier[78]	2019	Unclear
Fuller[36]	2019	Low

Seyoum[26]	2020	Unclear
Hrabovsky[79]	2017	Low
Israel[21]	2019	Low
Jung[30]	2020	Low
Kakeya[31]	2018	Unclear
Kaur[12]	2020	Low
Kaur[23]	2020	Unclear
Kronen[13]	2018	Low
Lausch[32]	2018	Low
Omrani[14]	2014	Unclear
Orasch[33]	2018	Low
Pfaller[80]	2011	Unclear
Pfaller[25]	2015	Unclear
Puig-Asensio[34]	2014	Low

Salse[81]	2019	Unclear
Sasso[37]	2017	Low
Siopi[35]	2020	Low
Tóth[22]	2019	Unclear
van Schalkwyk[15]	2018	Low
Yacoub[16]	2016	Low
Yang[82]	2018	Unclear
Zeng[83]	2019	Low

Table 1. Mortality associated with *P. kudriavzevii.*

Author	Year	Study design		Study period	Country	Level of care	Population description	Number of patients	Number of *P. kudriavzevii* infected patients	Mortality (type, n/n, %)
Bassetti[11]	2011	Prospective cohort study	Single centre	01/2008-12/2010	Italy	Tertiary	Patients with candidaemia	348	9	5/9 (55.5%)
Kaur[12]	2020	Retrospective cohort study	Single centre	01/2014-12/2014	India	Tertiary	Adult and paediatric patients with candidaemia	316 (n=186 paediatric, 130 adults)	316	Paediatric patients: 17/74 (22.94%) Adult patients: not reported
Kronen[13]	2018	Retrospective cohort study	Single centre	01/2002-01/2015	United States	Tertiary	Patients with candidaemia	1873	59	90-day all-cause mortality for bloodstream infection (BSI): 64.40%

Omrani[14]	2014	Retrospective cohort study	Single centre	01/2003-12/2012	Saudi Arabia	Tertiary	Patients with invasive *Candida* infections	652	9	30-day mortality: 4/9 (44%) 90-day mortality: 6/9 (67%)
van Schalkwyk[15]	2018	Retrospective cohort study	Single centre	01/2012-12/2016	South Africa	Tertiary	Neonates with bloodstream infections during multiple outbreaks	589 during the first outbreak	48	7/48 (14.6%)
Yacoub[16]	2016	Retrospective cohort study	Single centre	01/2001-06/2014	United States	Tertiary	Cancer patients with candidaemia	247	32	19.23%

Table 3. Studies reporting drug susceptibility of *P. kudriavzevii.*

Author	Year	Study design		Study period	Country	Level of care	Population description	Number of patients	Number of isolates	Number of *P. kudriavzevii* isolates	Samples collected from
Arendrup[27]	2013	Prospective national surveillance study	Multi-centre	2010-2011	Denmark	Tertiary	Patients with fungaemia	995	1081 fungal isolates	52	Blood
Arikan-Akdagli[75]	2019	Retrospective cohort study	Multi-centre	1997-2017	Turkey	Tertiary	*Candida* spp. isolates from 12 centres	ND	1991 *Candida* spp.	52	Blood
Badiee[19]	2017	Cross sectional study	Multi-centre	2014-2015	Iran	Tertiary	Immunocompromised patients admitted to 10 hospitals in Iran	ND	846 *Candida* spp.	23	Various sites (blood, CSF, bronchoalveolar

											lavage, and sputum)
Castanheira[28]	2020	Global surveillance study	Multi-centre	01/2016-12/2017	Asia Pacific, Europe, Latin America, North America	Tertiary	Patients with *Candida* infections (from 60 hospitals in 25 countries)	2936	2936 *Candida* spp.	76	Various sites (majority blood)
Castanheira[29]	2014	Global surveillance study	Multi-centre	2012	Europe, Latin America, North America and the Asia-Pacific Region	Tertiary	Patients with invasive fungal infections	ND	1717	36	Various (blood, sterile body fluids, tissues, abscesses, respiratory tract)
Castanheira[24]	2014	Cross sectional study	Multi-centre	2012	North America, Europe, Latin	Tertiary	Patients with *Candida* spp. infection (from	ND	1421	32	Various (blood, sterile body

					America, and the Asia Pacific region		75 medical centres globally)				fluids, tissues, abscesses)
Chen[77]	2017	Retrospective cohort study	Single centre	01/2007-12/2012	Taiwan	Tertiary	Patients with candidaemia	ND	709 *Candida* spp.	13	Blood
Desnos-Ollivier[78]	2019	Retrospective cohort study	Multi-centre	01/2015-10/2017	France	Tertiary	Patients with invasive infections	ND	1457	76	Blood (majority), CSF and other
Fuller[36]	2019	Prospective cohort study	Multi-centre	01/2011-10/2016	Canada	Tertiary	Patients with bloodstream infections	ND	1882 *Candida* spp.	81	Blood
Seyoum[26]	2020	Retrospective cohort study	Multi-centre	01/2018-09/2018	Ethiopia		Patients with yeast isolated	ND	209 yeast	14	

Hrabovsky[79]	2017	Retrospective cohort study	Single centre	01/2013-06/2015	Slovakia	Tertiary	Adult non-neutropenic ICU patients	426	800 yeasts	69	Sterile (n=101), non-sterile body sites (n=699)
Israel[21]	2019	Retrospective cohort study	Multi-centre	01/2005-12/2016	Israel	Tertiary and secondary	Patients with candidaemia	899	919 *Candida* spp.	54	Blood
Kaur[12]	2020	Retrospective cohort study	Single centre	01/2014-12/2014	India	Tertiary	Adult and paediatric patients with candidaemia	316 (n=186 paediatric, 130 adults)	316 *Candida* spp.	96	Blood
Kaur[23]	2020	Retrospective cohort study	Single centre	01/1999-12/2018	India	Tertiary	Patients with candidaemia	7927	7927	527	Blood

Omrani[14]	2014	Retrospective cohort study	Single centre	01/2003-12/2012	Saudi Arabia	Tertiary	Patients with invasive *Candida* infections	652	800 *Candida* spp.	9	Sterile sites (blood, CSF, other body fluid, tissue biopsies)
Pfaller[80]	2011	Retrospective cohort study	Multi-centre	01/2008-12/2009	Asia-Pacific (16 centres, 51 isolates), European (25 centres, 750 isolates), Latin American (10 centres, 348 isolates) and North American (28 centres, 936 isolates) regions.	Tertiary	Patients with candidaemia reported under global surveillance	1752	1752	36	Blood

Pfaller[25]	2015	Retrospective cohort study	Multi-centre	2013	North America (695 isolates, 29 sites), Europe (511 isolates, 19 sites), the Asia-Pacific region (222 isolates, 12 sites), and Latin America (185 isolates, 10 sites).	Tertiary	Patients with invasive fungal infections	1320	1320 *Candida* spp.	37	Blood (majority), sterile body fluids (CSF, pleural and peritoneal fluids), tissues, abscesses, respiratory tract and other
Salse[81]	2019	Retrospective cohort study	Multi-centre	2004-2018	France	Tertiary	Patients with infections by yeast and *Aspergillus fumigatus* species from	ND	575	575	Blood, sterile sites and other sites, such as bronchoalv

							12 French hospitals				eolar lavage, sputum
Sasso[37]	2017	Retrospective cohort study	Single centre	2007-2016	France	Tertiary	ICU patients with invasive *Candida* infections	244	3557	192	Blood, other sterile sites
Tóth[22]	2019	Retrospective cohort study	Single centre	01/2005-12/2018	Hungary	Tertiary	Patients with *P. kudriavzevii* isolates collected	53	53	53	Sterile body sites (blood, cerebrospinal, pleural and peritoneal fluids, deep wounds, etc.)

Abbreviations: CSF=cerebrospinal fluid, ND=no data, ICU=intensive care unit.

Table 4. Drug susceptibility of *P. kudriavzevii* to azoles.

Author	Year	MIC method	Fluconazole	Isavuconazole	Itraconazole	Posaconazole	Voriconazole
Arendrup[27]	2013	EUCAST (EUCAST BP, CLSI BP for itraconazole)	(n=52) 0% S	ND	(n=52) 28.8% S	(n=52) 3.8% S	(n=52) 11.5% S
Arikan-Akdagli[75]	2019	CLSI	(n=52) GM MIC (range): 27.64 (8- >64), 100% R	ND	0.17 (≤0.015-0.5), 0% non-WT	0.14 (≤0.03-1), 1.9% non-WT	0.07 (0.03-0.125), 100% S
Badiee[19]	2017	CLSI (susceptibility based on CLSI BP, or ECV)	GM MIC (range): 17.9 (2-64), >64 (5%) non-WT	ND	0.2 (0.064-1), 33.3% R	0.126 (0.032-0.5), >0.5 (5%) non-WT	0.284 (0.032-16), 20% R
Castanheira[28]	2020	CLSI	ND	ND	ND	0% non-WT	1.3% R (5% R in North America, n=20)
Castanheira[29]	2014	CLSI	ND	ND	ND	5.6% R	2.8% R

Castanheira[24]	2014	CLSI	ND	MIC/MEC range: 0.12-2, MIC/MEC_{50}: 0.5, MIC/MEC_{90}: 0.5, % not available	0.25-4, 0.25, 0.5, 3.1% non-WT	0.12-2, 0.25, 0.5, 6.3% non-WT	0.12-4, 0.25, 0.25, 3.1% non-WT
Chen[77]	2017	Sensititre YeastOne	MIC range: 32-128, MIC_{50}: 64, MIC_{90}: 64 Considered intrinsically resistant	ND	ND	ND	0.12-0.5, 0.5, 0.5, 0% R 100% S
Desnos-Ollivier[78]	2019	EUCAST	MIC range:16- ≥64, MIC_{50}: 32, MIC_{90}: 64 %R not available (considered intrinsically resistant)	MIC range:0.015-1, MIC_{50}: 0.125, MIC_{90}: 0.25 %isolates with MIC>MIC_{90}: 6.58%	ND	ND	ND
Fuller[36]	2019	CLSI	mode MIC: 8, MIC_{90}: 16	ND	ND	ND	MIC_{90}: 0.25

Seyoum[26]	2020	VITEK 2 compact system	n=14, 100% R	ND	ND	ND	0% R
Hrabovsky[79]	2017	EUCAST	(n=40 isolates for invasive disease) MIC range: 2-256, MIC_{50}: 256, MIC_{90}: 256 100% R	ND	ND	ND	0.094-4, 0.5, 1, 5% R
Israel[21]	2019	CLSI	NA (considered intrinsically resistant)	ND	ND	ND	(n=54), 3.8% R
Kaur[12]	2020	CLSI	ND	ND	(n=82 paediatric isolates) GM MIC (range): 0.31 (0.12-0.5),	0.24 (0.06-0.5), 0.25, 0.5	0.41 (0.05-8), 0.25, 0.25

					MIC_{50}: 0.25, MIC_{90}: 0.5		
Kaur[23]	2020	CLSI	For 2014-2018 period: 40.5% R	ND	4.2% R	0% R	1.9% R
Omrani[14]	2014	CLSI	n=13, 0% S	ND	ND	ND	n=6, 100% S
Pfaller[80]	2011	CLSI	ND	ND	ND	n=16 ICU, 0% R n=20 non-ICU, 0% R	n=16 ICU, 0% R n=20 non-ICU, 0% R
Pfaller[25]	2015	CLSI	MIC/MEC range: 8->128, MIC_{50}: 32, MIC_{90}: 64, Intrinsically resistant.	MIC/MEC range: 0.12-4, MIC_{50}: 0.5, MIC_{90}: 1	MIC/MEC range: 0.25-2, MIC_{50}: 0.5, MIC_{90}: 1, 2.7% non-WT 97.3% WT	MIC/MEC range: 0.25-1, MIC_{50}: 0.5, MIC_{90}: 0.5, 2.7% non-WT, 97.3% WT	2.7%R, 94.6% S

Salse[81]	2019	E-test	n=414, mode MIC: >256	ND	ND	ND	n=575, mode MIC: 0.5
Sasso[37]	2017	E-test (CLSI BP)	100% R (n=48) (averaged for 2007-2016)	ND	ND	ND	79.4% S (n=55) 29.6% I (n=47) (averaged for 2007-2016)
Tóth[22]	2019	CLSI	mode MIC (range): 32 (8- >32), MIC_{50}: 32 MIC_{90}: >32 %R ND	ND	ND	ND	ND

Data are reported as they appear in source documents. Susceptibility is expressed as mg/L unless indicated otherwise. Abbreviations: BP=breakpoint, CLSI=Clinical and Laboratory Standards Institute, ECV=epidemiological cutoff value, EUCAST= European Committee on Antimicrobial Susceptibility Testing, R=resistant, S=susceptible, S-DD=susceptible dose-dependent, I=intermediate, MIC= minimum inhibitory concentration, MEC=minimum effective concentration, GM= geometric mean, NA/ND= not applicable / not done, MIC_{50}=MIC required to inhibit the growth of 50% of isolates, MIC_{90}=MIC required to inhibit the growth of 90% of isolates, ND= no data, Non-WT = non wild-type.

Table 5. Drug susceptibility of *P. kudriavzevii* to non-azole antifungal drugs.

Author	Year	MIC method	Anidulafungin	Caspofungin	Micafungin	Amphotericin B	Flucytosine
Arendrup[27]	2013	EUCAST (EUCAST BP, CLSI BP for caspofungin and itraconazole)	(n=52) 100% S	(n=25) 28% S	ND	(n=52) 73.1% S	ND
Arikan-Akdagli[75]	2019	CLSI	ND	ND	0.08 (≤0.03-0.25), 100% S	1.32 (0.5-2), 0% non-WT	ND
Badiee[19]	2017	CLSI (susceptibility based on CLSI BP, or ECV)	ND	0.2 (0.032-2), 30% R	ND	1.004 (0.032-8), 40% R	ND
Castanheira[28]	2020	CLSI	0% R	0% R	0% R	0% non-WT	ND
Castanheira[29]	2014	CLSI	2.8% R	2.8% R	0% R	ND	ND
Castanheira[24]	2014	CLSI	0.03-1, 0.06, 0.12, 3.1% non-WT	0.06-1, 0.12, 0.25, 3.1% non-WT	0.015-0.12, 0.12, 0.12, 0% non-WT	1-2, 1, 2, 0% non-WT	8-32, 16, 16, 0% non-WT

Chen[77]	2017	Sensititre YeastOne	0.12-0.25, 0.12, 0.12, 0% R 100% S	0.25-0.5, 0.5, 0.5, 0% R 23.1%S 76.9% I	0.6-0.12, 0.12, 0.12, 0% R 100% S	ND	ND
Fuller[36]	2019	CLSI	ND	MIC not available, 0% R	MIC not available, 0% R	MIC not available, 100% WT (based on ECV ≤2)	ND
Seyoum[26]	2020	VITEK 2 compact system	ND	0% R	0% R	ND	78.6% R
Hrabovsky[79]	2017	EUCAST	0.002-0.19, 0.008, 0.023, 5% R	0.002-0.25, 0.063, 0.125, %R ND	ND	0.19-2, 0.5, 1, 5% R	ND
Israel[21]	2019	E-test (CLSI BP)	ND	67% R	ND	1.9% R	ND

Kaur[12]	2020	CLSI	0.28 (0.03-4), 0.12, 0.5	0.35 (0.12-2), 0.12, 0.5	0.45 (0.06-12), 0.12, 0.5	0.90 (0.25-2), 1, 1	ND
Kaur[23]	2020	CLSI	1.9% R	16% R	2.5% R	12.9% R	ND
Omrani[14]	2014	CLSI	ND	n=6, 66.7% S	ND	n=14, 100% S	ND
Pfaller[80]	2011	CLSI	n=16 ICU, 0% R	n=16 ICU, 6.3% R	n=16 ICU, 0% R	ND	ND
			n=20 non-ICU, 0% R	n=20 non-ICU, 5.0% R	n=20 non-ICU, 0% R		
Pfaller[25]	2015	CLSI	0% R, 100% S	0% R, 100% S	0% R, 100% S	MIC/MEC range: 1-2, MIC_{50}: 1, MIC_{90}: 2,	MIC/MEC range: 8-32, MIC_{50}: 16, MIC_{90}: 32,

						0% non-WT, 100% WT	0% non-WT, 100% WT
Salse[81]	2019	E-test	n=117, mode MIC: 0.03	n=565, mode MIC: 0.5	n=259, mode MIC: 0.25	n=534, mode MIC: 1	ND
Sasso[37]	2017	E-test (CLSI BP)	ND	62.6% S (n=31) 86.8% I (n=50) (averaged for 2007-2016)	ND	100% WT (n=51)	ND
Tóth[22]	2019	CLSI	0.06 (0.015-0.25), 0.06, 0.12, 100% S	1 (0.12-1), 1, 1, 11.3% S 22.6% I 66.1% R	0.25, (0.03-0.25), 0.25, 0.25, 100% S	1 (0.5-2), 1, 1	ND

Data are reported as they appear in source documents. Susceptibility is expressed as mg/L unless indicated otherwise.

Abbreviations: BP=breakpoint, CLSI= Clinical and Laboratory Standards Institute, ECV=epidemiological cutoff value, EUCAST= European Committee on Antimicrobial Susceptibility Testing, R=resistant, S=susceptible, S-DD=susceptible dose-dependent, I=intermediate, ICU=intensive care unit, MIC= minimum inhibitory concentration, MEC=minimum effective concentration, GM= geometric mean, NA/ND= not applicable / not done, MIC_{50}=MIC required to inhibit the growth of 50% of isolates, MIC_{90}=MIC required to inhibit the growth of 90% of isolates, ND= no data, Non-WT = non wild-type.

Table 6. Risk factors for infections caused by *P. kudriavzevii.*

Author	Year	Study design		Study period	Country	Level of care	Population description	Number of patients	Number of *P. kudriavzevii* isolates	Risk factors
Kaur[12]	2020	Retrospective cohort study	Single centre	01/2014-12/2014	India	Tertiary	Adult and paediatric patients with candidaemia	316 (n=186 paediatric, 130 adults)	316	Significantly greater prevalence in paediatric group (44%, 82/186) vs adults (10.8%, 14/130; p<0.001). Gastrointestinal disease (p = 0.018), Prior use of antibiotics (p = 0.021), Exposure to carbapenems (p = 0.039).
Kaur[23]	2020	Retrospective cohort study	Single centre	01/1999-12/2018	India	Tertiary	Patients with candidaemia	7927	527	Paediatric patients: 422/527 (80.1%) paediatric vs 105/527 (19.9%) adults

Kronen[13]	2018	Retrospective cohort study	Single centre	01/2002-01/2015	US	Tertiary	Patients with candidaemia	1873	59	Six variables (multivariate analysis): Hematologic malignancy (OR, 10.7; 95% CI, 5.1-22.4), gastric malignancy (OR, 14.7; 95% CI, 3.0-72.8), neutropenia (OR, 2.1; 95% CI, 1.1-4.1), prior azole use (OR, 2.4; 95% CI, 1.2-4.7), prior monoclonal antibody use (OR, 5.4; 95% CI, 2.0-14.9), and β-lactam/β-lactamase inhibitor use (OR, 2.4; 95% CI, 1.3-4.7) within 90 days prior to *Candida* BSI.
Lausch[32]	2018	Retrospective cohort study	Multi-centre	2010-2011	Denmark	Mixed (data from national surveillance)	Adult patients with candidaemia	841	35	Prior antifungal treatment (AFT): Substantially higher in patients with prior AFT ([12.9% for azoles and 9.1% for echinocandins] vs 2.2% without prior AFT)

van Schalkwyk[15]	2018	Retrospective cohort study	Single centre	01/2012-12/2016	South Africa	Tertiary	Neonates with blood-stream infections during multiple outbreaks	589 during the first outbreak	48	With *P. kudriavzevii* candidaemia vs Without: Necrotizing enterocolitis (aOR 3.1, 95%CI 1.4-6.7), Birthweight (in reference to >2.5kg): extreme low <1kg (aOR 6.5, 95%CI 1.9-21.6), 1- <1.5 kg (6.1 (2.1-17.2)), 1.5-1.9 kg (3.4 (1.1-10.0))

Abbreviations: AFT=antifungal treatment, aOR=adjusted odds ratio, OR=odds ratio, BSI=bloodstream infection.